

Women's Employment Prospects and the Time Gap Between the First and the Second Child*

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1. Introduction

The question of *when* to have children is a fundamental question that all men and women who decide to be parents need to face. Data on the mean age at first birth for developed countries distributed by Eurostat or OECD show that the timing of the first birth is being postponed and nowadays more and more women have their first child around their thirties. This trend is predominantly attributed to the increased educational attainment of women and the related rise in their labor market participation (Bhrolcháin and Beaujouan, 2012). But the timing of the first birth is also key to women's labor market prospects following childbirth. In fact, it has been found that fertility postponement has mostly positive impacts on women's employment and careers after they become mothers (Bratti, 2023). Less is known, however, on how the timing of the second birth impacts women's careers, despite the consistent finding that having more children leads to adverse career prospects for women.¹

The timing of the second birth and its relation to the labor market prospects of women is particularly interesting for developed countries, where according to 2021 OECD data around 73% of women with one child were in paid employment, and around 71% and 60% of women with two children or three or more children were employed². In these countries, not all women decide to have a second child and if they decide so, the question of the timing of the second birth can be particularly

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¹ These can take the form of e.g., lower labor market participation (Angrist and Evans, 1998), lower employment and promotion prospects (Correll et al., 2007), reduced working hours (Lundberg and Rose, 2000) and lower earnings (Waldfogel 1995, 1997; Budig and England, 2001, Davies and Pierre 2005).

² https://www.oecd.org/els/family/LMF1_2_Maternal_Employment.pdf

important for their future labor market prospects, given the high employment rates of women with one child.

In this paper, we complement existing empirical literature on the relationship between having children and women's labor market outcomes by investigating how the time gap between the first and the second child, also referred to as birth spacing, relates to women's employment following the second birth. This research aims to document birth spacing strategies that are associated with women's successful labor market reintegration following the second pregnancy.

2. Previous research

Existing research has documented that postponing motherhood generally leads to favorable career prospects for women (Bratti, 2023). For example, Miller (2011) examines the age at first birth and its impact on women's labor market outcomes in the US. She finds that postponing the first birth increases earnings by 9% per year of delay, wages by 3% and working hours by 6%. For Italy, Bratti and Cavalli (2014) find that a year delay in the first birth increases women's labor market participation by 1.2 percentage points and working time by around 0.5 hours per week. Similarly, Picchio et al. (2023) find for Italy that the risk of employment dropout and earnings drop following childbirth decreases with fertility postponement. The negative consequences are smaller if the first birth is delayed by 7-9 years after the school completion. Frühwirth-Schnatter et al. (2015) analyze the situation in Austria and conclude that giving birth to the first child at an older age increases the chance of dropping from the labor market but it also leads to higher chances of high-wage career track, and thus higher earnings. In contrast to these studies, Karimi (2014) reports the negative effects of delaying motherhood on women's earnings in Sweden.

The effects concerning the timing of the second birth in relation to the first birth are less clear and less documented. To the best of our knowledge there are only few studies that examine this issue empirically; these contributions include Karimi (2014), Troske and Voicu (2013), Gough (2017). Focusing on Sweden (Karimi, 2014) finds that "delaying the second birth by one year, on average, increases the probability of re-entering the labor market between births". Troske and Voicu (2013) focus on the US and using NLSY data find that the negative effect of a second child on women's labor market participation is the largest if the second birth takes place in the year following the first birth. The negative effect declines with the length of the interval between the births. Furthermore, delaying the second birth by 4 years increases the number of hours of work in the year before the

birth by 25.4 %. Using the same data Gough (2017) complements Troske and Voicu (2013) study by assessing the impact of birth spacing on women's earnings. She finds that women with time gaps between the first and the second child that are longer than two years but no longer than six years, experience the smallest wage penalty associated with having one more child and that college-educated women benefit more than less-educated women from longer birth intervals.

We add to the above empirical research on the impact of the time gap between the first and the second birth on women's employment. First, we extend existing works by analyzing completed work and fertility histories of women from 12 developed countries. Second, we account for women's initial employment status and distinguish between the groups of women based on whether they worked or did not work before the first and second births. By doing so we argue that employment consequences of birth spacing may differ for women who decide to continue working between pregnancies, who temporarily drop from employment before the first pregnancy or in between the pregnancies, or who enter employment only after giving birth.

3. Data and methods

We use data retrieved from SHARELIFE survey conducted in 2008/2009. This survey is part of the SHARE project. In contrast to other waves of SHARE survey, the SHARELIFE module contains retrospective information related to individual employment, fertility and marital situation. Using this dataset we construct completed employment-marital-fertility histories for 16,324 women from 14 European countries. In our final dataset obtained from retrospective information, for each woman, we observe events that happened between her ages of 15 and 65 concerning employment, marital situation and number of children.

We restrict the analysis to women born after the year 1950 in Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium and Ireland (we drop from the analysis Czech Republic and Poland as for these countries employment histories mostly cover the communists time). Furthermore, we limit the observation window by focusing only on women aged at most 50 to account for different retirement schemes across countries. We also drop from the analysis women for whom the time gap between the first and the second childbirth was exceptionally long (more than 15 years). We also drop women who have experienced a miscarriage before the first pregnancy because such an experience may have impacted the timing of the second pregnancy. On one hand, it may have increased the timing of the second birth as women fear

repeated pregnancy loss; on the other hand, it may have decreased it as women anticipate difficulties on the way to having a second child which could lead to its delay. Employed mothers who did not work because of child-related leaves (maternity/parental) are considered in our data as working.

Given the structure of the dataset we use discrete event history analysis to model the relationship between the time interval between the first and second births measured in years and women's risk of changing their employment status. In the first step, we use sequence analysis with optimal matching to cluster women into groups based on their employment status between the age of 15 and the second birth. We use Wards algorithm to create clusters.

For each cluster of women, we then model how the time gap between births affects the risk of employment drop or employment entry (i.e., for women who worked before the second birth we model how the time gap between births affects the risk of dropping employment and for women who did not work before the second birth we model how the time gap between births affects the risk of employment entry). We use complementary log-log regression and control for women's marital status, years of education, age at first birth, age, cohort and country.

4. Preliminary findings

Results obtained from cluster analysis are depicted in Figure 1. Using sequence analysis applied to work trajectories of women who experienced first and second births, we group women into four clusters. These represent: (i) home-stayers: women who did not work both before and after the first birth, (ii) early workers: women who entered the labor market early and continued working after the first birth, (iii) late workers: women who entered the labor market at later age and continued working after the first birth (iv) dropouts: women who worked before the first birth but dropped from employment after having the first child.

Table 1 presents estimates obtained from complementary log-log regressions applied to each cluster of women identified above. They reveal that the time gap between the first and the second birth matters for all groups of women except for the group of women who started working early in their lives and continued working after the first birth (early workers). Specific results show that among women who leave employment following the first birth (dropouts), a longer time gap between the first and the second pregnancy decreases the chances of successful re-integration into the market. In particular, the lowest chances of re-entering employment are seen among women

who have their second child more than 7 years after the first birth. For the group of home-staying women, the chances of entering employment are lowest when the second birth appears 3 to 4 years after the first birth. For those who continued working after the first birth, but enter the labor market at later ages – presumably due to staying in education – the lowest risk of dropping employment after the second birth is observed when the second birth takes place 3 to 7 years after the first birth. The lack of any effect of timing of the second birth on the risk of dropping from employment among women who entered the labor market early and continued working after the first birth stems from the composition of this group of women, who on average have fewer years of education than women who entered the market at later stages. For this group of women spacing of births may not be important for their careers as they need to work to ensure the financial needs of their families.

Further analysis will include heterogeneity of effects depending on women’s education level. We will also assess the sensitivity of our findings by: (1) accounting for women with more than 2 children, (2) dropping one country at once to see if the effects are driven by particular countries, (3) deriving the results for country groups (e.g., Southern Europe, Northern Europe) to see if the effects depend on the average level of women’s involvement in the labor market.

Figure 1. Clusters obtained from the sequence analysis with optimal matching

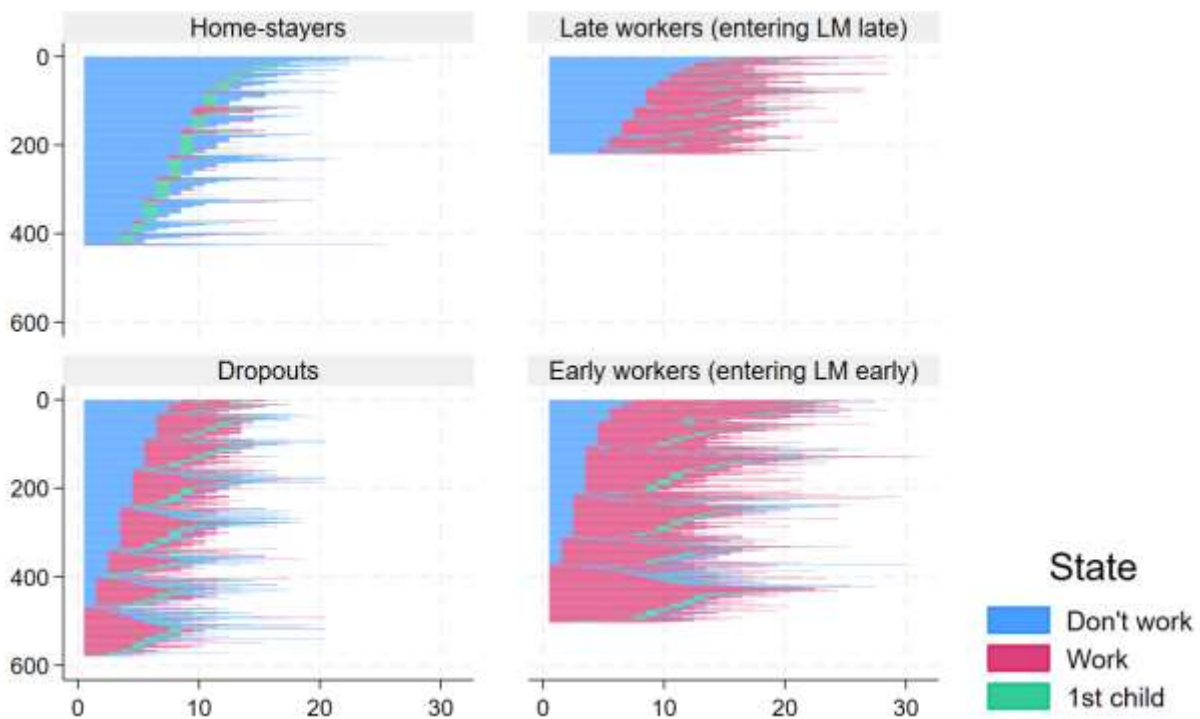


Table 1. Results from complementary log-log regression representing the relationship between the time gap between the first and second birth and women’s employment prospects for the four groups of women: early workers, late workers, home-stayers and dropouts.

	Risk of dropping employment after the second birth		Risk of entering employment after the second birth	
	Early workers	Later workers	Home-stayers	Dropouts
The time gap between first and second birth (0-2 years is a reference category)				
3-4 years	0.013	-1.476**	-0.827**	-0.024
	(0.053)	(-2.232)	(-2.316)	(-0.145)
5-7 years	-0.004	-1.744**	-0.317	0.008
	(-0.014)	(-2.003)	(-0.781)	(0.04)
8-10 years	-0.359	-0.336	-0.730*	-0.961*
	(-0.726)	(-0.35)	(-1.658)	(-1.772)
>10 years	-0.381	.	-0.35	-4.165***
	(-0.684)	.	(-0.289)	(-3.889)
Constant	-2.275**	-5.592	-3.438***	-0.571
	(-2.175)	(-1.298)	(-2.821)	(-0.719)
Observations	6336	2965	6260	7922

Notes: Coefficients obtained from clog-log model. Control variables include: marital status, years of education, age at first birth, age, cohort and country. T-statistics in parentheses. Stars denote p-values as follows: * 0.10 ** 0.05 *** 0.01.

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