Pandemic Babies? The Covid-19 Pandemic and Its Impact on Fertility and Family Dynamics, MPIDR

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When it is harder to take decisions: fertility under uncertainty

[Preliminar results, please do no cite]

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ISCSP INSTITUTO SUPERIOR DE CIÊNCIAS SOCIAIS E POLÍTICAS UNIVERSIDADE DE LISBOA

ICS INSTITUTO DE CIÊNCIAS SOCIAIS

FCT Fundação para a Ciência e a Tecnologia

Fertility, uncertainty and Covid-19

- A strong negative immediate impact on fertility following the onset of the pandemics was expected, and there is already evidence of that (Lindberg et al. 2020; Luppi et al. 2020; Sobotka et al. 2021). But COVID pandemics gave rise not only to a health/mortality crisis but also to a serious socio-economic crisis due to the sanitary measures that were put into place.
- This last year and a half has been a period of heightened and persistent uncertainty. As Aasve et al. (2020) point out, the way people have been able to cope with this increased uncertainty is crucial in terms of fertility outcomes.
- Mills & Blossfeld (2013) argue, in their globalization framework, that the main driving factor behind changes in partnership formation and transitions into parenthood is the growing labour market uncertainty.
- At the micro-level, studies using both objective and subjective measures of uncertainty have been looking mostly at fertility intentions (e.g. Testa 2014; Vignoli et al. 2020). At the macro-level, unemployment rate and the GDP have often been used in studies on the relationship between fertility and the business cycles; fewer studies focusing more specifically on the role of uncertainty have been using the Consumer Confidence Index (e.g. Fokkema et al., 2008; Comolli, 2017).

Goals

1. To test whether the relationship between fertility and uncertainty became stronger after the pandemic.
2. To look at the relationship between subjective measures of uncertainty regarding specific aspects of individuals lives and an objective fertility outcome measured at the macro level.
3. To use more frequent measures of fertility to better understand its changes.

Data and methods

Data sources:

Short-term Fertility Fluctuations

OECD

Eurostat

Eurobarometer

Methods: multilevel models with random linear time.

Variables

Dependent variable - Monthly general fertility rates (GFR), 2010-2021, using:

- Monthly data on births, January 2010 – August 2021
- Average female population on 1st January, 15-49 years old, 2010-2019, Eurostat. Population in 2020 and 2021 is the population in 2019 aged one and two years, respectively

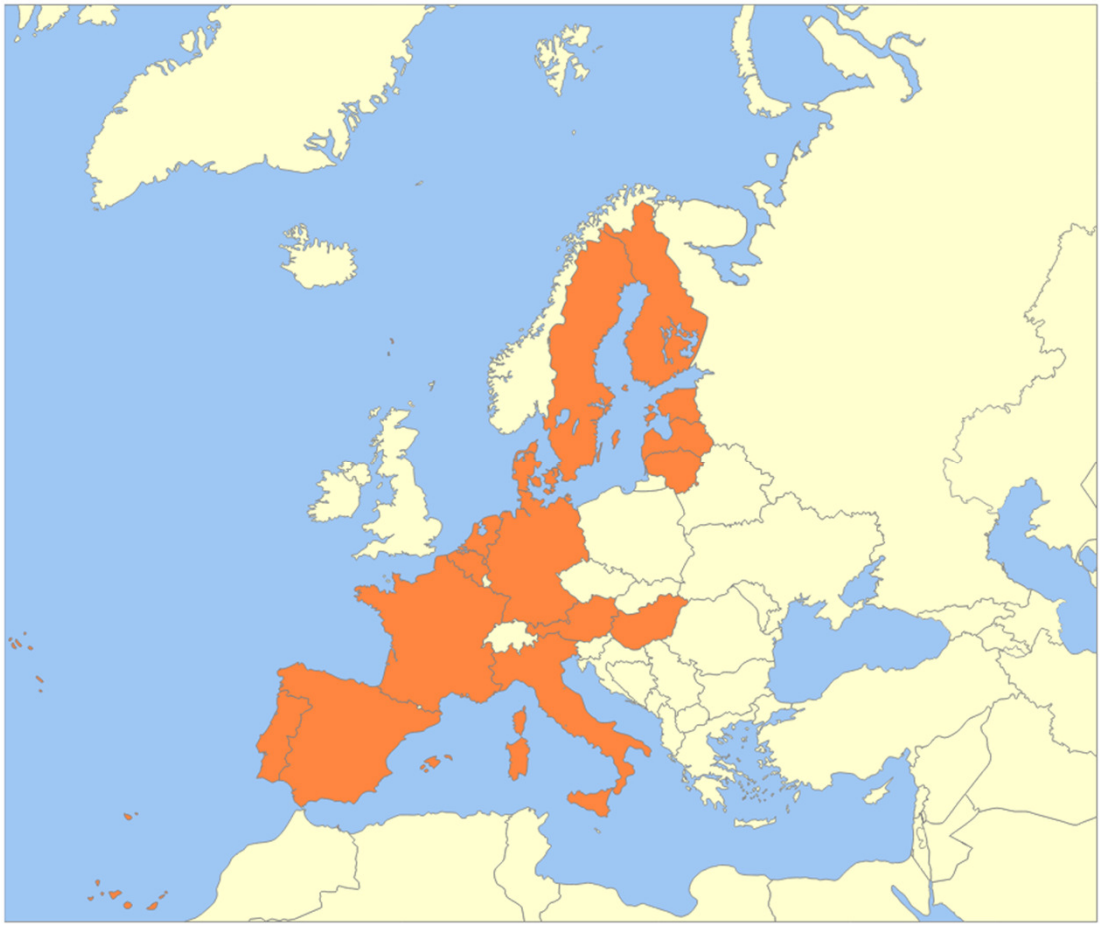
Independent variables (lag 12 months*):

- Monthly Consumer Confidence Index, January 2010 – August 2021
- Monthly unemployment rate, January 2010 – August 2021
- Biannual personal job situation and household finances, Summer 2010 – Summer 2020

* The results using other lags (e.g. 15 months) are qualitatively similar.

Sample

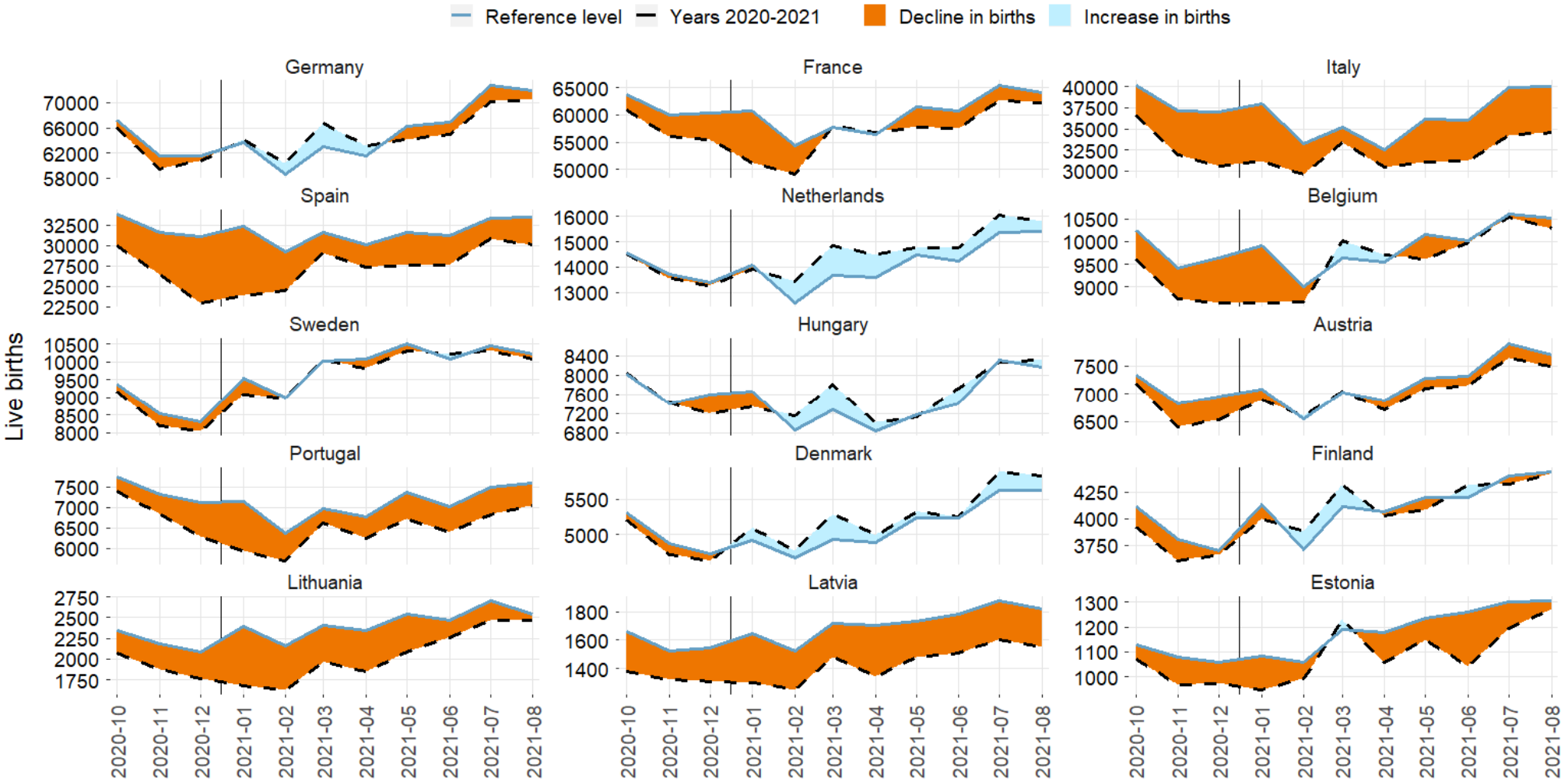
15 countries over 140 months (2010-2021): 2100 observations



1. Austria
2. Belgium
3. Denmark
4. Estonia
5. Finland
6. France
7. Germany
8. Hungary
9. Italy
10. Latvia
11. Lithuania
12. Netherlands
13. Portugal
14. Spain
15. Sweden

Source: phil@philarcher.org

Descriptives



Source: László Németh, HFD, MPIDR (2021)

Estimates for random linear time models | subjective measures of uncertainty

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Month	-0.000	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Pandemic	-0.622	1.415*	5.667***	1.374*	5.638***
	(0.491)	(0.601)	(0.776)	(0.595)	(0.772)
Month * Pandemic	0.005	-0.012*	-0.045***	-0.011*	-0.045***
	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)
Personal job situation		0.263*	0.278*		
		(0.114)	(0.116)		
Personal job situation * Pandemic			0.162***		
			(0.019)		
Household financial situation				0.489***	0.507***
				(0.131)	(0.133)
Household financial situation * Pandemic					0.162***
					(0.019)
Constant	3.723***	2.993***	2.951***	2.409***	2.360***
	(0.133)	(0.327)	(0.332)	(0.364)	(0.370)
se (month)	-5.522***	-5.531***	-5.539***	-5.572***	-5.581***
	(0.191)	(0.194)	(0.194)	(0.195)	(0.196)
se (residual)	-0.672***	-0.761***	-0.766***	-0.830***	-0.837***
	(0.186)	(0.193)	(0.193)	(0.193)	(0.193)
se (cons)	-1.479***	-1.464***	-1.491***	-1.465***	-1.492***
	(0.017)	(0.018)	(0.018)	(0.018)	(0.018)
Observations	2100	1890	1890	1890	1890
AIC	321.623	296.915	228.696	289.101	220.812
BIC	366.821	346.814	284.140	339.000	276.256

Notes: Standard errors in parentheses. Current situations (about the job and household finances) are time-varying predictors. A 12-months lag is used.

Significance levels: *p<0.05, **p<0.01, ***p<0.001.

Source: Own elaboration.

Estimates for random linear time models | controlling for unemployment

Variable	Model 1	Model 2	Model 3		Model 4	Model 5	
Month	-0.001	-0.001	-0.001		-0.001	-0.001	
	(0.001)	(0.001)	(0.001)		(0.001)	(0.001)	
Pandemic (ref. no)	2.899***	5.688***	5.780***		5.595***	5.677***	
	(0.679)	(0.767)	(0.772)		(0.765)	(0.769)	
Month * Pandemic	-0.023***	-0.046***	-0.046***		-0.045***	-0.046***	
	(0.005)	(0.006)	(0.006)	*Stand.*	(0.006)	(0.006)	*Stand.*
Unemployment	-0.024***	-0.029***	-0.029***	-0.250***	-0.023***	-0.023***	*-0.201****
	(0.006)	(0.007)	(0.007)		(0.007)	(0.007)	
Unemployment * Pandemic	0.055***		0.013	0.033		0.012	*0.032*
	(0.007)		(0.013)			(0.013)	
Personal job situation		-0.004	-0.003	-0.002			
		(0.130)	(0.131)				
Personal job situation * Pandemic		0.166***	0.138***	0.137***			
		(0.019)	(0.034)				
Household financial situation					0.254	0.257	*0.142*
					(0.149)	(0.150)	
Household financial situation * Pandemic					0.166***	0.138***	*0.137****
					(0.019)	(0.035)	
Constant	3.995***	4.055***	4.053***		3.308***	3.299***	
	(0.154)	(0.420)	(0.421)		(0.456)	(0.457)	
se (month)	-5.487***	-5.550***	-5.541***		-5.578***	-5.570***	
	(0.192)	(0.194)	(0.194)		(0.195)	(0.195)	
se (residual)	-0.674***	-0.672***	-0.671***		-0.751***	-0.750***	
	(0.187)	(0.192)	(0.192)		(0.193)	(0.193)	
se (cons)	-1.487***	-1.491***	-1.492***		-1.492***	-1.493***	
	(0.018)	(0.018)	(0.018)		(0.018)	(0.018)	
Observations	1920	1890	1890		1890	1890	
AIC	260.974	214.771	215.768		212.074	213.153	
BIC	316.575	275.759	282.300		273.061	279.685	

Notes: Standard errors in parentheses. Unemployment, personal job and household financial situations are time-varying predictors. A 12-months lag is used.

Significance levels: *p<0.05, **p<0.01, ***p<0.001.

Source: Own elaboration.

Estimates for random linear time models | controlling for CCI

Variable	Model 1	Model 2	Model 3		Model 4		Model 5
Month	-0.001	-0.001	-0.001		-0.001		-0.001
	(0.001)	(0.001)	(0.001)		(0.001)		(0.001)
Pandemic	3.607***	5.418***	5.411***		5.424***		5.413***
	(0.706)	(0.773)	(0.774)		(0.771)		(0.772)
Month * Pandemic	-0.029***	-0.043***	-0.043***		-0.043***		-0.043***
	(0.006)	(0.006)	(0.006)	*Stand.*	(0.006)	*Stand.*	(0.006)
CCI	0.023***	0.018**	0.018**	0.075**	0.014*	0.060*	0.014*
	(0.006)	(0.006)	(0.006)		(0.006)		(0.006)
CCI * Pandemic	0.005***		-0.001	-0.019			-0.001
	(0.001)		(0.004)				(0.005)
Personal job situation		0.152	0.152	0.095			
		(0.121)	(0.121)				
Personal job situation * Pandemic		0.170***	0.189	0.188			
		(0.019)	(0.146)				
Household financial situation					0.377**	0.208**	0.375**
					(0.142)		(0.142)
Household financial situation * Pandemic					0.169***	0.168***	0.206
					(0.019)		(0.160)
Constant	1.477*	1.557*	1.565*		1.313*		1.327*
	(0.588)	(0.605)	(0.608)		(0.610)		(0.613)
se (month)	-5.507***	-5.514***	-5.514***		-5.551***		-5.552***
	(0.192)	(0.193)	(0.193)		(0.195)		(0.195)
se (residual)	-0.696***	-0.737***	-0.737***		-0.807***		-0.806***
	(0.187)	(0.193)	(0.193)		(0.193)		(0.193)
se (cons)	-1.488***	-1.489***	-1.489***		-1.491***		-1.491***
	(0.018)	(0.018)	(0.018)		(0.018)		(0.018)
Observations	1920	1890	1890		1890		1890
AIC	244.931	223.152	225.136		218.093		220.040
BIC	300.531	284.139	291.668		279.080		286.572

Notes: Standard errors in parentheses. CCI, personal job and household financial situations are time-varying predictors. A 12-months lag is used.

Significance levels: *p<0.05, **p<0.01, ***p<0.001.

Source: Own elaboration.

Estimates for random linear time models | Using just 1 obs per semester

Variable	Model 1	Model 2		Model 3	
Month	-0.008	-0.011		-0.013	
	(0.007)	(0.007)	*Stand.*	(0.007)	*Stand.*
Unemployment	-0.027**	-0.013	-0.114	-0.009	-0.081
	(0.009)	(0.011)		(0.010)	
Personal job situation		0.429*	0.281*		
		(0.182)			
Household financial situation				0.669***	0.385***
				(0.203)	
Constant	3.968***	2.651***		1.989**	
	(0.173)	(0.583)		(0.620)	
se (month)	-3.714***	-3.731***		-3.768***	
	(0.206)	(0.207)		(0.208)	
se (residual)	-0.678***	-0.802***		-0.862***	
	(0.193)	(0.201)		(0.203)	
se (cons)	-1.423***	-1.423***		-1.429***	
	(0.042)	(0.042)		(0.042)	
Observations	315	315		315	
AIC	102.749	99.926		95.139	
BIC	129.017	129.947		125.159	

Notes: Standard errors in parentheses. Unemployment, personal job and household financial situations are time-varying predictors. A 12-months lag is used.

Significance levels: *p<0.05, **p<0.01, ***p<0.001.

Source: Own elaboration.

Conclusions

1. The effect of subjective measures of uncertainty became stronger in the pandemic period.
2. Subjective measures of uncertainty regarding specific aspects of the current situation of individuals lives have a stronger impact on GFR than unemployment or CCI when comparing like with like.
3. Now that we have more frequent data on demographic variables such as fertility, we need more frequently measured covariates too.

Thank you for your attention.

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