

For Some Mothers More Than Others: How Children Matter for Labor Market Outcomes When Both Fertility and Female Employment Are Low

Krzysztof Karbownik and Michal Myck, CenEA
November, 2012

Wide spread entry of women into the labor force has been one of the most pronounced socio-economic developments in the 20th century, and high levels of female employment are crucial from the point of view of continued economic growth and financial stability of many welfare systems (Galor and Weil, 1996). At the same time, demographic changes determined by the current and future fertility levels will play a vital role in shaping these developments and will affect the costs of social programs. Given the potentially strong link between female employment and family size, it seems that understanding the relationship between the two ought to be at the heart of policy discussions, especially in countries that are characterized by both low fertility and low female employment. In particular, in light of rising unemployment in low-fertility countries, which have been most severely affected by the economic crisis such as Greece, Spain and Latvia, our findings may serve as a guide with respect to the relationship between fertility and labor supply in an environment, which will be more common in Europe in the near future.

Employment rates of women with children, in particular those with young kids, are generally lower in comparison to women who either never had children or whose children are older or no longer live with their parents (Ahn and Mira, 2002; Adsera, 2005). On the one hand, the presence of children induces various constraints on labor market activity and may affect individual preferences over consumption and leisure. On the other hand, women who have lower inclination to work may decide to have more children than those who are more strongly attached to the labor market, implying self-selection into larger families among women with weaker labor market attachment. This would result in lower rates of labor market participation among these mothers even without the causal link running from

family size to lower employment. Such potential selection means that a simple cross-sectional correlation between employment and the number of children might not be accurate (Blundell and MaCurdy, 1999).

In this paper, we follow two approaches to identify the causal effects of children on labor market outcomes of Polish mothers. Namely, for the purpose of the analysis we use the Household Budgets' Survey data from Poland for the years 2003-2010. Poland has one of the lowest fertility and female employment rates in Europe, and partly as a result of that, faces one of the most severe demographic changes in the coming decades with an old-age dependency ratio in 2050 of about 53. With fertility at 1.4 in 2009, Poland lags far behind

countries such as Ireland (2.1), France (2.0), the UK (1.9) and Sweden (1.9). In addition to a low fertility rate, Poland has one of the lowest rates of female employment in the European Union; far below those of countries such as the Netherlands, Germany and Sweden.

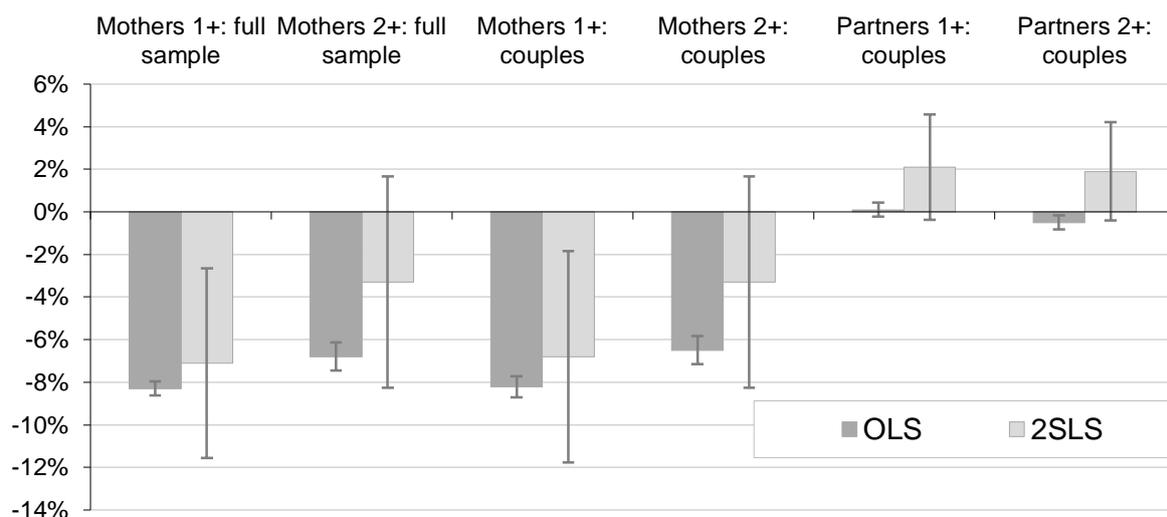
First, we use exogenous variation in the number of children driven by multiple births (Rosenzweig and Wolpin, 1980; Angrist and Evans, 1998). Second, we exploit parental gender preferences (Angrist and Evans, 1998; Cruces and Galiani, 2007). In the former case, parents expect to have a single offspring as a result of a pregnancy while in turn they get two (or more) children. Thus, there is an exogenous variation in the size of the family that is independent of the preferences related to the labor market. The latter case relies on the finding that parents may exert skewed preferences towards the child's gender or towards a gender mix of the siblings. Since gender of a child is virtually random, given such preferences the gender composition of children can be plausibly used as an instrument for subsequent family size choices.

Our results confirm the overall negative relationship between number of children and female labor supply. The simple OLS estimate overstates the negative effect of childbearing on female labor force participation, but in the overall sample, this bias is small.

In the sample of mothers with at least one child, we find that an additional child reduces the mother's probability of employment by 7.1 percentage points (see Figure 1) and it averages over all the subsequent children after the first one. Thus, the marginal effect of going from first to second child is larger in reality. The corresponding effect estimated by OLS is -8.3pp. The negative causal effect of additional children in the sample of mothers with at least two children is much smaller (-3.2pp) and statistically insignificant, while the OLS suggests a statistically significant correlation of -6.8pp.

The results are similar in the subsample of mothers living in couples and we find no causal evidence of the effect of children on the employment status of fathers. In fact, the causal estimates, while insignificant are positive in the range of about 2pp.

Figure 1. OLS and 2SLS Estimates of the Relationship between Work and Number of Children



Notes: Values of coefficients on the number of children from Tables 3 for “full sample” and from Table 4 for the sample of “couples”. Sub-samples of families with at least one child labeled as “1+”, while those with at least two children as “2+”. Vertical lines represent 10% confidence intervals.

Source: authors' calculations based on BBGD data 2003-2010.

A heterogeneity analysis using the twinning instrument shows significant variation in the nature of the family size and the labor market attachment relationship in Poland. We find that the negative causal effect established in the full sample is driven primarily by women who are highly educated and who come from the younger cohorts. Of particular interest should be the fact that in both of these subsamples we find a positive bias of the OLS estimates relative to 2SLS coefficients. Thus, indeed it is women with the strongest labor market attachment and/or with most secure labor market position who select into larger family sizes. We attribute that to the fact that in low fertility and low employment societies only families with secured labor market positions can afford to have children and in particular more than one child.

For women with less than higher education and for those from earlier cohorts, we find no causal effect of additional children on employment. Thus, in these cases the negative OLS coefficients result from the fact that it is the women with weaker labor market attachment who choose to have larger families. The findings therefore suggest that it would be naive to expect that lower employment among women might result in higher fertility. In fact, if anything, the reverse is more likely to hold. Poor economic prospects of families would in such cases further aggravate the long-term socio-economic consequences of economic downturns with significant implications for countries affected by the recent depression.

Finally, we could not identify any significant causal effects of the number of children on female employment in the sample in which we approximate complete fertility history by looking at women whose last birth was more than six years prior to the interview. For this sample, however, using the twinning instruments we find strong and significant negative effects of family size on maternal labor income and - in the case of families with at least two children - also on the income of fathers.

Our findings suggest several important policy conclusions. First, it is clear that mothers, but not fathers, suffer the negative labor market consequences of childbearing in Poland. These effects are particularly strong for well-educated women and for women from younger cohorts, and they apply principally up to parity two. While mothers with more than two children are less likely to work, it is due to the fertility choices of women with weaker labor market attachment rather than the causal effect of the higher number of children. In almost all subsamples of women, however, we find negative consequences of children in terms of lower labor incomes. These effects also extend beyond the time of early childhood.

The strong effects of family size on employment and labor income among highest educated mothers and those belonging to the youngest cohorts suggest that policies to relax the family-related constraints ought to focus particularly on these groups. In the case of other groups distinguished in the paper, since we find no causal effects of children on employment, the government should concentrate on supply side policies to provide stronger labor market incentives to mothers. Childbearing does have significant and large effects on labor incomes of mothers. This has direct consequences for the financial position of mothers, but it also implies lower financial incentives to work and in the long run will translate into lower pensions. While policies to compensate these losses may be difficult to implement at the time of tight government budgets, encouraging higher fertility may require attempts to reduce the financial loss of mothers related to the family size.¹

¹ For more details and the full version of the paper see: of the paper see: IZA Discussion Paper 6933 (www.iza.org) or CenEA Working Paper 04/12 (www.cenea.org.pl).

Data used in this paper come from the Polish Household Budgets' Survey (2003-2010) collected annually by the Polish Central Statistical Office (GUS). GUS takes no responsibility for the results and conclusions presented in this paper.

References

Adsera, A., 2005. Vanishing children: From high unemployment to low fertility in developed countries. *American Economic Review* 95(2), 189-193.

Ahn, N., Mira, P., 2002. A note on the changing relationship between fertility and female employment rates in developed countries. *Journal of Population Economics* 15(4), 667-682.

Angrist, D.J., Evans, N.W., 1998. Children and their parent's labor supply: evidence from exogenous variation in family size. *American Economic Review* 88(3), 450-477.

Blundell, R., Macurdy, T., 1999. Labor supply: A review of alternative approaches. *Handbook of Labor Economics* 3(1), 1559-1695.

Cruces, G., Galiani, S., 2007. Fertility and female labor supply in Latin America: new causal evidence. *Labour Economics* 14(3), 565-573.

Galor, O., Weil, N.D., 1996. The gender gap, fertility, and growth. *American Economic Review* 86(3), 374-387.

Karbownik, K., Myck, M., 2012. For some mothers more than others: how children matter for labor market outcomes when both fertility and female employment are low. *IZA Discussion Paper 6933*, IZA Bonn.

Rosenzweig, R.M., Wolpin, I.K., 1980. Life-cycle labor supply and fertility: causal inferences from household models. *Journal of Political Economy* 88(2), 328-348.

Michał Myck

Centre for Economic
Analysis (CenEA)

MMyck@cenea.org.pl
<http://www.cenea.org.pl>



Michał Myck is Director of the Centre for Economic Analysis, CenEA, in Szczecin (PL). He has previously worked at the Institute for Fiscal Studies (1999-2004) and at the DIW-Berlin (2005-2010). He is an International Fellow at the IFS and a part-time Research Associate at the Public Economics Department at the DIW-Berlin. Since 2005, he has been the Polish Country Team Leader for the Survey of Health, Ageing and Retirement in Europe (SHARE), cooperating with the University of Warsaw and the Mannheim Institute for the Economics of Aging.

He received his B.A. (First Class) in Philosophy, Politics and Economics at the University of Oxford (1997) and an M.Phil. degree in Economics at the University of Oxford (1999). In March 2006, he received his Ph.D. degree at the University of Warsaw.

Krzysztof Karbownik

Centre for Economic Analysis (CenEA)

Krzysztof.Karbownik@nek.uu.se
<http://www.cenea.org.pl>

Krzysztof Karbownik is a PhD student at Uppsala University and Uppsala Center for Labor Studies in Sweden, and a Junior Research Fellow at the Centre for Economic Analysis (CenEA) in Szczecin.