The impact of the second child on female employment. Is it uniform across European countries?

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Extended abstract prepared for

the Annual Meeting of the Population Association of America

New Orleans, April 11-13, 2013

Abstract

This paper contributes to the discussion on the effects of childbearing on female employment in the developed countries. Previous research has usually either (1) compared the effects of childbearing assuming exogeneity of family size and women's employment or (2) examined these effects by using methods which consider endogeneity but focused on single countries. We combine these two approaches by taking a cross-country comparative perspective and applying quasi-experimental methods .

To this end, we implement IV models, with multiple births as an instrument, to harmonized data from the European Survey on Income and Living Conditions (EU-SILC). We first examine the cross-country variation in the effect size across European countries. Next, we introduce a series of macro-level policy indicators to investigate whether the revealed cross-country differences can be attributed to the diversity of European institutional arrangements regarding compatibility between employment and family duties.

Introduction

European countries represent a huge diversity of institutional conditions that prevent or facilitate combining labour market and family career (Castles 2003, Rindfuss et al. 2003, Brewster and Rindfuss 2000; Ahn and Mira 2002). Although most European governments pursue the goal of raising employment, also among women with children, and in the same time strive for gender equality in labour market opportunities, the progress in implementing these policies differs strongly. This makes Europe an interesting laboratory for research on how these policies mediate the impact of childbearing on female employment.

This research question has been already addressed in numerous empirical studies. Some of them draw on macro-level data and ignore the individual-level heterogeneity of opportunities, resources and preferences among women and their partners (Engelhardt et al. 2004; D'Addio and D'Ercole 2005; Hondroyiannis 2010). The individual-level cross-country comparative research, on the other hand, usually largely employed methods which assume that childbearing decisions are exogenous with respect to the decisions related to the labour market career (see Matysiak and Vignoli 2008 for overview). Furthermore, it often drew conclusions on the differential impact of the institutional context on the incompatibility between family and paid work solely on the basis of the cross-country comparisons, rarely implementing explicit measures of the policy-related influence. The few studies that addressed the issue of endogeneity of family size and women's employment provide evidence for single countries - either solely for US (Rosenzweig and Wolpin 1980; Angrist and Evans 1998; Jacobsen et al. 1999) or for the developing countries (Cruces and Galiani 2007; Caceres-Delpiano 2012) and disregard the differential impact of childbearing on female employment chances. Focusing on single countries or on countries whose institutional setting has not been yet described makes it difficult to comprehend the mediating role of the institutional context for the incompatibility of work and family.

We address two goals in this paper. First of all, we estimate the causal effects of the second child on female employment and compare them across European countries. Second, we examine if the differences in the magnitude of these effects can be related to the mediating impact of the policies oriented at reconciliation of family and work. The value added of this paper is the combination of the two so far distinct approaches that have been used in the existing literature. We use methods which take the endogeneity of childbearing decisions into account while taking a cross-country comparative perspective. We examine if the scale of negative impact of childbearing on women's employment varies across European countries and if this variation can be attributed to the differences in institutional arrangements.

European context

There have been many attempts to classify European countries with respect to the institutional context of work and family reconciliation (Esping-Andersen 1999, Lewis and Ostner 1995, Anttonen and Sipilä 1996, Gauthier 1996, Gornick et al. 1997, Letablier 1998, Trifiletti 1999, Korpi 2000, Bettio and Platenga 2004). Although they differ in the way some countries are assigned to certain family policy models there is a general agreement that the most favourable conditions for combining paid work with rearing children are observed in Nordic Europe. These countries stand out for their exceptionally well-developed childcare services and individualised rights to parental leaves (Leira 2002). At the other extreme, Southern Europe is characterised by very limited institutional support for working parents in terms of public childcare provision and leave schemes.

The conditions for work and family reconciliation in other parts of Europe are more nuanced. Public provision of childcare services in Belgium and France is nearly equally as good as in Nordic countries, but the implemented policies aim rather at ensuring the well-being of families and children, rather than supporting gender equity as it is the case in Nordic Europe (Gauthier 1996). Austria and Germany score already lower in terms of their support for working mothers. In fact, mothers in these two countries have been long encouraged by the family benefit, leave and tax system to stay at home to care for children and even despite some recent changes in reconciliation policies the childcare provision in the two countries remained poor and the opening hours short. In the Anglo-Saxon countries, the availability of public childcare support is also rather low. Although childcare services can be easily purchased on the market, their costs on the parents are usually high.

Finally, the specificity of Central and Eastern Europe (CEE) is related to the legacy of the state socialism. During socialist times, women were expected to play the roles of both income and care providers (Siemienska 1997; Pascall and Manning 2000) and the state provided extensive childcare services either in the form of free-of-charge childcare facilities or in crèches and kindergartens attached to the state-owned enterprises. After the collapse of state socialism the expenditures on reconciliation policies were largely reduced and most of the state-owned enterprises went bankrupt or privatised. Only some of the CEE countries attempted to rebuild the welfare support for working parents in the 2000s. As a result, family policy models in this part of Europe have become more and more diverse with Slovenia and Estonia offering most generous support to working mothers and Czech Republic, Slovakia and Poland pursuing familialism (Szelewa and Polakowski 2008, Matysiak, forthcoming).

Data and methods

Data

In this paper we use The European Survey of Income and Living Conditions (EU-SILC), which includes large samples (between 6 000 and 40 000 respondents for each country) and in the same time covers very detailed information on labour market situation of respondents and the structure of their families.

Based on these data we can analyse and compare the effect of childbearing on mothers employment in over twenty European countries (members of the European Union and additionally, Norway and Iceland) for which the available data provide us with required information on the labour market status and family situation of women. For the purposes of the initial analysis presented in the further part of this paper, we divide these countries in groups which – as described in the previous section – share similar institutional settings.

Next, we use comparable indicators of policies targeted at reconciliation of family duties and paid work. We derive these indicators from three sources: OECD Family Policy Database, MULTILINKS database and EU-SILC data on childcare usage. Cross-national variations in implementation of these policies provide an important opportunity to evaluate the role of public policies in shaping patterns of maternal employment .

Methods

Examination of the impact of the number of children on the female employment chances is challenging from methodological point of view. Women's decisions to have another child may be affected by the factors which simultaneously are strongly related to their motivation for paid work. This means that comparisons of involvement in paid work between women with one child and those with more children by means of standard regression models might lead to misleading conclusions. Rosenzweig and Wolpin (1980) have proposed a solution to this problem, named as „twin-first approach". The basic idea is to use the data on multiple births in order to construct a proper "control group" for women with a given number of children. As long as in general decisions on higher parity births are non-random, women who experienced multiple births may be regarded as a random "sample" that may be used for comparisons with females that experienced births of singletons. Thus, information on twin births can be applied to construct an instrumental variable and to get unbiased estimates of the impact of the number of children on women's employment (see Rosenzweig and Wolpin (1980) and Angirst and Evans (1998) for the use of this methodology for the US). „Twin-first approach" is regarded as comparable to a natural experiment and pointed out as a promising approach in research on the causal effects of fertility (Moffit 2005). It eliminates

not only time-fixed unobserved factors which affect simultaneously fertility choices and decisions regarding paid work, but also allows controlling for time-varying factors which may confound our results.

Since the EU-SILC database provides us with information on the year and quarter of birth of every household member for the majority of the EU countries we are able to identify women who experienced multiple births. These are mainly women who gave birth to twins at first delivery because third or higher order births are rather rare events in the European context. For this reason, our analysis is restricted to examining the effect of the second child on women's employment. Following the twin-first approach, in the first step, we carry out statistical tests for significal differences in employment rates among mothers who gave birth to twins at first birth and women who experienced a single birth at first delivery. This analysis will be carried separately for each group of countries. Next, to improve the precision of our estimates and to quantify the impact of country-specific institutional arrangements we use two stage least squares (2SLS) instrumental variable models with interaction terms implemented in line with Woolridge (2002) suggestion. In the regression framework, we can control for individual-level characteristics of women as well as cross-country variation in the institutional characteristics. This analytical strategy takes two steps. In the first step, the regression equation takes a form:

$$nchild = \alpha_0 + \alpha_1 twin_1 + \alpha_2 X + \alpha_3 interact + \varepsilon \quad (1)$$

where $nchild$ is the total number of children (in our analysis takes one or two), *twin* indicates if a women has experienced a multiple birth, the vector of variables summarised by X reflects other characteristics relevant to the endogenous variable *nchild* such as age, age at first birth and indicators measuring the impact of policies implemented in various countries and the term *interact* summarizes interaction between country-specific policies and experiencing multiple births. The second stage regression explains the female outcomes that are of interest in this study, namely participation in paid work in the following way:

$$paidwork = \beta_0 + \beta_1 \overline{nchild}_1 + \beta_2 X + \beta_3 interact + \varepsilon \quad (2)$$

where $paidwork$ represents the indicator for involvement in paid work, $\overline{nchild}$ are predicted values from the first stage and X contains the same controls as in equation 1.

Preliminary results

In the first step, we calculate the differences in the employment rates in the group of mothers with only one child and in the group of mothers who gave birth to two children, but in an unplanned

way. In other words, we make comparison between the "treatment group" of women who gave birth to *two* children due to a multiple birth at first delivery with a "control" group that gave birth to one child at first birth. We carry out the tests for significance between these two shares for specific countries differing with policy regimes. The results are presented in Table 1.

Table 1. The effects of second child on employment among mothers.

	Effect on mothers' employment rate	Significance of the effect Pr(Z>z)
Scandinavian countries	0.059	0.959
Western Europe	-0.099	0.011
Southern Europe	-0.156	0.000
Central and Eastern Europe	-0.077	0.002

Source: EU-SILC, own calculations.

According to our results, the effect of having the second, unplanned, child is lowest in the Nordic countries –among mothers in Scandinavian countries such an increase in the family size does not mean a significant reduction of employment rate. A quite different picture is revealed for Southern Europe, where a employment penalty caused by a second birth is most pronounced. Weaker than in the South of Europe, but still significantly negative effects of having the second child , are observed in Western Europe as well as in former socialist countries.

In the next step, we will proceed with this analysis moving on to the regression framework in order to improve the precision of our estimates and to investigate to what extent the differences in the magnitude of effects across the country groups shown above can be attributed to the impact of differential institutional arrangements.

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