Effects of the parental leave scheme on fertility behaviour in Estonia
Extended abstract

Introduction

Family policies have been a crucial instrument supporting fertility levels in various countries (Thévenon and Gauthier 2011; Rindfuss and Choe 2016). Among such instruments, parental leave (PL) schemes hold a prominent place (D'Addio and d'Ercole 2005; Billingsley and Ferrarini 2014). In Estonia, a generous PL benefit was implemented starting from the 1st of January 2004. From 2004 the PL benefit holds a 100% compensation rate of the parent's previous average salary, paid up to 11 months, since 2008 it is paid for up to 18 months. Additionally, a speed premium feature (Hoem 1990, 1993) is included, which means that if the birth of the next child occurs within a period of 2.5 years then the amount of the benefit is based on the income earned before the birth of the previous child is paid for the next child. The possibility to retain the amount of benefit and avoid the loss of income might encourage parents who want to have the next child, to compress their birth intervals.

Analysis on the effect of this policy in the case of Estonia has been limited to two quite simple studies commissioned by the Ministry of Social Affairs more than a decade ago (Võrk and Karu 2006; Võrk, Karu, and Tiit 2009). As regards other countries, studies that have investigated the effect of parental leave policies on fertility behaviour have been undertaken in Sweden, Austria, Czechia and Slovakia (Hoem 1990, 1993; Andersson, Hoem, Duvander 2006; Lalive and Zweimüller 2009; Šťastná and Sobotka 2009; Miranda 2020; Šťastná, Kocourková, and Šprocha 2020).

In this study, we investigate the effects of the introduction of PL on second and third births in Estonia. In addition to the timing effect of the PL scheme, we also aim to distinguish a possible quantum effect.

Theoretical background and research questions

Policies affect childbearing choices of families in several ways. Reducing the costs of having a child through public services (e.g., childcare and health services) or increasing parents' income (family allowances, parental leave benefits, tax incentives, etc.) might have a positive effect on fertility. At odds with this, quality-quantity trade-off argument (Becker and Lewis 1973) suggests that families may value the quality of childrearing more over the number of children they have. Therefore, they would invest the additional earnings on their current child rather than having the next one which implies an absence of the positive effect. In the micro-economic framework, opportunity costs of childbearing low fertility are also linked to the increasing female labor participation (Becker 1981). In contexts with a strong labor market attachment, women may be less willing to have a child due to high opportunity costs and income loss due to employment interruptions. However, the micro-economic theory allows for contextual factors, such as policies aimed at supporting work-family balance, which may significantly reduce the opportunity costs of parenthood.

Against that background, generous parental leave policies might have a positive effect on fertility by letting parents to stay at home for some period while receiving a fair level of compensation for their foregone labour income, with a guarantee of returning to their previous job. Thus, considering the micro-economic theory, we can expect some positive effects of PL reform on overall fertility levels. Previous research lends some support to this assertion (Lalive and Zweimüller 2009; Šťastná, Kocourková, and Šprocha 2020). Also, earlier studies indicate that couples have responded to the speed-premium feature of the PL scheme (Hoem 1993; Andersson et al. 2006).

In our study, we pose three research questions based on the above considerations: Did the reform shorten the interval to second and third birth? Similarly, did the reform have an effect on the quantity of childbearing? Are there any parity-related differences in the effects?

Data and Methods

The register-based individual-level dataset provided by the Statistical Office of Estonia is used for the study. The dataset contains childbearing histories of women born between 1960 and 1999 until the end of 2019. Also, main socio-demographic characteristics (education, residence, ethnicity, country

of birth), marital histories, and censoring events (death, emigration) are available for both women and their partners.

We use both descriptive and event history methods. First, we adopt a method used in two previous studies which aimed to answer similar research questions (Šťastná and Sobotka 2009; Šťastná, Kocourková, and Šprocha 2020). Thus, we compute the following indicators.

$$f2(d,c) = \frac{B2(d,c)}{B1(m = c)}$$

$$PPR_{1-2(c)} = \sum f2(d,c)$$

The duration-specific second-birth rate f2(d,c) shows the proportion of women who had their second birth at duration d since the first birth (indicated by B2(d, c)) among women who had their first birth during period c (indicated by B1(m = c)). The parity progression ratios $PPR_{1\text{-}2(c)}$ for first-birth cohort c and duration d show the sum of duration-specific rates f2(d, c) for that cohort from duration 0 until duration d. The result shows the (cumulative) proportion of first child mothers who have a second birth d months since the first birth. The same approach is used for the analysis of third births.

For the event history analysis we use a cure model (also known as a split-population model). This study is a mixture of two submodels, one pertaining to the quantum and the other to the tempo of childbearing. The main advantage of the mixture cure model over conventional event history models is the ability to distinguish the effect of the covariates on the propensity to have a next child from their effect on the timing (Gray et al. 2010; Bremhorst et al. 2016).

Preliminary findings

Figure 1 suggests that the introduction of the PL scheme feature indeed motivated couples to have their second child earlier. In particular, two features support this interpretation. First, the fertility rate for duration intervals under 30 months starts to increase from the 2003 first-birth cohort. In the preceding years (1995-2002) the second-birth rate for the duration under 30 months is rather flat. Women who had their first child in 2003 had an opportunity to have a second child in 2004 or 2005, or some even in the first half of 2006, within the 30-month limit required for the speed premium to take effect. Secondly, a comparison of second birth rates at three short durations with somewhat finer disaggregation (not shown here) demonstrates that the increase in second birth rate is concentrated at shorter durations which offers the advantage of keeping the benefits earned before first birth (i.e. tempo effect).

Regarding changes in the fertility quantum in relation to the PL scheme, we also examined parity progression ratios. Considering that PPRs indicate the cumulative proportion of second births to first child mothers, an increase at a longer duration would mean positive quantity effects of policy reform. Figure 2 suggests an upward trend in longer durations if we compare the periods before 2003 and afterwards. This is an indication of a positive quantum effect of the PL scheme on the second child.

Table 1 presents preliminary findings from mixture cure models for first-birth cohorts with control variables and without them. The coefficient estimate (-0.0988) of the policy variable from the durations equation submodel without controls indicates a negative effect on duration, i.e. shortening of birth intervals. The result (0.6398) from the incidence equation without controls suggests a positive impact on the quantum of fertility. These results are in line with the computed duration-specific rates. When we include control variables, the speed premium effect (0.0711) disappears for the second births, while the positive quantity effect remains (0.479).

Figure 1: Duration-specific second-birth rates, first-birth cohorts 1995-2015

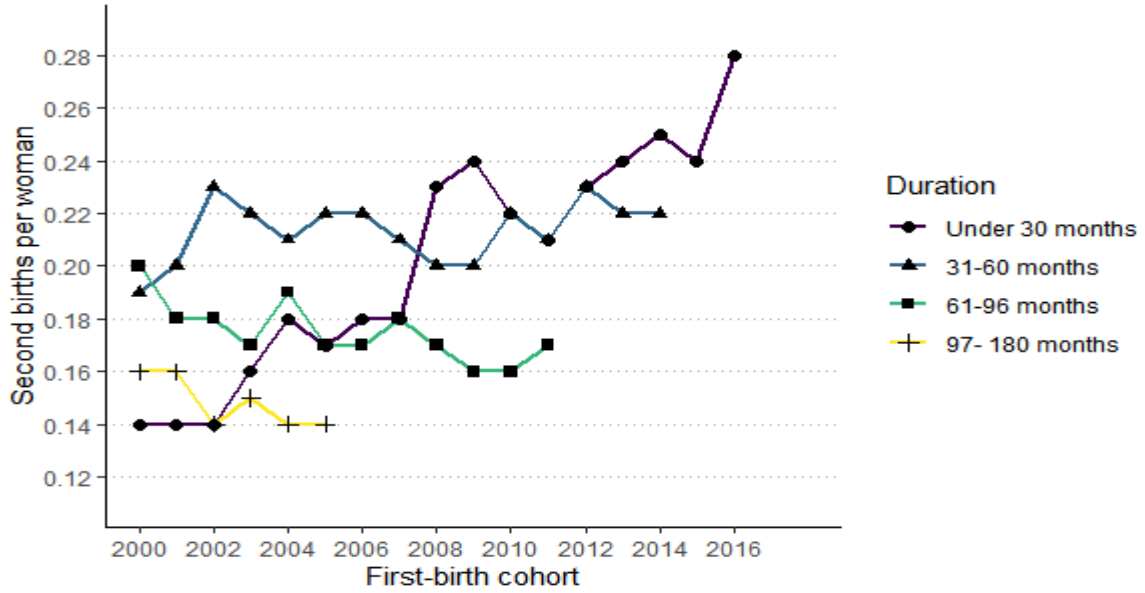

Figure 2: Parity progression rates to second birth, first-birth cohorts 2000-2015

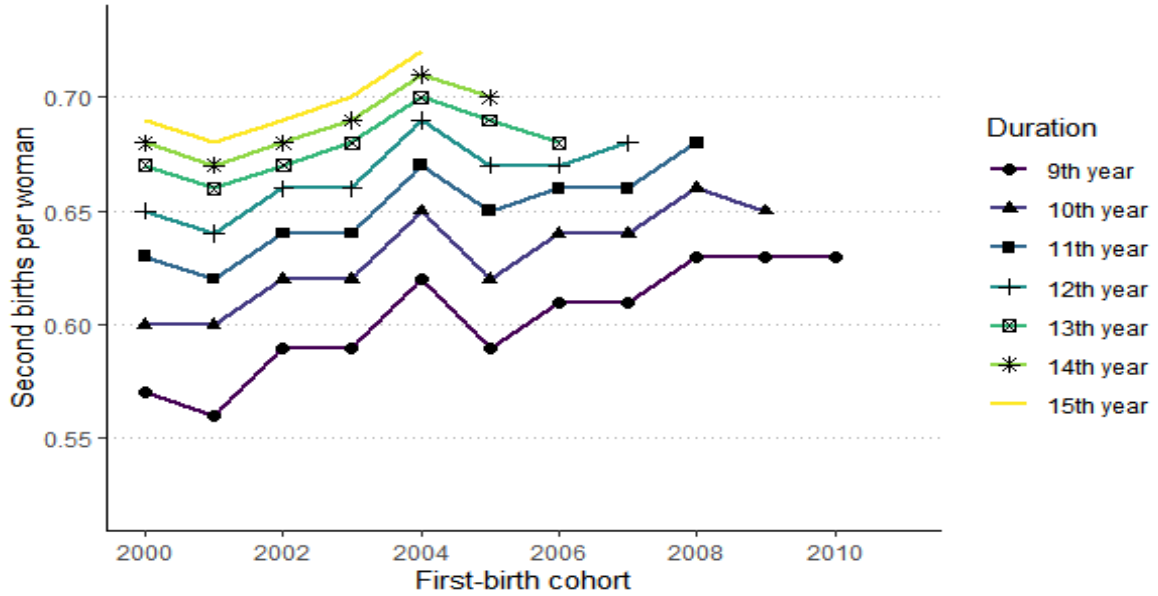

Table 1: Preliminary results of mixture cure model (first-birth cohorts)

	Duration equation				Incidence equation			
	Coef	*p*	*Coef*	*P*	*Coef*	*p*	*Coef*	*p*
Intercept	3.9354	0.000	3.2918	0.000	0.6622	0.000	- 0.8311	0.000
Policy effect	- 0.0988	0.0406	0.0711	0.0032	0.6398	0.000	0.479	0.000
Controls	No		Yes		No		Yes	

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