

TIME TO SECOND CHILD: COUNTRY DIFFERENCES AND THEIR SOURCES

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AIM & SCOPE OF THE PAPER

- We examine the **time to second child** for a number of European countries
- Our goal is to document **country differences** in the time gap between the first and the second births, linking it further to underlying **institutional context**

MOTIVATION & BACKGROUND

Demographic research looks at so-called progression rate to second (or subsequent) birth

Several factors have been identified to impact the progression rates:

- **Biological factors** (health condition and age at first birth, Kreyenfeld, 2002)
- **Education level** (Gerster et al., 2007; Gottard et al., 2015; Kreyenfeld, 2002; Martín-García & Baizán, 2006)
- **Religiosity and social class** (Van Bavel & Kok 2004)
- **Women's involvement in the labor market** (Bratti, 2015; Gerster et al., 2007; Kreyenfeld, 2002)
- **Institutional level factors** (Bavel & Róžańska-Putek 2010, Duvander et al. 2010, 2019, Matysiak & Szalma 2014, Matysiak et al., 2021; Vignoli et al., 2020)

MOTIVATION & BACKGROUND

- Existing demographic research relies, however, on modelling the progression rates using standard event history models
- What is common for these methods is that they fail to disentangle:
 - the *quantum* effect (the risk of experiencing the second birth)
 - and the *tempo* effect (the speed of the progression to the second birth) → our interest!

It is thus *unclear* whether the estimates reflect the impact of a specific factor on the *risk of experiencing the second birth, its timing or both.*

CONTRIBUTION

- We disentangle between the time to second child and the risk of having it by applying mixture cure model
- We examine several countries at once to uncover country differences in the second birth intervals
- We identify institutional factors that may explain uncovered country differences

METHOD

We use mixture cure model:

$$S(t) = \pi + (1 - \pi) * S_s(t)$$

Survival function = probability of not experiencing a second birth until time t

The proportion of 'cured' = women with no second child

LOGIT MODEL

The 'uncured' proportion = proportion of women that is susceptible of having a second child

The conditional survival function of the susceptible women.

PAREMETRIC MODEL USING LOGNORMAL DISTRIBUTION

DATA

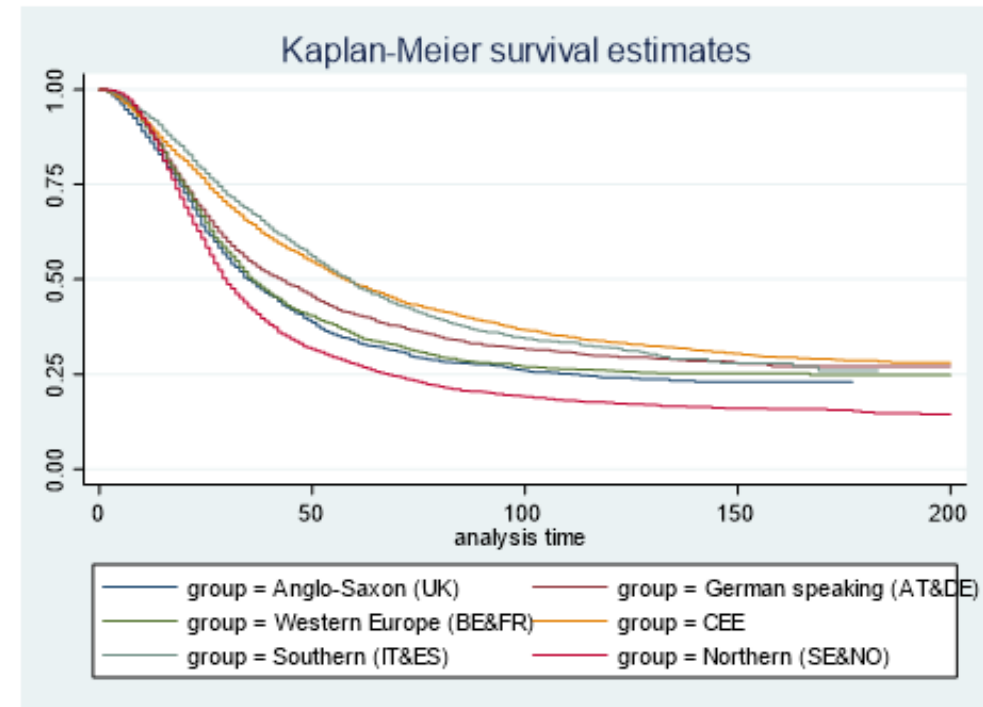
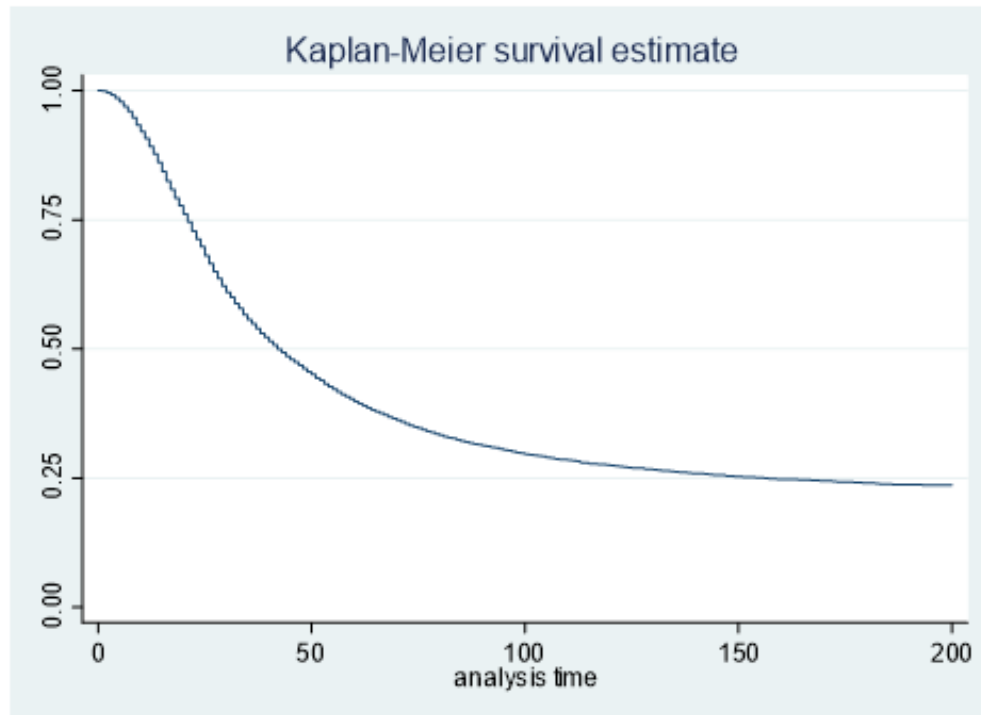
- Harmonized Histories data for AT, BE, CZ, DE, ES, FR, HU, NO, PL, SE, UK.
- Sample:
 - women who experienced the first birth & who gave birth to the first child after the year of 1991
 - Censored after the maximum of 200 months, or at the age of 45 for respondents not having a second child.

DATA

- We model the **time to conception of the second child** (assuming a 9 months lag between the conception and birth)
- Controls:
 - individual's age at first birth
 - the sex of the first child and its year of birth
 - education level
 - union status
 - the number of siblings
 - **country clusters:** Northern Europe (Sweden and Norway), German speaking countries (Austria and Germany), Western Europe (Belgium and France), Southern Europe (Spain), Anglo-Saxon countries (UK) and the CEE (Czech Republic, Hungary, Poland).

RESULTS

Graph 1. Kaplan-Meier survival functions: for a full sample (left panel) and by country groups (right panel).

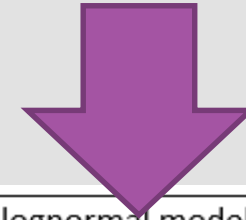


Source: Own calculations based on Harmonized Histories data

RESULTS

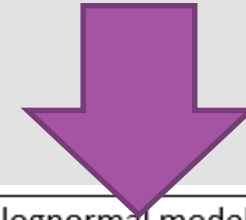
Variable	Results from the logit model (modelling the proportion of π , i.e. probability of not experiencing second child conception)				Results from lognormal model (modelling the survival function of women experiencing the second child conception)			
	Coef.	Std. Err.	z	Significance	Coef.	Std. Err.	z	Significance
Nordic Europe	0.242	0.146	1.66	*	-0.012	0.039	-0.29	
German speaking countries	1.116	0.144	7.74	***	0.036	0.042	0.86	
Western Europe	1.008	0.147	6.87	***	0.056	0.042	1.34	
CEE	1.665	0.142	11.75	***	0.134	0.039	3.46	***
Southern Europe	1.167	0.162	7.21	***	0.424	0.048	8.86	***
Age at 1st birth	0.165	0.007	22.16	***	-0.016	0.003	-6.39	***
Sex of the 1st child (1=female)	0.112	0.057	1.95	*	-0.014	0.019	-0.74	
Number of siblings	-0.085	0.017	-4.96	***	-0.044	0.005	-8.22	***
Union (1=yes)	-1.968	0.077	-25.42	***	-0.085	0.036	-2.4	**
Medium education	-0.093	0.092	-1		0.093	0.031	3.01	***
High education	-0.63	0.106	-5.97	***	-0.006	0.036	-0.16	
Still in education	0.325	0.127	2.56	**	0.134	0.041	3.28	***
1st child born: 1995-2000 (1=yes)	-0.098	0.066	-1.49		0.036	0.022	1.59	
1st child born: >2000 (1=yes)	0.159	0.092	1.72	*	0.163	0.027	6.12	***
Constant	-4.779	0.256	-18.68	***	3.809	0.077	49.55	***

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Paid leaves length: 16-32 weeks	-0.132	0.11	-1.2		0.06	0.038	1.58	
Paid leaves length: 32-52 weeks	0.418	0.179	2.33	**	0.237	0.054	4.4	***
Paid leaves length: 52-80 weeks	-0.158	0.146	-1.09		0.04	0.05	0.8	
Paid leaves length: >80 weeks	-0.113	0.122	-0.92		0.12	0.041	2.92	***
Leave for fathers (weeks)	-0.007	0.005	-1.43		-0.009	0.002	-5.67	***
Public spending on early childhood education and care (% GDP)	-0.968	0.116	-8.33	***	0.053	0.037	1.45	
LFPR - female	-0.011	0.007	-1.59		-0.009	0.002	-3.96	***
Unemployment rate - female	-0.011	0.009	-1.12		0.012	0.003	3.69	***
Part-time employment (%) - female	-0.027	0.004	-6.67	***	-0.002	0.001	-1.29	
Age at 1st birth	0.152	0.007	21.69	***	-0.014	0.003	-5.63	***
Sex of the 1st child (1=female)	0.117	0.055	2.13	**	-0.015	0.019	-0.8	
Number of siblings	-0.092	0.017	-5.54	***	-0.041	0.005	-7.62	***
Union (1=yes)	-1.874	0.071	-26.52	***	-0.05	0.034	-1.45	
Medium education	-0.013	0.086	-0.15		0.073	0.03	2.41	**
High education	-0.608	0.1	-6.08	***	-0.033	0.035	-0.95	
Still in education	0.406	0.119	3.4	***	0.108	0.041	2.66	***
1st child born: 1995-2000 (1=yes)	0.055	0.066	0.84		0.093	0.024	3.93	***
1st child born: >2000 (1=yes)	0.49	0.1	4.92		0.256	0.031	8.17	***
Constant	-1.76	0.43	-4.09		4.093	0.151	27.08	***

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MAIN FINDINGS

- There are significant country differences in the timing of the second birth:
 - Women in **Central and Eastern European** countries and **Southern Europe** tend to **conceive their second child** significantly **later** than women in other countries
- Institutional factors are important for the timing of the second birth:
 - **the generosity of leave policies targeted at parents.**
 - **labor market conditions of women** (LFPR and unemployment rate)

THANK YOU

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POLSKIE POWROTY
POLISH RETURNS



UNIVERSITY OF WARSAW
Faculty of Economic Sciences

LabFam

MOTIVATION & BACKGROUND

Institutional level factors have been also found to affect the progression rates:

- **Parental leaves** (Matysiak & Szalma 2014, Duvander et al. 2010, 2019)
- **Formal child care** (Bavel & Róžańska-Putek 2010)
- **General economic conditions** (Matysiak et al., 2021; Vignoli et al., 2020)

LIMITATIONS

- We are able to account for the labor market conditions, childcare and leave policy generosity at the country level but not at the individual level
- We do not know what was the LM situation of women before the birth of the first child and what is the LM situation of their partners
- There are other country specific factors that we are unable to account for due to data unavailability: culture and societal expectations towards women or housing conditions and its affordability.