Online Appendix of
"If not now, when?
The timing of childbirth and labor market outcomes"

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Abstract

This online Appendix contains additional descriptive statistics, details on the estimation strategy, the full set of estimation results, and several sensitivity checks of the article "If not now, when? The timing of childbirth and labor market outcomes".

Keywords: Female labor supply; fertility; childbirth; discrete choice models; dynamic treatment effect; factor analytic model.
JEL classification codes: C33, C35, J13, J22

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A Further Descriptive Statistics

Table A.1 reports in detail the impact of each selection criterion on the sample size. It shows that 85% of the removed observations is due to the age being lower than 26 or higher than 45 at the moment of the IT-SILC interview. A further 7% and 2% of the removed observations are due to women born abroad and women still in education at the moment of the IT-SILC interview, respectively. Together, these 3 selection criteria amount to about 94% of the total loss in terms of number of women from the initial 2005 and 2011 waves of the IT-SILC.

Table A.1: Sample size across selection criteria

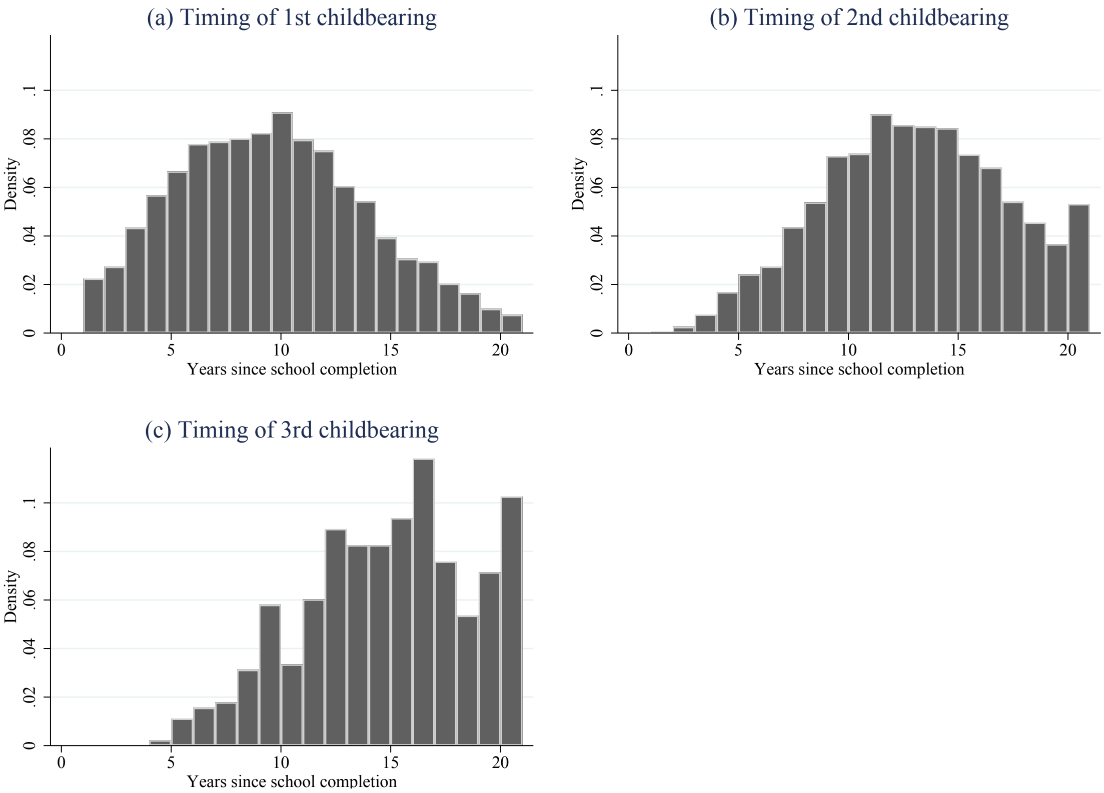
	Women left in the sample	Women removed
Women in IT-SILC, waves 2005 and 2011	50,673	–
After removing women with missing province of birth	50,664	9
After removing women born abroad	47,739	2,925
After keeping women between 26 and 45 years of age at the moment of IT-SILC interview	12,671	35,068
After removing women in education at the moment of IT-SILC interview	11,915	756
After keeping women who exited education after 1976	11,351	564
After keeping women who got their highest educational diploma before 2003 (2009) if interviewed in 2005 (2011)	10,839	512
After removing women younger than 13 or older than 32 at the time of their highest diploma	10,440	399
After removing women with more than 3 children at the time of the IT-SILC interview	10,344	96
After removing women who had children before completing education	10,149	195
After removing women with missing information on parents and/or siblings	10,082	67
After removing women never appearing in the INPS database	9,454	628
After removing women who died during the period under analysis	9,417	37
After removing women with inconsistent information or daily earnings higher than €400	9,387	30
Final sample	9,387	41,286

Figure A.1 shows the timing of childbirth by plotting the fraction of women childbearing in each year after school completion, conditional on having the corresponding pregnancy before the end of the 21st year since school completion. Among the total sample of 9,387 women, 5,566 had the first child within the 21st year since school completion, 3,140 gave birth to a second child, and 448 had also the third one.

To have a better understanding of the raw relationship between childbirth, birth timing and the labor market outcomes, we run a series of separate Ordinary Least Squares (OLS) regressions for each $t \in \{3, 6, 9, 12, 15, 18, 21\}$

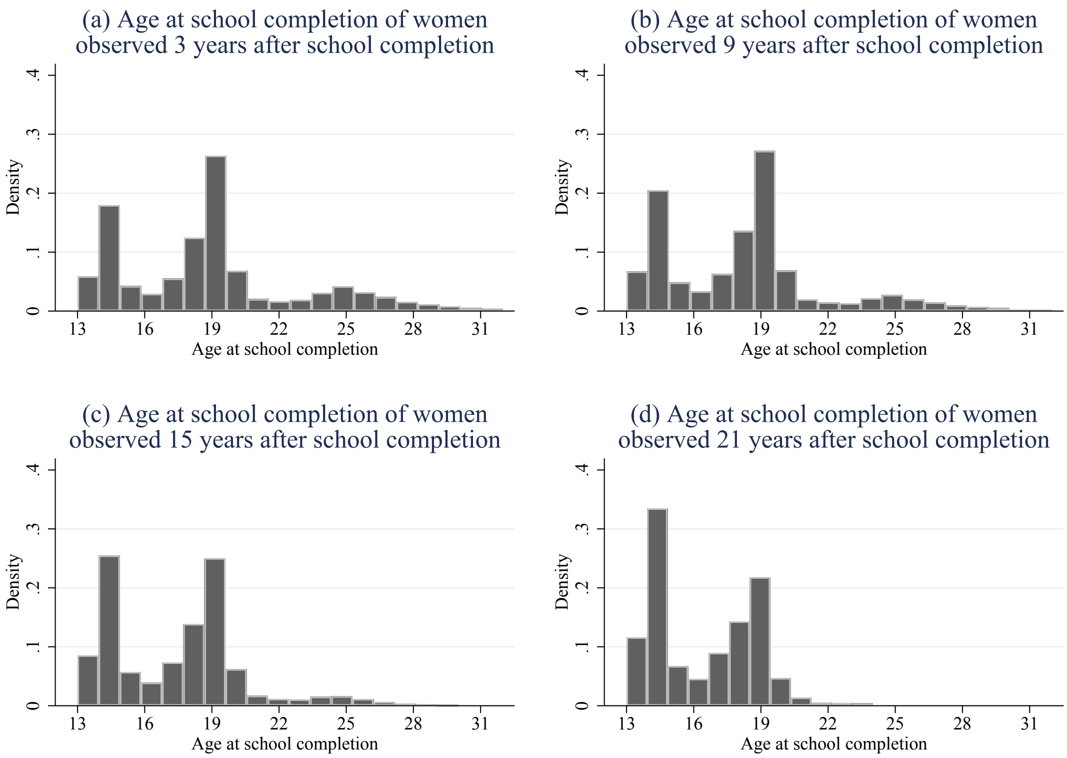
$$Y_{it} = \sum_{r=3}^{t} \beta_{tr}^{1} D_{ir}^{1} + \sum_{r=3}^{t} \beta_{tr}^{2} D_{ir}^{2} + \sum_{r=3}^{t} \beta_{tr}^{3} D_{ir}^{3} + \boldsymbol{x}_{it}' \boldsymbol{\pi}_t + \epsilon_{it}, \tag{A.1}$$

Figure A.1: The timing of childbirth (delivery date minus 3 months)



Notes: The histograms display the fraction of women having the 1st, the 2nd, and the 3rd childbirth in each year after school completion, conditional on having the corresponding expected childbirth within the end of our time-window, i.e. before the 21st year since school completion. The timing of the childbirth is defined as the delivery date minus 3 months. Graph (a) is drawn using the 5,566 women with first childbirth before the 21st year since school completion; graph (b) using the 3,140 women having the second childbirth before the 21st year since school completion; graph (c) on the basis of the 448 women having the third childbirth before the end of the time window.

Figure A.2: The age at school completion



Notes: The histograms display the distribution of women across the age at school completion for the samples observed at different moments after school completion. Graph (a) is drawn using all the 9,387 women for whom we can observe the labor market outcomes 3 years after school completion. Similarly graphs (b), (c), and (d) are drawn using 8,228, 6,148, and 3,596 women for whom we can observe the labor market outcomes 9, 15, and 21 years since school completion, respectively.

where:

- Y_{it} is either labor earnings or fraction of time spent in employment t years after school completion.
- $\boldsymbol{x}_{it}$ is a vector of covariates: the constant, age at school completion, educational attainment, regional dummies, calendar year dummies, regional unemployment, employment, and fertility rates in the t-th year after school completion.
- D_{ir}^{k}, with $k = 1, 2, 3$, are dummies equal to 1 if the k-th child is born between $r - 2$ and r years after school completion.
- β_{tr}^{k} is the impact of the k-th childbirth between $r - 2$ and r years after school completion on labor market outcome t years after school completion.
- ϵ_{it} is the error term.

The estimated β_{tr}^{1} for the t and r of interest are graphically displayed, along with 95% confidence intervals, in Figure A.3. Tables A.2 and A.3 report the point estimates of all the β_{tr}^{k}s. Figure A.3(i) shows the evolution over time of the earnings penalty related to the first childbirth, with respect to childless women, for different timing of the first childbirth. The continuous line is the earnings gap with respect to childless women childbearing the first child between 0 and 3 years after school completion. Similarly, the dotted line is the earnings gap if childbirth occurs between 4 and 6 years after school completion. Finally, the dashed line is the earnings gap if the childbearing of the first child occurred between the 7th and the 9th year after school completion. Figure A.3(ii) focuses instead on the penalty in terms of fraction of time spent in employment. The penalties due to childbirth are substantial and the highest for women conceiving a child soon after school completion: they have much lower earnings until the 21st year since school completion. The maximum penalty is reached 12 years after school completion, when it is more than €6,000. Then, they are able to slightly catch up with childless women but, 21 years after school completion (and 18-20 years from childbearing), their earnings are still significantly lower than those of childless women by about €2,500. Also, women having a child later suffer relevant and significant earnings penalties, with a similar profile but smaller in size and with minor cumulative forgone earnings. We find a similar descriptive evidence when looking at panel (b): i) the reduction in the fraction of time spent in employment is the largest for women bringing forward the first pregnancy; the catching-up response starts 12–15 years after school completion, independently of the timing of the first childbirth.

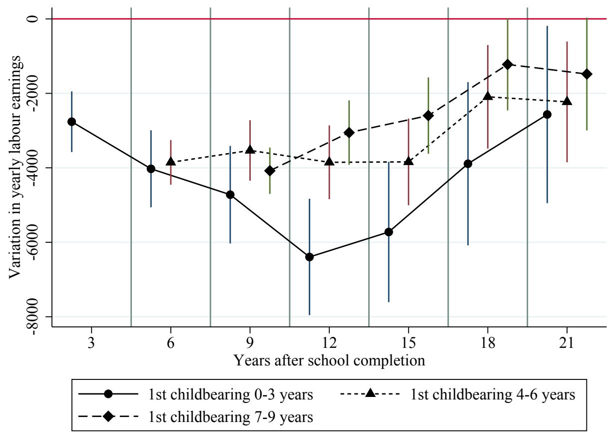
Figure A.4 displays the additional impact of the second childbirth on earnings and the time spent in employment. Those women having the second childbirth within the 6th year since school completion face an additional immediate penalty, as the impact of the second child becomes not significantly different from zero already 9 years after school completion. For women who delay the second childbirth up to 10 years since school completion, it seems that there is a further penalty in terms of both labor earnings and numbers of days at work in a year.

The estimation results presented in Figures A.3 and A.4 cannot be given a causal interpretation: the process determining fertility and birth timing is indeed endogenous because of unobserved traits, both time-constant and time-varying, which jointly determine both the labor market outcomes and the decision of whether and when to have children. In other words, women having kids could be systematically different from childless women. Moreover women having children in different stages of their lives could be systematically different from each other. The proposed econometric model is aimed at disentangling the true causal effect of childbirth and birth timing from the spurious one induced by systematic differences across women with different fertility histories, due to time-varying and time-constant characteristics unobserved by the analyst.

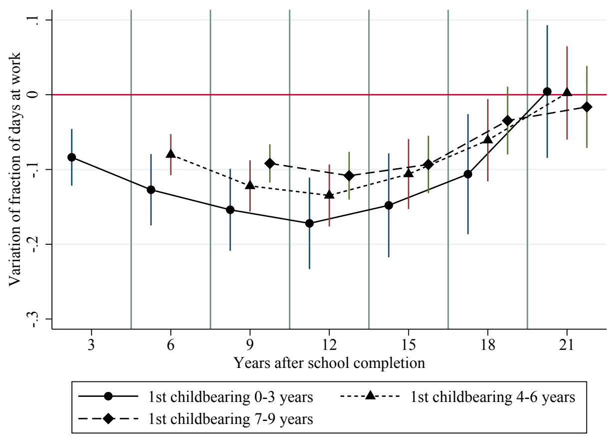
Table A.5 shows the distribution of the age at school completion by birth decade. The moment of school exit was delayed across cohorts, but not so much. Both the average age and the median age at school completion increased by 1 year between those born in the 1960s and those born in the 1980s. The 90th percentile has instead remained stable at 25 years of age. The only important change is at the 25th percentile, which moved from 14 (15) in the 1960s (1970s) to 18 in the 1980s.

Figure A.3: First childbirth, its timing and labor market outcomes

(i) Over time variation of yearly labor earnings after the 1st childbirth occurring 0-3, 4-6, or 7-9 years after school completion



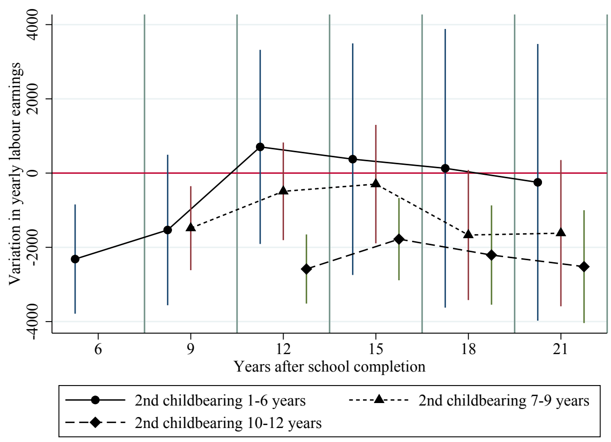
(ii) Over time variation of the fraction of days worked in a year after the 1st childbirth occurring 0-3, 4-6, or 7-9 years after school completion



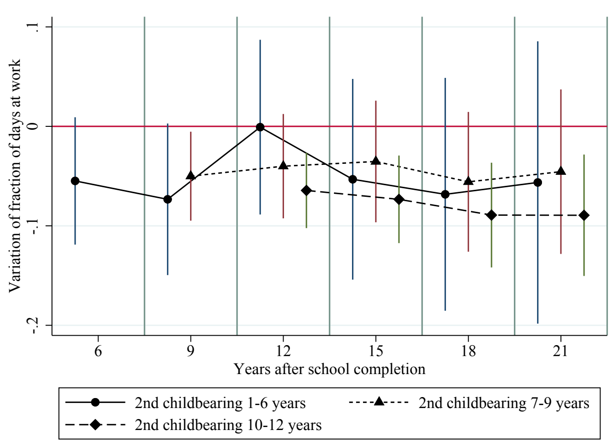
Notes: These graphs are obtained by estimating linear equations for earnings, panel (a), or fraction of time spent in employment, panel (b), 3 to 21 years after school completion and by plotting the OLS estimates of the coefficients of the dummies indicating the time interval in which the 1st childbirth occurred (delivery date minus 3 months), conditional on: the constant, the time period in which the eventual 2nd and 3rd pregnancies occurred, the age at which the diploma was obtained, the type of diploma (tertiary, secondary, or less), dummies for the region of residence, the regional unemployment, employment, and fertility rates, and time dummies for the calendar year in which earnings are evaluated. The vertical segments crossing the dots are 95% confidence intervals robust to heteroskedasticity.

Figure A.4: Second childbirth, its timing and additional impact on labor market outcomes

(i) Over time variation of yearly labor earnings after 2nd childbirth occurring 1-6, 7-9, or 10-12 years after school completion



(ii) Over time variation of the fraction of days worked in a year after 2nd childbirth occurring 1-6, 7-9, or 10-12 years after school completion



Notes: These graphs are obtained by estimating linear equations for earnings, panel (a), or fraction of time spent in employment, panel (b), 3 to 21 years after school completion and by plotting the OLS estimates of the coefficients of the dummies indicating the time interval in which the 2nd childbirth occurred (delivery date minus 3 months), conditional on: the constant, the time period in which the 1st pregnancy occurred, the time period in which an eventual 3rd pregnancy occurred, the age at which the diploma was obtained, the type of diploma (tertiary, secondary, or less), dummies for the region of residence, the regional unemployment, employment, and fertility rates, and time dummies for the calendar year in which earnings are evaluated. The vertical segments crossing the dots are 95% confidence intervals robust to heteroskedasticity.

Table A.2: OLS estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)§

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	**-2,761.52*** **	**-4,026.25*** **	**-4,721.42*** **	**-6,394.05*** **	**-5,723.17*** **	**-3,890.44*** **	**-2,567.28** **
	(415.33)	**(527.59)**	**(668.28)**	**(797.47)**	**(961.48)**	**(1,118.46)**	**(1,214.40)**
$r \in [4, 6]$	–	**-3,852.05*** **	**-3,532.45*** **	**-3,851.67*** **	**-3,840.44*** **	**-2,092.59*** **	**-1,921.48** **
		(306.29)	**(413.96)**	**(504.97)**	**(594.01)**	**(708.91)**	**(840.16)**
$r \in [7, 9]$	–	–	**-4,077.70*** **	**-3,053.58*** **	**-2,597.13*** **	**-1,223.35* **	**-1,481.06* **
			(317.31)	**(441.63)**	**(522.61)**	**(629.84)**	**(772.49)**
$r \in [10, 12]$	–	–	–	-4,212.51***	-2,530.11***	-1,346.80**	-1,796.11**
				(330.89)	(458.15)	(569.92)	(728.98)
$r \in [13, 15]$	–	–	–	–	-4,413.49***	-2,567.81***	-2,376.74***
					(420.39)	(559.34)	(755.05)
$r \in [16, 18]$	–	–	–	–	–	-4,400.75***	-2,701.51***
						(536.28)	(737.95)
$r \in [19, 21]$	–	–	–	–	–	–	-5,167.58***
							(857.69)
2nd childbirth							
$r \in [1, 6]$	–	**-2,316.40*** **	**-1,533.01**	**705.71**	**375.12**	**129.20**	**-248.59**
		(750.84)	**(1,034.25)**	**(1,334.06)**	**(1,591.56)**	**(1,915.10)**	**(1,901.55)**
$r \in [7, 9]$	–	–	**-1,483.94** **	**-491.26**	**-296.60**	**-1,668.43* **	**-1,618.63**
			(577.44)	**(670.86)**	**(813.90)**	**(894.05)**	**(1,005.07)**
$r \in [10, 12]$	–	–	–	**-2,583.90*** **	**-1,778.90*** **	**-2,207.94*** **	**-2,519.87*** **
				(474.92)	**(565.51)**	**(682.47)**	**(775.40)**
$r \in [13, 15]$	–	–	–	–	-2,676.46***	-2,227.42***	-1,773.85**
					(495.38)	(620.57)	(759.19)
$r \in [16, 18]$	–	–	–	–	–	-3,767.84***	-2,717.20***
						(619.20)	(735.61)
$r \in [19, 21]$	–	–	–	–	–	–	-2,865.21***
							(693.93)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	-3,440.78	376.69	-1,400.54	-3,536.09***	-4,644.37***	-4,386.95***
		(2,202.91)	(1,588.04)	(1,333.71)	(1,180.33)	(1,324.58)	(1,472.27)
$r \in [13, 15]$	–	–	–	–	-1,646.78*	-915.21	49.70
					(907.20)	(1,277.67)	(1,514.94)
$r \in [16, 18]$	–	–	–	–	–	-2,865.30***	-1,825.24
						(936.85)	(1,282.23)
$r \in [19, 21]$	–	–	–	–	–	–	-2,543.95*
							(986.48)
Observations	9,387	9,008	8,228	7,296	6,148	4,895	3,596
R^2	0.256	0.261	0.256	0.255	0.251	0.224	0.228

Notes: In bold the estimation results plotted in Figures A.3 and A.4. The constant, age at school completion, educational attainment, regional dummies, calendar year dummies, regional unemployment, employment, and fertility rates in the t-th year after school completion are also included in the equation for the labor earnings. Their OLS estimated parameters are not reported for the sake of brevity. They are available from the authors upon request. *** Significant at 1%; ** significant at 5%; * significant at 10%. In parentheses we report standard errors robust to heteroskedasticity.

§ Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table A.3: OLS estimated coefficients of the impact of childbirth and birth timing on the fraction of days spent in employment

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	**-0.084*** (0.019)**	**-0.127*** (0.024)**	**-0.154*** (0.028)**	**-0.172*** (0.031)**	**-0.148*** (0.035)**	**-0.106* (0.041)**	**0.004 (0.045)**
$r \in [4,6]$	–	**-0.080*** (0.014)**	**-0.122*** (0.017)**	**-0.135*** (0.021)**	**-0.106*** (0.024)**	**-0.061** (0.028)**	**0.002 (0.032)**
$r \in [7,9]$	–	–	**-0.092*** (0.013)**	**-0.108*** (0.016)**	**-0.093*** (0.020)**	**-0.035 (0.023)**	**-0.016 (0.028)**
$r \in [10,12]$	–	–	–	-0.085*** (0.014)	-0.099*** (0.017)	-0.046** (0.021)	-0.064** (0.026)
$r \in [13,15]$	–	–	–	–	-0.107*** (0.017)	-0.082*** (0.021)	-0.090*** (0.028)
$r \in [16,18]$	–	–	–	–	–	-0.083*** (0.024)	-0.071** (0.030)
$r \in [19,21]$	–	–	–	–	–	–	-0.120*** (0.039)
2nd childbirth							
$r \in [1,6]$	–	**-0.055* (0.033)**	**-0.073* (0.039)**	**-0.001 (0.045)**	**-0.053 (0.051)**	**-0.068 (0.060)**	**-0.056 (0.072)**
$r \in [7,9]$	–	–	**-0.050** (0.023)**	**-0.040 (0.027)**	**-0.035 (0.031)**	**-0.056 (0.036)**	**-0.046 (0.042)**
$r \in [10,12]$	–	–	–	**-0.064*** (0.019)**	**-0.073*** (0.022)**	**-0.089*** (0.27)**	**-0.089*** (0.031)**
$r \in [13,15]$	–	–	–	–	-0.045** (0.019)	-0.092*** (0.023)	-0.064** (0.028)
$r \in [16,18]$	–	–	–	–	–	-0.111*** (0.023)	-0.108*** (0.029)
$r \in [19,21]$	–	–	–	–	–	–	-0.096*** (0.032)
3rd childbirth							
$r \in [1,\min(t,12)]$	–	-0.048 (0.128)	0.084 (0.059)	0.005 (0.043)	-0.080 (0.049)	-0.083 (0.058)	-0.138* (0.072)
$r \in [13,15]$	–	–	–	–	-0.079 (0.049)	-0.032 (0.048)	0.015 (0.058)
$r \in [16,18]$	–	–	–	–	–	-0.134*** (0.047)	-0.171*** (0.053)
$r \in [19,21]$	–	–	–	–	–	–	-0.112** (0.054)
Observations	9,387	9,008	8,228	7,296	6,148	4,895	3,596
R^2	0.214	0.218	0.221	0.213	0.197	0.165	0.151

Notes: In bold the estimation results plotted in Figures A.3 and A.4. The constant, age at school completion, educational attainment, regional dummies, calendar year dummies, regional unemployment, employment, and fertility rates in the t-th year after school completion are also included in the equation for the fraction of time spent in employment. Their OLS estimated parameters are not reported for the sake of brevity. They are available from the authors upon request. *** Significant at 1%; ** significant at 5%; * significant at 10%. In parentheses we report standard errors robust to heteroskedasticity.

Table A.4: Empirical counterparts of the conditional expectations§ in Equations (8) and (9)

a) Expected fraction of women having the 1st childbirth in r', conditional on having the 2nd child in r: $\mathrm{E}(D^1_{ir'}|D^2_{ir}=1, r' \leq r)$

	Timing of 2nd childbirth†						
	$r \in [0,3]$	$r \in [4,6]$	$r \in [7,9]$	$r \in [10,12]$	$r \in [13,15]$	$r \in [16,18]$	$r \in [19,21]$
Timing of 1st childbirth†							
$r' \in [0,3]$	1.000	0.662	0.215	0.055	0.017	0.004	0.008
$r' \in [4,6]$	–	0.338	0.598	0.292	0.080	0.052	0.012
$r' \in [7,9]$	–	–	0.187	0.522	0.316	0.103	0.054
$r' \in [10,12]$	–	–	–	0.132	0.499	0.404	0.171
$r' \in [13,15]$	–	–	–	–	0.089	0.386	0.403
$r' \in [16,18]$	–	–	–	–	–	0.050	0.318
$r' \in [19,21]$	–	–	–	–	–	–	0.035
Total number of 2nd childbirths	34	213	520	767	729	497	258

b) Expected fraction of women having the 1st childbirth in r' and the 2nd one in r'', conditional on having the 3rd child in r:
$\mathrm{E}(D^2_{ir''}, D^1_{ir'}|D^3_{ir}=1, r' \leq r'' \leq r)$

	Timing of 3rd childbirth†						
	$r \in [0,3]$	$r \in [4,6]$	$r \in [7,9]$	$r \in [10,12]$	$r \in [13,15]$	$r \in [16,18]$	$r \in [19,21]$
Timing of 1st and 2nd childbirths†							
$r' \in [0,3]$ and $r'' \in [0,3]$	NA§	0.231	0.083	0.026	0.009	0.020	0.000
$r' \in [0,3]$ and $r'' \in [4,6]$	–	0.769	0.333	0.141	0.044	0.020	0.027
$r' \in [0,3]$ and $r'' \in [7,9]$	–	–	0.104	0.103	0.044	0.010	0.014
$r' \in [0,3]$ and $r'' \in [10,12]$	–	–	–	0.013	0.018	0.010	0.000
$r' \in [0,3]$ and $r'' \in [13,15]$	–	–	–	–	0.000	0.000	0.014
$r' \in [0,3]$ and $r'' \in [16,18]$	–	–	–	–	–	0.000	0.000
$r' \in [0,3]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.000
$r' \in [4,6]$ and $r'' \in [4,6]$	–	0.000	0.146	0.064	0.044	0.020	0.014
$r' \in [4,6]$ and $r'' \in [7,9]$	–	–	0.271	0.282	0.211	0.140	0.027
$r' \in [4,6]$ and $r'' \in [10,12]$	–	–	–	0.128	0.140	0.080	0.041
$r' \in [4,6]$ and $r'' \in [13,15]$	–	–	–	–	0.018	0.010	0.000
$r' \in [4,6]$ and $r'' \in [16,18]$	–	–	–	–	–	0.030	0.000
$r' \in [4,6]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.000
$r' \in [7,9]$ and $r'' \in [7,9]$	–	–	0.063	0.064	0.026	0.080	0.041
$r' \in [7,9]$ and $r'' \in [10,12]$	–	–	–	0.154	0.254	0.140	0.192
$r' \in [7,9]$ and $r'' \in [13,15]$	–	–	–	–	0.061	0.060	0.137
$r' \in [7,9]$ and $r'' \in [16,18]$	–	–	–	–	–	0.010	0.014
$r' \in [7,9]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.000
$r' \in [10,12]$ and $r'' \in [10,12]$	–	–	–	0.026	0.061	0.120	0.027
$r' \in [10,12]$ and $r'' \in [13,15]$	–	–	–	–	0.053	0.160	0.233
$r' \in [10,12]$ and $r'' \in [16,18]$	–	–	–	–	–	0.030	0.055
$r' \in [10,12]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.014
$r' \in [13,15]$ and $r'' \in [13,15]$	–	–	–	–	0.018	0.010	0.014
$r' \in [13,15]$ and $r'' \in [16,18]$	–	–	–	–	–	0.050	0.069
$r' \in [13,15]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.000
$r' \in [16,18]$ and $r'' \in [16,18]$	–	–	–	–	–	0.000	0.027
$r' \in [16,18]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.041
$r' \in [19,21]$ and $r'' \in [19,21]$	–	–	–	–	–	–	0.000
Total number of 3rd childbirths	0	13	48	78	114	100	73

† The timing of childbirths is equal to the delivery date minus 3 months, to take into account in the econometric analysis that women could start reacting, and therefore being "treated", before the delivery.

§ NA stands for "Not Applicable" because none in our dataset had three childbirths within 3 years since school completion.

Table A.5: Distribution of the age at school completion by birth decade

	Age at school completion		
	Born between 1960 and 1969	Born between 1970 and 1979	Born between 1980 and 1985
Mean	18.362	19.034	19.380
Std. Dev.	4.170	4.290	3.682
10th percentile	14	14	14
25th percentile	14	15	18
50th percentile	18	19	19
75th percentile	19	20	22
90th percentile	25	26	25
Observations	3,887	4,764	736

B Estimation

Here we describe in detail the specifications of the outcome, selection, and measurement equations, and the related distributional assumptions, in order to build the densities composing the final likelihood function. Next we discuss the Maximum Likelihood (ML) estimation of the model parameters and the approaches for modeling the distribution of the latent factor $\boldsymbol{\theta}_i$.

As illustrated in Section 3, our dataset allows us to follow women over time up to several years after school completion. We however decided to stop at 21 years in order to retain a large enough number of women in our sample (3,596). Because estimating the parameters for 21 outcomes, along those entering selection and measurements equations, may be computationally intractable, we restrict the set of periods for which it is of interest evaluating the effect of the timing of childbirth and choose to assess the treatment effects every three years after school completion. For this reason, it is convenient to redefine the set for the time index t as $\widetilde{T} = \{3, 6, 9, 12, 15, 18, 21\}$. As a consequence, the time at which the k-th childbirth occurs has to be read accordingly, with $r = 3$ denoting the first three years after school completion, $r = 6$ the second three-year period, and so forth.

Measurement Equations

The two additional measurement equations, for which a general expression is given in Equation (12), contain predetermined information on woman i. The first measure is indicated as $\widetilde{M}_i^1$ and is a dummy variable equal to 1 if a woman worked for at least one day in the year before school completion. It is based on M_i^1 in Equation (12) as follows

$$\widetilde{M}_i^1 = \mathbb{1}\{M_i^1 \geq 0\}, \quad M_i^1 = \boldsymbol{s}_i'\boldsymbol{\zeta}^1 + \xi^1\theta_{i3} + e_i^1,$$

where $\mathbb{1}(\cdot)$ is an indicator function and e_i^1 is assumed to be normally distributed with zero mean and unit variance. The second measure is the number of siblings the woman had when she was 14 years old, which is specified as a continuous variable:

$$M_i^2 = \boldsymbol{s}_i'\boldsymbol{\zeta}^2 + \xi^2\theta_{i3} + e_i^2,$$

where e_i^2 has zero mean and variance $V(e_i^2) = \varpi^2$. In both equations the explanatory variables $\boldsymbol{s}_i$, listed in Table B.1, are independent of θ_{i3}. When the latent factor is specified as time-varying, we let the measurements be functions of the θ_{i3} entering the outcome and treatment equations the first time we model them, i.e. three years after school completion.

Let the parameters of the measurement equations be collected into $\boldsymbol{\tau}_1$ and $\boldsymbol{\tau}_2$, respectively. The joint density of $\boldsymbol{M}_i \equiv (\widetilde{M}_i^1, M_i^2)$ can be written as

$$g(\boldsymbol{M}_i|\boldsymbol{s}_i, \theta_{i3}; \boldsymbol{\tau}) = g_1(\widetilde{M}_i^1|\boldsymbol{s}_i, \theta_{i3}; \boldsymbol{\tau}_1)g_2(M_i^2|\boldsymbol{s}_i, \theta_{i3}; \boldsymbol{\tau}_2), \tag{B.1}$$

with $\boldsymbol{\tau} = (\boldsymbol{\tau}_1', \boldsymbol{\tau}_2')'$, $g_1(\widetilde{M}_i^1|\boldsymbol{s}_i, \theta_{i3}; \boldsymbol{\tau}_1) = \Phi(\boldsymbol{s}_i'\boldsymbol{\zeta}^1 + \xi^1\theta_{i3})^{\widetilde{M}_i^1}\left[1 - \Phi(\boldsymbol{s}_i'\boldsymbol{\zeta}^1 + \xi^1\theta_{i3})\right]^{1-\widetilde{M}_i^1}$, where $\Phi(\cdot)$ is the standard normal distribution function, and $g_2(M_i^2|\boldsymbol{s}_i, \theta_{i3}; \boldsymbol{\tau}_2)$ is the normal density function.

Outcome Equations

A general expression for the outcome equation is given in Equation (1). In our empirical study, we jointly analyse two labor market outcomes, namely labor earnings of year t, $j = 1$, and the fraction of days the woman worked in t out of the total working days in that same year, $j = 2$. For the labor market outcome j for woman i in year t we adopt the following specification:

$$Y_{it}^{j} = \sum_{k} \sum_{r} \beta_{tr}^{jk} D_{ir}^{k} + \boldsymbol{M}_{i}'\boldsymbol{\pi}_{M} + \boldsymbol{x}_{it}'\boldsymbol{\pi}_{x}^{j} + \alpha_{t}^{j}\theta_{it} + \varepsilon_{it}^{j}, \qquad t, r \in \widetilde{T}, r \leq t, k = 1, \ldots, K. \tag{B.2}$$

In Equation (B.2), β_{tr}^{jk} and D_{ir}^{k} represent the treatment effects and dummies, defined in Subsection 4.1. The vector $\boldsymbol{x}_{it}$ is independent of θ_{it} and contains woman i's time-constant and time-varying characteristics listed in Table B.1. The factor structure for the unobservable component is the same as discussed in Subsection 4.2, where we change the factor loading normalisation to $\alpha_{3}^{1} = 1$ if $\theta_{it} = \theta_{i}$, otherwise $\alpha_{t}^{1} = 1, \forall\, t \in \widetilde{T}$. Finally, we assume that $\varepsilon_{it}^{j} \sim N\left(0, (\sigma_{t}^{j})^{2}\right)$.

The number of women giving birth for the k-th time in each period r is sometimes too small to have strong statistical identification of the related treatment effects. We therefore need to place the following additional restrictions on the parameters:

- Since there are no women who experienced three pregnancies in the first three years after school completion, $\beta_{t,3}^{j,3} = 0, \forall\, t \in \widetilde{T}$.
- Since only 27 women had the second pregnancy within the first 3 years after school completion: i) $\beta_{3,3}^{j,1} = \beta_{3,3}^{j,2}$; ii) $\beta_{t,3}^{j,2} = \beta_{t,6}^{j,2}, \forall\, t \geq 6$. The former states that three years after school completion the effect of the first childbirth is equal to the effect of the second childbirth. The latter imposes that starting from 6 years after school completion, the effect of the second childbirth is the same whether it occurred in the first or the second three year period.
- As only 10 women had 3 pregnancies in the first six years after school completion, $\beta_{6,6}^{j,3} = \beta_{6,6}^{j,2}$. This means that six years after school completion, the effect of the second pregnancy occurred in the second three-year period is the same as that of the third pregnancy.
- Since only 60 (129) women had the third pregnancy within the first nine (twelve) years since school completion, i) $\beta_{9,6}^{j,3} = \beta_{9,9}^{j,3}$, i.e. nine years after school completion, the effect of the third childbirth is the same, independently on when it occurred during the first nine years; ii) $\beta_{t,6}^{j,3} = \beta_{t,9}^{j,3} = \beta_{t,12}^{j,3}, \forall\, t \geq 12$, i.e. starting from twelve years after school completion, the effect of the third childbirth is the same, independently on when it occurred during the first

twelve years.

Let us collect all the parameters for the outcome model into $\boldsymbol{\psi} \equiv (\boldsymbol{\beta}, \boldsymbol{\pi}, \boldsymbol{\alpha}, \boldsymbol{\sigma})$, bearing in mind the additional restrictions. Because we are working with an unbalanced panel, let us also define a dummy variable d_{it} equal to 1 if woman i is observed in t and 0 otherwise, with $d_{i3} = 1$ for $i = 1, \ldots, n$ (see Section 4 for details). Then, we can write the density function for the outcomes of interest for woman i as

$$f\left(\boldsymbol{Y}_i | \boldsymbol{X}_i, \boldsymbol{\theta}_i; \boldsymbol{\psi}\right) = \prod_{j=1,2} \prod_{t \,\in\, \widetilde{T}} f\left(Y_{it}^{j} | \boldsymbol{X}_i, \theta_{it}; \boldsymbol{\psi}\right)^{d_{it}} \tag{B.3}$$

where

- the vector $\boldsymbol{Y}_i \equiv \left(Y_{i3}^1, Y_{i6}^1, \ldots, Y_{i21}^1, Y_{i3}^2, Y_{i6}^2, \ldots, Y_{i21}^2\right)$ collects the observed outcomes, i.e. labor earnings and fraction of days in employment 3, 6, 9, 12, 15, 18, and 21 years after school completion;
- the matrix $\boldsymbol{X}_i \equiv (\boldsymbol{D}_i, \boldsymbol{M}_i, \boldsymbol{x}_{i3}, \ldots, \boldsymbol{x}_{i21})$ collects regressors, with $\boldsymbol{D}_i$ being the matrix containing the treatment dummies;
- $\boldsymbol{\theta}_i \equiv (\theta_{i1}, \ldots, \theta_{iT})$;
- $f(\cdot)$ is the normal density function.

Selection Equations

The mechanism describing the selection into treatment is outlined in Equations (3) and (4) in Subsection 4.1 There we defined the treatment dummy D_{ir}^k as a function of the period r when the k-th childbirth occurs, with $k = 1, 2, 3$. The timing of the k-th pregnancy is described by the random variable R_i^k, which takes value r according to whether the latent index V_{ir}^k in Equation (2) belongs to the time interval $(r-1, r]$.

Let us first outline the expressions for the index functions of the selection equations for the first, second, and third pregnancies:

$$V_{ir}^1 = \boldsymbol{M}_i'\boldsymbol{\gamma}_M + \boldsymbol{z}_i'\boldsymbol{\gamma}_z + \lambda_r^1\theta_{ir} + v_i^1, \tag{B.4}$$

$$V_{ir}^2 = \boldsymbol{M}_i'\boldsymbol{\gamma}_M + \boldsymbol{z}_i'\boldsymbol{\gamma}_z + \gamma_R^2\bar{R}_i^1 + \gamma_B^2 B_i + \lambda_r^2\theta_{ir} + v_i^2, \tag{B.5}$$

$$V_{ir}^3 = \boldsymbol{M}_i'\boldsymbol{\gamma}_M + \boldsymbol{z}_i'\boldsymbol{\gamma}_z + \gamma_{R_1}^3\bar{R}_i^1 + \gamma_{R_2}^3(\bar{R}_i^2 - \bar{R}_i^1) + \gamma_G^3 G_i + \lambda_r^3\theta_{ir} + v_i^3. \tag{B.6}$$

The vector $\boldsymbol{z}_i$ is independent of θ_{ir} and collects the individual characteristics of woman i; the rest of the covariates are the treatment-specific exclusion restriction required for identification and discussed in Subsection 4.2.[1] In order to reduce the dimension of the parameter vector to be estimated, we assume a simplified structure for the factor loadings in the selection equations, which is $\lambda_r^k = \alpha_r^1\eta^k$, where α_r^1 is the same factor loading in the equation of outcome 1 with $r = t$, and $k = 1, \ldots, K$. Notice that this is not an identifying assumption, as we have shown in Subsection 4.2 that all the factor loadings λ_{ir}^k, $k = 1, .., K$ and $r = 1, \ldots, R$ are identified. Finally we assume $v_i^k \sim N(0, 1)$.

Table B.1: Observed covariates and exclusions across equations

	Selection-free measurements		Treatments			Outcomes
Regressors included in outcome, treatment, and measurement variables equations	Employment 1 year before school completion	Number of siblings at 14	Timing 1st delivery	Timing 2nd delivery	Timing 3rd delivery	Labor market outcome t years after school completion
Age at school completion	–	–	Yes	Yes	Yes	Yes
Education (primary, secondary, tertiary)	–	–	Yes	Yes	Yes	Yes
Fraction of time at work 1 year before school completion	–	–	Yes	Yes	Yes	Yes
Mother's age at delivery	Yes	Yes	Yes	Yes	Yes	Yes
Number of siblings at 14	Yes	–	Yes	Yes	Yes	Yes
Mother's highest education	Yes	Yes	Yes	Yes	Yes	Yes
Mother at work at 14	Yes	Yes	Yes	Yes	Yes	Yes
Quarter of birth	Yes	Yes	Yes	Yes	Yes	Yes
Regional unemployment rate at t	–	–	–	–	–	Yes
Regional employment rate at t	–	–	–	–	–	Yes
Regional fertility rate at t	–	–	–	–	–	Yes
Regional unemployment rate at birth	Yes	Yes	Yes	Yes	Yes	–
Regional employment rate at birth	Yes	Yes	Yes	Yes	Yes	–
Regional fertility rate at birth	Yes	Yes	Yes	Yes	Yes	–
Twins in the 1st delivery	–	–	–	Yes	–	–
Time until 1st delivery	–	–	–	Yes	Yes	–
Spacing between 1st and 2nd delivery	–	–	–	–	Yes	–
First 2 kids of the same gender	–	–	–	–	Yes	–
IT-SILC wave (2005 or 2011)	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth	Yes	Yes	Yes	Yes	Yes	Yes
Geographical area at birth (5 areas)	Yes	Yes	Yes	Yes	Yes	–
Geographical area at t (5 areas)	–	–	–	–	–	Yes
Year of observation	Yes	–	–	–	–	Yes
Indicators for timing of the 1st delivery	–	–	–	–	–	Yes
Indicators for timing of the 2nd delivery	–	–	–	–	–	Yes
Indicators for timing of the 3rd delivery	–	–	–	–	–	Yes

[1] See Table B.1 for the detailed list of regressors.

We specify the selection into treatments as ordered choice models with dependent variables R_i^k. As we did for the outcomes and in order to reduce the dimension of our model, we do not consider 21 years separately, but we rather set the categories as three-year periods. The dependent variable for the first childbirth, R_i^1, therefore takes values in the set $\widetilde{R^1} = \{\widetilde{T}, \infty\}$. Concerning the second childbirth, we further restrict the set of possible values taking a span of 6 years after school completion as the first period and the set of values for r becomes $\widetilde{R^2} = \{6, 9, 12, 15, 18, 21, \infty\}$. Similarly the set for the third childbirth R_i^3 takes the first 12 years as the first period and is defined as $\widetilde{R^3} = \{12, 15, 21, \infty\}$.[2]

The dependent variable for the k-th childbirth is therefore observed according to the following rule:

$$R_i^k = \begin{cases} \min \widetilde{R^k} & \text{if } V_{ir}^k \leq \delta_1^k \\ r, \; r \in \widetilde{R^k}_- & \text{if } \delta_q^k < V_{ir}^k \leq \delta_{q+1}^k \\ \infty & \text{if } V_{ir}^k > \delta_{Q^k}^k, \end{cases}$$

where the notation $\widetilde{R^k}_-$ indicates the set without the first element and ∞. Notice that we have introduced the threshold parameters δ_q^k, with $q = 1, \ldots, Q^k$ where $Q^1 = 7$, $Q^2 = 6$, $Q^3 = 3$.

Because of the dynamic structure of the model, estimation has to be based on treatment-time specific probabilities. This feature introduces a censoring problem concerning women having yet to experience the k-th childbirth, in period r in which their observation window ends, i.e. in the year of the IT-SILC interview. For these women, a separate likelihood contribution accounting for right censoring has to be specified. Let us define a dummy variable c_{ir} equal to 1 if woman i is right censored, meaning she has yet to give birth for the k-th time in the last period r in which her pregnancy can be observed, i.e. the year of the IT-SILC interview, and 0 otherwise. Let ν_i^k collect the linear indexes of Equations (B.4)–(B.6) containing only combinations of observable explanatory variables. Then the probability that woman i gives birth for the k-th time at r can be

[2] These aggregations of time periods ensure that there are not too few observations in each ordered time window. We moreover specify the factor loadings of the first ordered time windows as $\alpha_3\eta^2$ and $\alpha_3\eta^3$ for the second and third birth, respectively.

written as

$$P(R_i^k) = \begin{cases} \Phi(\delta_1^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir})^{1-c_{ir}} \left[1 - \Phi(\delta_1^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir})\right]^{c_{ir}} & \text{if } r = \min \widetilde{R^k} \\ \left[\Phi(\delta_{q+1}^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir}) - \Phi(\delta_q^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir})\right]^{1-c_{ir}} & \\ \quad \left[1 - \Phi(\delta_{q+1}^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir})\right]^{c_{ir}} & \text{if } r \in \widetilde{R^k}_{-} \\ \left[\Phi(\delta_{Q^k}^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir}) - \Phi(\delta_{Q^k-1}^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir})\right]^{1-c_{ir}} & \\ \quad \left[1 - \Phi(\delta_{Q^k}^k - \nu_i^k - \alpha_r^1 \eta^k \theta_{ir})\right]^{c_{ir}} & \text{if } r = \infty \end{cases}$$

where $\Phi(\cdot)$ is the standard normal cdf.

Let all the parameters for the selection equations be collected in $\boldsymbol{\varphi} = (\boldsymbol{\gamma}, \boldsymbol{\alpha}, \boldsymbol{\eta}, \boldsymbol{\delta})$, and define a dummy variable m_{ik}, for $k = 2, 3$ equal to 1 if woman i experienced the $k-1$-th pregnancy and therefore contributes to the likelihood for the k-th pregnancy, and 0 otherwise. m_{i1} is always equal to 1. Then, we can write the probability of being selected into treatment for woman i as

$$P\left(\boldsymbol{R}_i | \boldsymbol{Z}_i, \boldsymbol{\theta}_i; \boldsymbol{\varphi}\right) = \prod_{k=1}^{3} \prod_{r \,\in\, \widetilde{R^k}} P\left(R_i^k | \boldsymbol{Z}_i, \theta_{ir}; \boldsymbol{\varphi}\right)^{m_{ik}}, \tag{B.7}$$

where $\boldsymbol{R}_i \equiv \left(R_i^1, R_i^2, R_i^3\right)$, and $\boldsymbol{Z}_i \equiv \left(\boldsymbol{z}_i, \bar{R}_i^1, \bar{R}_i^2, B_i, G_i, \boldsymbol{M}_i\right)$.

Likelihood Function

Let $\boldsymbol{\phi} = (\boldsymbol{\psi}, \boldsymbol{\varphi}, \boldsymbol{\tau})$ collect all the parameters for measurement, selection, and outcome equations. The likelihood for woman i is the joint density of $(\boldsymbol{M}_i, \boldsymbol{R}_i, \boldsymbol{Y}_i)$ conditional on observable and unobservable characteristics. Using the chain rule and on the basis of expressions (B.3), (B.7), and (B.1), the individual contribution to the likelihood function can be written as

$$\mathscr{L}_i(\boldsymbol{\phi} | \boldsymbol{w}_i, \boldsymbol{Z}_i, \boldsymbol{X}_i, \boldsymbol{\theta}_i) = g(\boldsymbol{M}_i | \boldsymbol{w}_i, \theta_{i3}; \boldsymbol{\tau}) P\left(\boldsymbol{R}_i | \boldsymbol{Z}_i, \boldsymbol{\theta}_i; \boldsymbol{\varphi}\right) f\left(\boldsymbol{Y}_i | \boldsymbol{X}_i, \boldsymbol{\theta}_i; \boldsymbol{\psi}\right). \tag{B.8}$$

In the absence of UH, that is the distribution of $\boldsymbol{\theta}_i$ is degenerate, the ML estimator $\widehat{\boldsymbol{\phi}}$ can be obtained by maximising $\sum_{i=1}^{n} \ln[\mathscr{L}_i(\boldsymbol{\phi} | \boldsymbol{w}_i, \boldsymbol{Z}_i, \boldsymbol{X}_i)]$ with respect to $\boldsymbol{\phi}$.

In order to account for the presence of individual time-varying unobserved heterogeneity, we assume that the vector of latent factors $\boldsymbol{\theta}_i = (\theta_{i3}, \ldots, \theta_{i21})$ follows a multivariate discrete distribution with H support points. The unobserved heterogeneity $\boldsymbol{\theta}_i$ takes values $\boldsymbol{\theta}^h$, $h = 1, \ldots, H$, following a multinomial logit parametrization

$$p^h = Pr(\boldsymbol{\theta}_i = \boldsymbol{\theta}^h) = \frac{\exp(\rho^h)}{\sum_{u=1}^{H} \exp(\rho^u)},$$

with normalizations $\boldsymbol{\theta}^1 = 0$ and $\rho^H = 0$. Since the number of observations is decreasing with t approaching $T = 21$, we constrain $\theta^h_{18} = \theta^h_{21}$, $\forall h = 1, \ldots, H$. In other words, we constrain the UH to be constant from 18 to 21 years after school completion.

Under the assumption of discrete distribution of the UH, the i-th contribution to the likelihood becomes

$$\mathscr{L}_i(\boldsymbol{\phi}, \boldsymbol{\rho}, \boldsymbol{\Theta} | \boldsymbol{w}_i, \boldsymbol{Z}_i, \boldsymbol{X}_i) = \sum_{h=1}^{H} p^h \mathscr{L}_{ih}(\boldsymbol{\phi}, \rho^h | \boldsymbol{w}_i, \boldsymbol{Z}_i, \boldsymbol{X}_i, \boldsymbol{\theta}_i = \boldsymbol{\theta}^h), \tag{B.9}$$

where $\mathscr{L}_{ih}$ denotes the likelihood in Equation (B.8), conditional on $\boldsymbol{\theta}_i$ taking value $\boldsymbol{\theta}^h$, and the matrix $\boldsymbol{\Theta}$ collects the vectors of support points $(\boldsymbol{\theta}^1, \ldots, \boldsymbol{\theta}^H)$. If a single time-constant latent factor is assumed, the individual unobserved heterogeneity follows a univariate discrete distribution with H support points, with probability $p^h = Pr(\theta_i = \theta^h)$ defined as above, and the likelihood for woman i is a special case of Equation (B.9). The ML estimator of $\boldsymbol{\phi}, \boldsymbol{\rho}$, and $\boldsymbol{\Theta}$ is obtained by maximising the log-likelihood based on Equation (B.9).

In the estimation, we increased the number of support points H and checked whether the BIC and the AIC were decreasing. We continued until we reached 10. In the model with time-varying latent factor this amounts to the estimation of 74 parameters related to the latent factor.[3] Given this high number of parameters, the related computational difficulties, and the fact that the estimated coefficients of the treatments of interest became stable when adding the last support points, we stopped at 10. The model with time-constant latent factor and discrete distribution of θ_i with 10 support points delivered estimation results very close to those from the model in which the

[3] 9 weights for the probability masses, 54 support points (we constrain $\theta^h_{18} = \theta^h_{21}$, $\forall h = 1, \ldots, H$, otherwise they would have been 63), 11 loading factors, of which 2 for the measurement outcomes, 3 for the selection equations, and 6 for the equations of the fraction of days spent in employment (they would be 7 instead of 6 without the constraint of time-constant UH from 18 until 21 years after school completion).

distribution of θ_i is a mixture of three normal distributions, but a higher log-likelihood value (see Section 5).[4]

[4]We do not report the estimation results of the model with the time-constant latent factor for the sake of brevity. They are however available from the authors upon request.

C Full Set of Estimation Results for the Model without UH

Table C.1: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] without UH

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-3,256.99***	-4,588.84***	-4,844.16***	-5,837.28***	-5,041.59***	-3,159.89*	-1,284.03
	(509.27)	(1,004.47)	(1,130.98)	(1,459.89)	(1,525.49)	(1,863.68)	(2,014.18)
$r \in [4, 6]$	–	-4,224.79***	-3,653.00***	-3,608.79***	-3,500.74***	-1,716.97	-1,805.72
		(521.367)	(698.26)	(1,004.43)	(1,134.59)	(1,378.55)	(1,499.03)
$r \in [7, 9]$	–	–	-4,125.42***	-2,956.97***	-2,398.24**	-1,002.49	-1,308.58
			(520.22)	(703.64)	(933.99)	(1,079.57)	(1,136.19)
$r \in [10, 12]$	–	–	–	-4,242.67***	-2,527.12***	-1,360.87	-1,853.21*
				(584.54)	(750.17)	(1,033.99)	(1,050.31)
$r \in [13, 15]$	–	–	–	–	-4,604.16***	-2,767.90***	-2,653.69**
					(730.34)	(1,002.74)	(1,098.27)
$r \in [16, 18]$	–	–	–	–	–	-4,797.12***	-3,286.31**
						(1,209.99)	(1,303.84)
$r \in [19, 21]$	–	–	–	–	–	–	-5,577.67***
							(1,518.84)
2nd childbirth							
$r \in [1, 6]$	–	-2,267.12**	-1,389.87	672.40	566.82	280.0	-68.76
		(1,156.66)	(1,539.62)	(1,808.14)	(2,189.92)	(2,519.90)	(2,957.64)
$r \in [7, 9]$	–	–	-1,501.32**	-433.54	141.68	-1,334.31	-1,267.16
			(747.302)	(1,284.19)	(1,391.00)	(1,681.68)	(1,946.41)
$r \in [10, 12]$	–	–	–	-2,514.62***	-1,586.71	-2,041.5	-2,307.12*
				(814.55)	(1,079.91)	(1,258.66)	(1,350.65)
$r \in [13, 15]$	–	–	–	–	-2,679.68***	-2,093.52*	-1,510.92
					(841.42)	(1,074.28)	(1,131.62)
$r \in [16, 18]$	–	–	–	–	–	-3,793.29***	-2,797.92**
						(1,034.89)	(1,289.30)
$r \in [19, 21]$	–	–	–	–	–	–	-3,226.65***
							(1,247.32)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	13.19	-1,420.91	-3,630.76	-4,249.22	-4,052.27
			(1,717.14)	(1,585.99)	(3,063.90)	(3,267.79)	(3,979.48)
$r \in [13, 15]$	–	–	–	–	-1,707.42	-897.75	-306.35
					(1,974.28)	(2,311.68)	(2,156.89)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-2,779.11	-2,384.62
						(2,443.53)	(2,093.98)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table C.2: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment without UH

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.070***	-0.149***	-0.159***	-0.179***	-0.144***	-0.092	0.028
	(0.024)	(0.037)	(0.040)	(0.046)	(0.049)	(0.061)	(0.074)
$r \in [4, 6]$	–	-0.095***	-0.129***	-0.140***	-0.104***	-0.056	0.006
		(0.021)	(0.026)	(0.032)	(0.037)	(0.045)	(0.053)
$r \in [7, 9]$	–	–	-0.095***	-0.112***	-0.092***	-0.033	-0.017
			(0.019)	(0.025)	(0.032)	(0.038)	(0.044)
$r \in [10, 12]$	–	–	–	-0.085***	-0.098***	-0.047	-0.066
				(0.019)	(0.026)	(0.035)	(0.041)
$r \in [13, 15]$	–	–	–	–	-0.107***	-0.084**	-0.093**
					(0.025)	(0.035)	(0.043)
$r \in [16, 18]$	–	–	–	–	–	-0.085**	-0.077*
						(0.035)	(0.044)
$r \in [19, 21]$	–	–	–	–	–	–	-0.117**
							(0.049)
2nd childbirth							
$r \in [1, 6]$	–	-0.046	-0.069	0.0001	-0.060	-0.059	-0.054
		(0.043)	(0.053)	(0.064)	(0.072)	(0.089)	(0.101)
$r \in [7, 9]$	–	–	-0.055*	-0.046	-0.041	-0.049	-0.032
			(0.032)	(0.042)	(0.045)	(0.056)	(0.065)
$r \in [10, 12]$	–	–	–	-0.063**	-0.072**	-0.079*	-0.079*
				(0.027)	(0.035)	(0.041)	(0.047)
$r \in [13, 15]$	–	–	–	–	-0.044	-0.081**	-0.050
					(0.028)	(0.037)	(0.042)
$r \in [16, 18]$	–	–	–	–	–	-0.107***	-0.106**
						(0.034)	(0.043)
$r \in [19, 21]$	–	–	–	–	–	–	-0.101**
							(0.041)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	0.068	-0.0003	-0.075	-0.076	-0.119
			(0.073)	(0.056)	(0.078)	(0.094)	(0.109)
$r \in [13, 15]$	–	–	–	–	-0.049	-0.032	0.016
					(0.057)	(0.077)	(0.077)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.128**	-0.140**
						(0.061)	(0.060)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses.

Table C.3: Estimated coefficients of the covariates of the labor market outcome equations without UH

	labor earnings			Fraction of days spent in employment		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age at school completion/10[§]	6,740.64	***	583.95	0.091	***	0.023
Education - Reference: Lower secondary or less						
Higher secondary	1479.66	***	155.33	0.079	***	0.006
Tertiary	2186.22	***	207.06	0.086	***	0.009
Fraction of days worked one year before school completion	1,806.26	***	172.55	0.118	***	0.010
Age of respondent's mother at respondent's birth/10[§]	-115.59		85.43	-0.011	***	0.004
Age of respondent's mother at respondent's birth is missing	-110.96		196.63	-0.021	***	0.008
Number of siblings at 14 if IT-SILC wave is 2005/10	-688.60		484.57	-0.009		0.019
Number of siblings at 14 if IT-SILC wave is 2011/10	1,503.94	**	648.20	0.044	*	0.026
IT-SILC wave 2011	-116.47		153.32	-0.016	**	0.006
Respondent's mother has at least secondary education	149.82		94.68	-0.033	***	0.005
Respondent's mother was employed when respondent was 14	152.77	*	90.72	0.011	***	0.004
Quarter of birth - Reference: January, February, March						
April, May, June	-364.93	***	116.04	-0.010	**	0.005
July, August, September	-27.34		112.96	-0.007		0.005
October, November, December	-90.67		121.99	0.005		0.005
Regional unemployment rate at t	-22,550.40	***	3,726.35	-1.258	***	0.145
Regional employment rate at t	16,018.30	***	2,230.39	0.642	***	0.086
Regional fertility rate at t	1,963.20	***	385.28	-0.136	***	0.016
Year of birth/10 (normalized to its minimum)	-208.76		568.24	0.041	*	0.022
Geographical area at t- Reference: North-West						
North-East	285.78	**	112.02	0.033	***	0.005
Center	-1,919.47	***	118.57	-0.035	***	0.005
South	-3,463.47	***	257.32	-0.066	***	0.010
Islands (Sardinia and Sicily)	-2,887.58	***	345.23	-0.071	***	0.013
Calendar year of t - Reference: After 2005						
Before 1985	-627.03		1,551.86	0.012		0.060
Between 1986 and 1990	-78.64		1,215.75	-0.006		0.047
Between 1990 and 1995	-110.94		940.97	-0.046		0.036
Between 1996 and 2000	-341.92		641.85	-0.034		0.025
Between 2001 and 2005	-282.73		390.66	-0.011		0.016
Constant at $t = 3$	-4,519.72	*	2,362.85	0.296	***	0.091
$\ln(\sigma_3^2)^‡$	-0.327	***	0.013	-1.774	***	0.031
Constant at $t = 6$	-926.07		2,237.72	0.436	***	0.086
$\ln(\sigma_6^2)^‡$	-0.115	***	0.015	-1.775	***	0.031
Constant at $t = 9$	1,312.28		2,117.44	0.512	***	0.081
$\ln(\sigma_9^2)^‡$	0.037	***	0.013	-1.803	***	0.032
Constant at $t = 12$	2,443.59		2,016.94	0.545	***	0.077
$\ln(\sigma_{12}^2)^‡$	0.133	***	0.014	-1.791	***	0.036
Constant at $t = 15$	2,958.07		1,939.77	0.563	***	0.074
$\ln(\sigma_{15}^2)^‡$	0.170	***	0.015	-1.767	***	0.039
Constant at $t = 18$	2,990.36		1,863.68	0.556	***	0.071
$\ln(\sigma_{18}^2)^‡$	0.244	***	0.016	-1.712	***	0.047
Constant at $t = 21$	3,380.09	*	1,802.92	0.558	***	0.070
$\ln(\sigma_{21}^2)^‡$	0.236	***	0.021	-1.676	***	0.054

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.

§ Normalized to zero.

‡ We estimated the model using labor earnings divided by 10,000 to reduce numerical problems. Then, we multiplied all the estimated coefficients by 10,000 before reporting them in the tables with estimations results, apart from the natural logarithms of the variances of the underlying normal distributions. Hence, the latter must be interpreted as the log of the variance of the normal distribution of labor earnings divided by 10,000, i.e. $\ln(\sigma_t^2 \cdot 10,000)$.

Table C.4: Estimated coefficients of the measurement equations without UH

	Employment 1 year before school completion			Number of siblings at 14		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age of respondent's mother at respondent's birth/10§	-0.046		0.040	-0.046	*	0.024
Age of respondent's mother at respondent's birth is missing	0.079		0.089	-0.033		0.054
Number of siblings at 14 if IT-SILC wave is 2005/10	0.327		0.212	–		–
Number of siblings at 14 if IT-SILC wave is 2011/10	1.204	***	0.303	–		–
IT-SILC wave 2011	-0.104		0.064	-0.546	***	0.031
Respondent's mother has at least secondary education	-0.091	**	0.045	-0.170	***	0.034
Respondent's mother was employed when respondent was 14	-0.042		0.044	-0.125	***	0.031
Quarter of birth - Reference: January, February, March						
April, May, June	-0.022		0.054	0.050		0.034
July, August, September	-0.101	*	0.054	-0.028		0.035
October, November, December	-0.114	**	0.057	-0.066	*	0.037
Regional unemployment rate at birth	-0.547		1.114	-1.749	***	0.576
Regional employment rate at birth	1.989	***	0.723	-1.554	***	0.431
Regional fertility rate at birth	0.024		0.124	0.821	***	0.061
Year of birth/10 (normalized to its minimum)	-0.989	***	0.061	-0.045		0.030
Geographical area at birth - Reference: North-West						
North-East	0.249	***	0.054	0.134	***	0.039
Center	-0.094		0.060	-0.109	**	0.046
South	-0.128		0.117	0.179	**	0.070
Islands (Sardinia and Sicily)	-0.094		0.139	0.344	***	0.076
Calendar year of t - Reference: After 2001						
Before 1981	-2.926	***	0.149	–		–
Between 1982 and 1986	-2.391	***	0.126	–		–
Between 1987 and 1991	-1.690	***	0.105	–		–
Between 1992 and 1996	-1.308	***	0.094	–		–
Between 1997 and 2001	-0.749	***	0.086	–		–
Constant	0.492		0.527	1.675	***	0.299
$\ln(\sigma^2)$	–		–	0.340	***	0.009

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
§ Normalized to zero.

Table C.5: Estimated coefficients of the (ordered probit) equations for the timing of childbirth without UH

	Coeff.		Std. Err.		Coeff.		Std. Err.
(a) Variables with common effect for all the childbirth equations				***(b) Ordered probit thresholds specific to each childbirth equation***			
Age at school completion/10§	-0.599	***	0.044	*(b.1) Ordered probit thresholds of 1st childbirth equation*			
Education - Reference: Lower secondary or less				δ_1^1 (birth in $[0,3]$)	-2.609	***	0.218
Higher secondary	0.044		0.028	$\ln(\delta_2^1 - \delta_1^1)$ (birth in $[4,6]$)	-0.331	***	0.030
Tertiary	0.064		0.045	$\ln(\delta_3^1 - \delta_2^1)$ (birth in $[7,9]$)	-0.627	***	0.027
Fraction of days worked one year before school completion	-0.139	***	0.045	$\ln(\delta_4^1 - \delta_3^1)$ (birth in $[10,12]$)	-0.727	***	0.027
Age of respondent's mother at respondent's birth/10§	0.077	***	0.017	$\ln(\delta_5^1 - \delta_4^1)$ (birth in $[13,15]$)	-1.053	***	0.034
Age of respondent's mother at respondent's birth is missing	-0.004		0.039	$\ln(\delta_6^1 - \delta_5^1)$ (birth in $[16,18]$)	-1.399	***	0.047
Number of siblings at 14 if IT-SILC wave is 2005/10	-0.337	***	0.087	$\ln(\delta_7^1 - \delta_6^1)$ (birth in $[19,21]$)	-1.846	***	0.073
Number of siblings at 14 if IT-SILC wave is 2011/10	-0.631	***	0.130	*(b.2) Ordered probit thresholds of 2nd childbirth equation*			
IT-SILC wave 2011	0.021		0.030	δ_1^2 (birth in $[1,6]$)	-1.480	***	0.225
Respondent's mother has at least secondary education	0.050	**	0.023	$\ln(\delta_2^2 - \delta_1^2)$ (birth in $[7,9]$)	0.031		0.042
Respondent's mother was employed when respondent was 14	-0.049	**	0.020	$\ln(\delta_3^2 - \delta_2^2)$ (birth in $[10,12]$)	-0.134	***	0.035
Quarter of birth - Reference: January, February, March				$\ln(\delta_4^2 - \delta_3^2)$ (birth in $[13,15]$)	-0.350	***	0.035
April, May, June	-0.021		0.025	$\ln(\delta_5^2 - \delta_4^2)$ (birth in $[16,18]$)	-0.670	***	0.041
July, August, September	0.044	*	0.025	$\ln(\delta_6^2 - \delta_5^2)$ (birth in $[19,21]$)	-1.109	***	0.056
October, November, December	0.081	***	0.026	*(b.3) Ordered probit thresholds of 3rd childbirth equation*			
Regional unemployment rate at birth	0.118		0.433	δ_1^3 (birth in $[1,12]$)	-1.183	***	0.243
Regional employment rate at birth	-0.136		0.312	$\ln(\delta_2^3 - \delta_1^3)$ (birth in $[13,15]$)	-0.580	***	0.094
Regional fertility rate at birth	-0.386	***	0.051	$\ln(\delta_3^3 - \delta_2^3)$ (birth in $[16,21]$)	-0.341	***	0.073
Year of birth/10 (normalized to its minimum)	-0.031		0.023	***(c) Variables only included in the 2nd childbirth equation***			
Geographical area at birth - Reference: North-West				Time until 1st childbirth	2.125	***	0.047
North-East	-0.063	**	0.027	Twins in the 1st childbirth	-1.671	***	0.298
Center	-0.024		0.029	***(d) Variables only included in the 3rd childbirth equation***			
South	-0.101	**	0.051	Time until 1st childbirth	1.322	***	0.116
Islands (Sardinia and Sicily)	-0.031		0.061	Spacing between 1st and 2nd childbirth	2.232	***	0.168
				First 2 kids of the same gender	-0.124	**	0.063

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
§ Normalized to zero.

D Full Set of Estimation Results for the Model with Time-Varying UH

We briefly comment on the estimated coefficients associated with the other explanatory variables entering the equations for the labor market outcomes, the fertility equations for the timing to different childbirths, and the equations for the selection-free measurements.

Table D.3 reports the estimated coefficients of the covariates entering the equations of the labor market outcomes. We find that labor earnings are increasing in education and, given the same educational level, in the age at which the diploma was obtained, likely because women with longer lasting majors or further attainments, e.g. master or Ph.D., are better paid in the labor market. Women with better educated mothers enjoy higher earnings. It seems that the quarter of birth matters in explaining earnings variation: women born in the first quarter earn more, although the magnitude of the effect is limited. This is in line with the positive and small effect of school starting age on earnings found by Fredriksson and Öckert (2013) for Swedish prime-aged women. labor earnings are higher in the North of Italy and in the regions with larger fertility rates. We find a positive (negative) correlation between earnings and the (un)employment rate. Not so many covariates exhibit significant associations with the fraction of days spent in employment. Women with tertiary education and living in regions with low fertility rates and high employment rates show a larger participation at the intensive margin.

In Subsection 4.2, we explained why the model includes two selection-free measurements, i.e. the binary variable equal to one if the woman worked for at least one day in the year before school completion and the number of siblings at 14. Table D.4 reports the estimated parameters of these two equations. We find that the probability of having worked at least one day in the year before school completion is larger if the number of siblings is higher, in presence of a higher employment rate, for women from older cohorts, and in more recent time. The number of siblings is smaller if respondent's mother was employed and had higher education, in regions with low fertility rates, and especially in the Center.

Table D.5 reports the estimated coefficients of the equations for the timing of childbirth, defined as the delivery date minus 3 months. Given the discretisation of the timing in three-year periods and the ordered probit structure (see Appendix B for details), a positive coefficient implies that the corresponding regressor negatively affects the probability of having a child in the first 3 years after school completion. We find that: the older the woman at school completion, the sooner she gives birth; if respondent's mother was older when she gave birth and had higher education, then the respondent is more likely to delay the childbearing; if the woman has a larger number of siblings, she is more likely to have a child soon; childbearing soon is more likely when the respondent's mother used to work when the respondent was 14, where the regional fertility rate is higher, in the North-East, and for women born in the first half of the year. The timing to the first childbirth and the spacing between the first-born and the second child are strong predictors of the timing of the next pregnancies. The longer a childbirth is delayed, the larger the probability that the next births will not occur before the end of the 21st year since school completion. If a woman had twins at the first childbirth, she is significantly less likely to delay the subsequent pregnancy. Finally, as in Angrist and Evans (1998), mothers of same-sex siblings are significantly more likely to have the third child and to have it sooner.

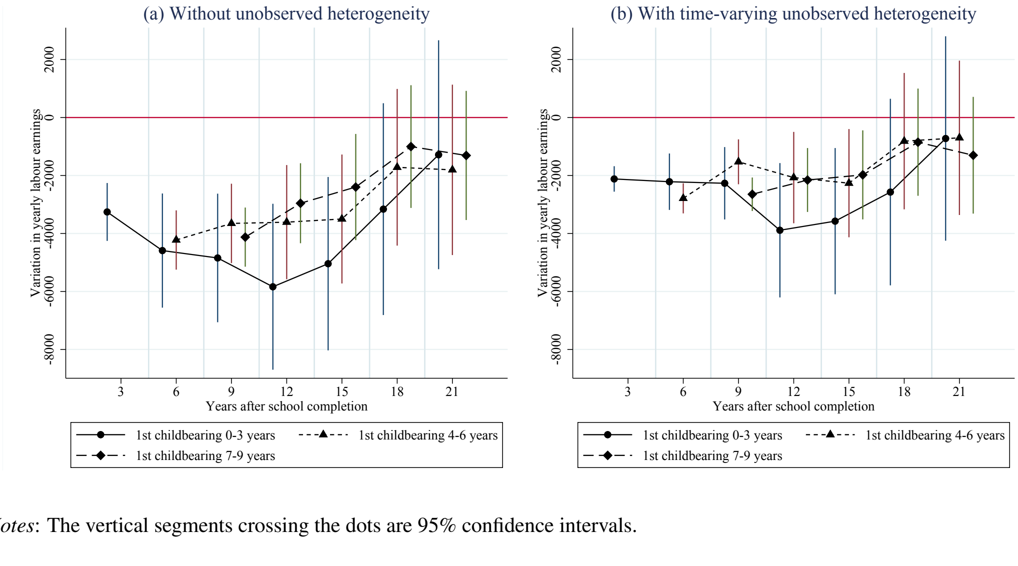
Table D.6 reports the estimated discrete distribution of the time-varying latent factor with 10 support points. Table D.8 displays the loading factors connecting this distribution and the error terms of each of the 19 equations (2 selection-free measurements, 3 timing-to-fertility equations, 7 equations for labor earnings and 7 for the time spent in employment). Since the loading factors entering the earnings equations are normalized to 1, the support points of the latent factor are in 2014 Euro.

Table D.1: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-2,118.85***	-2,214.15***	-2,575.16***	-3,888.21***	-3,574.70***	-2,571.86	-723.93
	(224.08)	(496.54)	(842.05)	(1,181.72)	(1,286.52)	(1,641.35)	(1,798.58)
$r \in [4,6]$	–	-2,788.87***	-1,528.01***	-2,072.26***	-2,264.35**	-814.74	-701.01
		(264.25)	(394.74)	(804.01)	(952.21)	(1,199.84)	(1,358.20)
$r \in [7,9]$	–	–	-2,647.11***	-2,156.74***	-1,978.21**	-851.46	-1,301.50
			(294.74)	(562.18)	(783.15)	(943.18)	(1,026.78)
$r \in [10,12]$	–	–	–	-4,587.15***	-3,048.33***	-1,992.61**	-2,696.22***
				(466.36)	(627.64)	(901.57)	(941.20)
$r \in [13,15]$	–	–	–	–	-5,252.28***	-3,611.45***	-3,486.83***
					(608.28)	(868.59)	(980.83)
$r \in [16,18]$	–	–	–	–	–	-5,970.15***	-4,282.46***
						(1,044.77)	(1,166.02)
$r \in [19,21]$	–	–	–	–	–	–	-6,529.77***
							(1,354.62)
2nd childbirth							
$r \in [1,6]$	–	-1,627.34***	-89.08	1,917.87	1,7235.82	1,737.31	1,047.35
		(568.15)	(853.40)	(1,447.52)	(1,856.84)	(2,224.65)	(2,686.57)
$r \in [7,9]$	–	–	-589.00	417.75	766.52	-917.03	-786.18
			(423.36)	(1,024.11)	(1,173.13)	(1,470.30)	(1,786.30)
$r \in [10,12]$	–	–	–	-2,652.88***	-1,723.97*	-2,081.30*	-2,422.07**
				(642.31)	(907.00)	(1,101.08)	(1,221.84)
$r \in [13,15]$	–	–	–	–	-2,615.12***	-2,289.41**	-1,771.60*
					(696.32)	(931.87)	(1,019.93)
$r \in [16,18]$	–	–	–	–	–	-3,561.24 ***	-2,510.00**
						(894.24)	(1,147.43)
$r \in [19,21]$	–	–	–	–	–	–	-3,918.11***
							(1,109.33)
3rd childbirth							
$r \in [1, \min(t,12)]$	–	–	-1,328.19	-1,867.08	-3,512.71	-4,225.11	-4,273.93
			(970.12)	(1,247.14)	(2,578.34)	(2,840.12)	(3,652.86)
$r \in [13,15]$	–	–	–	–	-1,480.81	-823.15	22.03
					(1,624.73)	(1,990.29)	(1,931.12)
$r \in [16, \min(t,21)]$	–	–	–	–	–	-3,344.08	-1,537.42
						(2,105.44)	(1,861.15)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.
§ Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Figure D.1: Impact on labor earnings of the 1st birth occurring 0-3, 4-6, or 7-9 years after school completion without UH (a) and with time-varying UH (b)



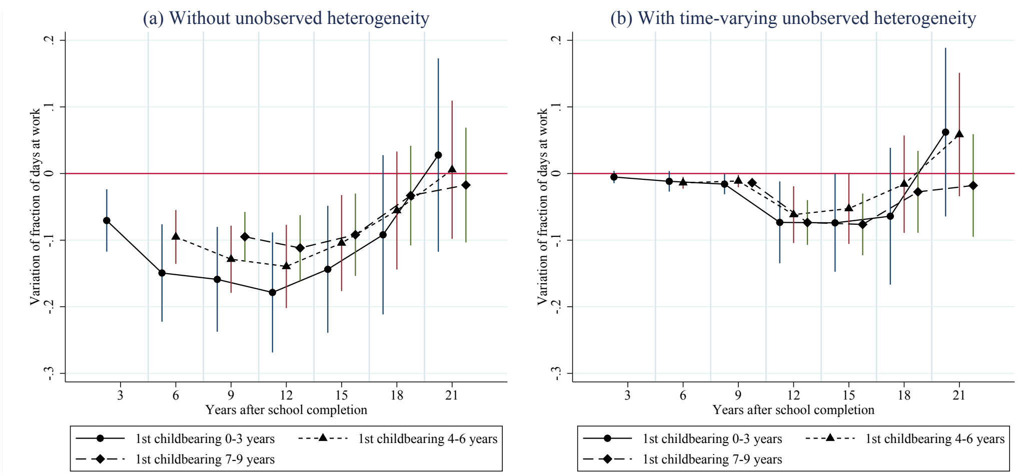
Notes: The vertical segments crossing the dots are 95% confidence intervals.

Table D.2: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.005	-0.012	-0.016**	-0.073***	-0.074**	-0.064	0.062
	(0.005)	(0.008)	(0.008)	(0.031)	(0.037)	(0.052)	(0.065)
$r \in [4, 6]$	–	-0.014***	-0.011**	-0.062***	-0.053*	-0.016	0.059
		(0.005)	(0.005)	(0.022)	(0.027)	(0.037)	(0.047)
$r \in [7, 9]$	–	–	-0.014***	-0.074***	-0.076***	-0.027	-0.018
			(0.004)	(0.017)	(0.024)	(0.031)	(0.039)
$r \in [10, 12]$	–	–	–	-0.105***	-0.127***	-0.077***	-0.105***
				(0.014)	(0.020)	(0.029)	(0.036)
$r \in [13, 15]$	–	–	–	–	-0.140***	-0.123***	-0.130***
					(0.020)	(0.029)	(0.038)
$r \in [16, 18]$	–	–	–	–	–	-0.143***	-0.126***
						(0.030)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.168***
							(0.044)
2nd childbirth							
$r \in [1, 6]$	–	-0.013	0.000	0.049	-0.007	-0.008	-0.025
		(0.010)	(0.013)	(0.045)	(0.054)	(0.073)	(0.092)
$r \in [7, 9]$	–	–	-0.003	-0.014	-0.015	-0.047	-0.032
			(0.007)	(0.029)	(0.033)	(0.047)	(0.058)
$r \in [10, 12]$	–	–	–	-0.076***	-0.082***	-0.094***	-0.098**
				(0.019)	(0.026)	(0.034)	(0.042)
$r \in [13, 15]$	–	–	–	–	-0.046**	-0.102***	-0.074**
					(0.021)	(0.030)	(0.037)
$r \in [16, 18]$	–	–	–	–	–	-0.101***	-0.098**
						(0.028)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.139***
							(0.037)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.010	-0.019	-0.075	-0.065	-0.136
			(0.020)	(0.041)	(0.059)	(0.081)	(0.097)
$r \in [13, 15]$	–	–	–	–	-0.044	-0.026	0.026
					(0.043)	(0.064)	(0.069)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.163***	-0.154***
						(0.052)	(0.053)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

Figure D.2: Impact on yearly fraction of days spent at work of the 1st birth occurring 0-3, 4-6, or 10-12 years after school completion without UH (a) and with time-varying UH (b)



Notes: The vertical segments crossing the dots are 95% confidence intervals.

Table D.3: Estimated coefficients of the covariates of the labor market outcome equations with time-varying UH

	labor earnings			Fraction of days spent in employment		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age at school completion/10§	4,961.08	***	328.74	-0.002		0.006
Education - Reference: Lower secondary or less						
Higher secondary	538.99	***	95.72	0.011	***	0.002
Tertiary	1,260.88	***	125.78	0.012	***	0.003
Fraction of days worked one year before school completion	-38.85		96.06	0.005		0.004
Age of respondent's mother at respondent's birth/10§	34.02		50.30	-0.001		0.001
Age of respondent's mother at respondent's birth is missing	250.13	**	116.23	0.001		0.003
Number of siblings at 14 if IT-SILC wave is 2005/10	-702.77	**	278.87	-0.006		0.006
Number of siblings at 14 if IT-SILC wave is 2011/10	829.97	**	388.17	0.000		0.010
IT-SILC wave 2011	125.05		87.04	-0.003		0.002
Respondent's mother has at least secondary education	643.18	***	54.47	-0.004	***	0.002
Respondent's mother was employed when respondent was 14	69.27		53.00	0.003	*	0.001
Quarter of birth - Reference: January, February, March						
April, May, June	-286.46	***	68.93	-0.001		0.002
July, August, September	81.96		65.81	0.001		0.002
October, November, December	-253.80	***	71.66	-0.001		0.002
Regional unemployment rate at t	-2,881.46		2,126.80	-0.048		0.040
Regional employment rate at t	6,965.54	***	1,270.24	0.101	***	0.025
Regional fertility rate at t	3,637.19	***	213.94	-0.014	***	0.005
Year of birth/10 (normalized to its minimum)	-596.18	*	318.03	-0.005		0.005
Geographical area at t- Reference: North-West						
North-East	-138.75	**	65.33	0.004	**	0.002
Center	-1,193.57	***	70.33	0.005	**	0.002
South	-2,259.90	***	148.28	-0.001		0.004
Islands (Sardinia and Sicily)	-1,638.93	***	199.68	0.001		0.004
Calendar year of t - Reference: After 2005						
Before 1985	-406.02		852.22	-0.011		0.012
Between 1986 and 1990	277.84		676.59	-0.013		0.010
Between 1990 and 1995	639.00		523.99	-0.020	**	0.008
Between 1996 and 2000	119.10		357.77	-0.014	**	0.006
Between 2001 and 2005	7.49		219.56	-0.007	*	0.004
Constant at $t = 3$	4,245.84	***	1,317.46	0.873	***	0.022
$\ln(\sigma_3^2)^\ddagger$	-1.13	***	0.01	-4.854	***	0.017
Constant at $t = 6$	-6,481.39	***	1,264.24	0.119	***	0.022
$\ln(\sigma_6^2)^\ddagger$	-0.80	***	0.01	-4.374	***	0.020
Constant at $t = 9$	7,853.14	***	1,190.50	0.908	***	0.022
$\ln(\sigma_9^2)^\ddagger$	-0.53	***	0.01	-4.527	***	0.019
Constant at $t = 12$	6,247.72	***	1,183.20	0.766	***	0.028
$\ln(\sigma_{12}^2)^\ddagger$	-0.10	***	0.01	-2.205	***	0.041
Constant at $t = 15$	5,794.33	***	1,196.83	0.729	***	0.032
$\ln(\sigma_{15}^2)^\ddagger$	-0.02		0.01	-2.083	***	0.048
Constant at $t = 18$	6,648.34	***	1,136.88	0.756	***	0.031
$\ln(\sigma_{18}^2)^\ddagger$	0.09	***	0.01	-1.915	***	0.052
Constant at $t = 21$	7,357.31	***	1,139.24	0.770	***	0.034
$\ln(\sigma_{21}^2)^\ddagger$	0.11	***	0.02	-1.797	***	0.055

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.

§ Normalized to zero.

‡ We estimated the model using labor earnings divided by 10,000 to reduce numerical problems. Then, we multiplied all the estimated coefficients by 10,000 before reporting them in the tables with estimations results, apart from the natural logarithms of the variances of the underlying normal distributions. Hence, the latter must be interpreted as the log of the variance of the normal distribution of labor earnings divided by 10,000, i.e. $\ln(\sigma_t^2 \cdot 10,000)$.

Table D.4: Estimated coefficients of the measurement equations with time-varying UH

	Employment 1 year before school completion			Number of siblings at 14		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age of respondent's mother at respondent's birth/10§	-0.035		0.040	-0.045	*	0.024
Age of respondent's mother at respondent's birth is missing	0.107		0.091	-0.033		0.055
Number of siblings at 14 if IT-SILC wave is 2005/10	0.354		0.222	–		–
Number of siblings at 14 if IT-SILC wave is 2011/10	1.187	***	0.309	–		–
IT-SILC wave 2011	-0.095		0.066	-0.546	***	0.032
Respondent's mother has at least secondary education	-0.074		0.046	-0.171	***	0.034
Respondent's mother was employed when respondent was 14	-0.033		0.045	-0.125	***	0.031
Quarter of birth - Reference: January, February, March						
April, May, June	-0.015		0.055	0.051		0.034
July, August, September	-0.103	*	0.056	-0.028		0.035
October, November, December	-0.140	**	0.059	-0.066	*	0.037
Regional unemployment rate at birth	-1.081		1.174	-1.753	***	0.578
Regional employment rate at birth	1.128		0.753	-1.566	***	0.434
Regional fertility rate at birth	0.052		0.126	0.823	***	0.061
Year of birth/10 (normalized to its minimum)	-0.964	***	0.063	-0.045		0.030
Geographical area at birth - Reference: North-West						
North-East	0.231	***	0.056	0.134	***	0.040
Center	-0.036		0.062	-0.109	**	0.046
South	-0.024		0.119	0.180	**	0.070
Islands (Sardinia and Sicily)	0.013		0.145	0.346	***	0.077
Calendar year of t - Reference: After 2001						
Before 1981	-2.811	***	0.153	–		–
Between 1982 and 1986	-2.293	***	0.129	–		–
Between 1987 and 1991	-1.593	***	0.107	–		–
Between 1992 and 1996	-1.240	***	0.097	–		–
Between 1997 and 2001	-0.740	***	0.088	–		–
Constant	1.025	*	0.547	1.683	***	0.302
$\ln(\sigma^2)$	–		–	0.340	***	0.009

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
§ Normalized to zero.

Table D.5: Estimated coefficients of the (ordered probit) equations for the timing of childbirth with time-varying UH

	Coeff.		Std. Err.		Coeff.		Std. Err.
(a) Variables with common effect for all the childbirth equations				***(b) Ordered probit thresholds specific to each childbirth equation***			
Age at school completion/10§	-0.618	***	0.045	*(b.1) Ordered probit thresholds of 1st childbirth equation*			
Education - Reference: Lower secondary or less				δ_1^1 (birth in $[1,3]$)	-2.772	***	0.219
Higher secondary	0.041		0.028	$\ln(\delta_2^1 - \delta_1^1)$ (birth in $[4,6]$)	-0.080	**	0.032
Tertiary	0.059		0.046	$\ln(\delta_3^1 - \delta_2^1)$ (birth in $[7,9]$)	-1.050	***	0.059
Fraction of days worked one year before school completion	-0.162	***	0.046	$\ln(\delta_4^1 - \delta_3^1)$ (birth in $[10,12]$)	-0.624	***	0.028
Age of respondent's mother at respondent's birth/10§	0.077	***	0.018	$\ln(\delta_5^1 - \delta_4^1)$ (birth in $[13,15]$)	-1.282	***	0.050
Age of respondent's mother at respondent's birth is missing	0.000		0.040	$\ln(\delta_6^1 - \delta_5^1)$ (birth in $[16,18]$)	-1.040	***	0.047
Number of siblings at 14 if IT-SILC wave is 2005/10	-0.319	***	0.087	$\ln(\delta_7^1 - \delta_6^1)$ (birth in $[19,21]$)	-1.860	***	0.074
Number of siblings at 14 if IT-SILC wave is 2011/10	-0.616	***	0.131	*(b.2) Ordered probit thresholds of 2nd childbirth equation*			
IT-SILC wave 2011	0.028		0.030	δ_1^2 (birth in $[1,6]$)	-1.605	***	0.227
Respondent's mother has at least secondary education	0.048	**	0.023	$\ln(\delta_2^2 - \delta_1^2)$ (birth in $[7,9]$)	0.031		0.042
Respondent's mother was employed when respondent was 14	-0.051	**	0.021	$\ln(\delta_3^2 - \delta_2^2)$ (birth in $[10,12]$)	-0.102	***	0.036
Quarter of birth - Reference: January, February, March				$\ln(\delta_4^2 - \delta_3^2)$ (birth in $[13,15]$)	-0.333	***	0.035
April, May, June	-0.020		0.025	$\ln(\delta_5^2 - \delta_4^2)$ (birth in $[16,18]$)	-0.674	***	0.042
July, August, September	0.043	*	0.025	$\ln(\delta_6^2 - \delta_5^2)$ (birth in $[19,21]$)	-1.108	***	0.057
October, November, December	0.080	***	0.026	*(b.3) Ordered probit thresholds of 3rd childbirth equation*			
Regional unemployment rate at birth	0.132		0.435	δ_1^3 (birth in $[1,12]$)	-1.242	***	0.247
Regional employment rate at birth	-0.267		0.313	$\ln(\delta_2^3 - \delta_1^3)$ (birth in $[13,15]$)	-0.584	***	0.104
Regional fertility rate at birth	-0.368	***	0.051	$\ln(\delta_3^3 - \delta_2^3)$ (birth in $[16,21]$)	-0.332	***	0.073
Year of birth/10 (normalized to its minimum)	-0.045	*	0.023	***(c) Variables only included in the 2nd childbirth equation***			
Geographical area at birth - Reference: North-West				Time until 1st childbirth	2.107	***	0.048
North-East	-0.071	***	0.027	Twins in the 1st childbirth	-1.668	***	0.295
Center	-0.021		0.029	***(d) Variables only included in the 3rd childbirth equation***			
South	-0.088	*	0.051	Time until 1st childbirth	1.317	***	0.117
Islands (Sardinia and Sicily)	-0.017		0.061	Spacing between 1st and 2nd childbirth	2.222	***	0.169
				First 2 kids of the same gender	-0.127	**	0.064

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
§ Normalized to zero.

Table D.6: Estimated distribution of the discrete time-varying UH with $H = 10$ support points

	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18 \vee t = 21$	Logistic weight of the probability masses (ρ^h)	Resulting probabilities (p^h)
$\boldsymbol{\theta}^1$	0.00	0.00	0.00	0.00	0.00	0.00	-0.383***	0.033
							(0.082)	
$\boldsymbol{\theta}^2$	-13,266.27***	13,204.39***	577.47***	1,674.92***	1,821.98***	815.64**	1.056***	0.141
	(173.60)	(235.20)	(111.01)	(366.56)	(466.91)	(337.78)	(0.060)	
$\boldsymbol{\theta}^3$	-13,263.37***	-1,696.48***	-15,290.21***	-12,160.21***	-10,630.48***	-9,219.04***	1.219***	0.166
	(178.65)	(108.54)	(344.72)	(703.61)	(810.65)	(554.45)	(0.062)	
$\boldsymbol{\theta}^4$	-13,290.51***	-1,665.27***	-14,836.41***	-2,675.19***	3,269.21***	4,125.17***	0.454***	0.077
	(185.70)	(119.98)	(334.38)	(373.13)	(544.17)	(411.96)	(0.072)	
$\boldsymbol{\theta}^5$	-12,564.76***	12,495.54***	-14,295.47***	-7,687.91***	-5,435.92***	-3,842.54***	-0.155	0.042
	(171.14)	(233.15)	(325.93)	(543.31)	(598.48)	(412.71)	(0.078)	
$\boldsymbol{\theta}^6$	1,265.36***	14,040.96***	857.43***	3,050.61***	3,785.14***	2,278.74***	1.821***	0.303
	(64.15)	(242.42)	(109.85)	(362.74)	(476.74)	(329.97)	(0.058)	
$\boldsymbol{\theta}^7$	610.31***	12,982.32***	-14,145.12***	-5,600.35***	-4,245.72***	-4,183.45***	-0.159**	0.042
	(72.65)	(241.92)	(319.56)	(467.87)	(592.60)	(422.85)	(0.080)	
$\boldsymbol{\theta}^8$	-13,234.34***	-892.56***	54.00	-62.94	745.24	-463.78	0.794***	0.109
	(176.05)	(87.93)	(107.09)	(359.42)	(465.77)	(335.60)	(0.063)	
$\boldsymbol{\theta}^9$	-365.90***	-1,007.77***	-15,058.78***	-8,725.41***	-5,594.61***	-6,460.93***	-0.247***	0.038
	(65.43)	(116.99)	(347.43)	(582.57)	(626.15)	(489.67)	(0.080)	
$\boldsymbol{\theta}^{10}$	-5,971.61***	13,183.09***	536.59***	1,926.79***	2,419.68***	1,543.40***	0.000	0.049
	(101.03)	(239.69)	(135.82)	(445.56)	(570.61)	(406.54)		

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses. Since the loading factors of the earnings equations are normalized to 1, all the figures are in 2014 Euro. The normalisation $\boldsymbol{\theta}^1 = \mathbf{0}$ is innocuous: all the support points are indeed in deviation from the time-varying constant terms displayed in the last part of Table D.3.

Table D.7: Covariance matrix of the discrete time-varying UH distribution

	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18 \vee t = 21$
$t = 3$	0.4710	–	–	–	–	–
	(0.0116)	–	–	–	–	–
$t = 6$	0.2797	0.5420	–	–	–	–
	(0.0073)	(0.0181)	–	–	–	–
$t = 9$	0.1994	0.3365	0.5592	–	–	–
	(0.0080)	(0.0104)	(0.0241)	–	–	–
$t = 12$	0.1810	0.2797	0.3837	0.3170	–	–
	(0.0107)	(0.0149)	(0.0181)	(0.0307)	–	–
$t = 15$	0.1546	0.2245	0.3073	0.2855	0.2764	–
	(0.0112)	(0.0151)	(0.0194)	(0.0197)	(0.0331)	–
$t = 18 \vee t = 21$	0.1091	0.1730	0.2297	0.2277	0.2276	0.1924
	(0.0077)	(0.0107)	(0.0133)	(0.0149)	(0.0151)	(0.0180)

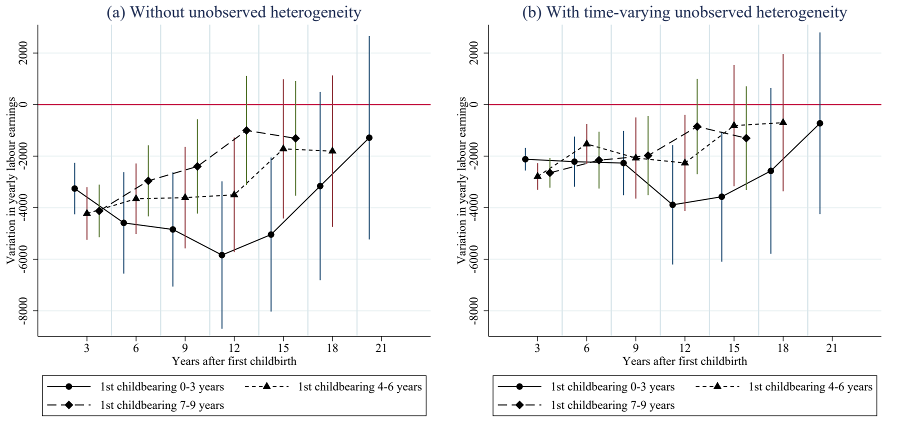
Notes: Before computing the covariance matrix the support points displayed in Table D.6 were divided by 10,000 for the sake of readability. Standard errors in parentheses. All coefficients are statistically significant at the 1% level.

Table D.8: Estimated loading factors

Equations	Loading factor		Std. Err.
Measurement equations			
Employment 1 year before school completion	0.408	***	0.033
Number of siblings when 14 years old	0.006		0.021
Selection into treatment equations			
1st pregnancy	-0.149	***	0.013
2nd pregnancy	-0.078	***	0.027
3rd pregnancy	0.011		0.050
Equations for the fraction of time at work			
3 years after school completion	0.649	***	0.009
6 years after school completion	0.598	***	0.012
9 years after school completion	0.581	***	0.014
12 years after school completion	0.517	***	0.037
15 years after school completion	0.493	***	0.045
18 or 21 years after school completion	0.464	***	0.037

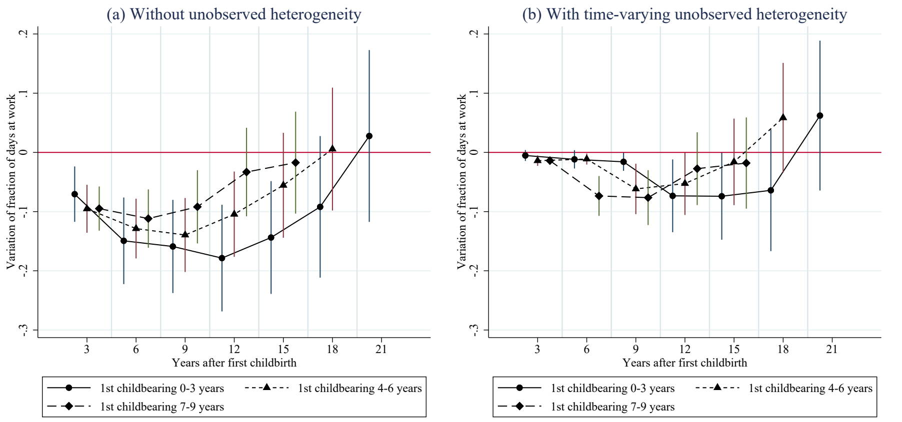
Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
§ The loading factors of the labor earnings equations are normalized to 1.

Figure D.3: The impact on labor earnings of the 1st childbirth occurring 0-3, 4-6, or 7-9 years after school completion over time after the first childbirth



Notes: The vertical segments crossing the dots are 95% confidence intervals.

Figure D.4: The impact on the yearly fraction of days spent in employment of the 1st childbirth occurring 0-3, 4-6, or 10-12 years after school completion over time after the first childbirth



Notes: The vertical segments crossing the dots are 95% confidence intervals.

E Full Set of Estimation Results for the Model with Time-Constant UH, Discrete Distribution with 10 Support Points

Table E.1: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-constant UH (discrete distribution with 10 support points)

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-3,360.72***	-5,196.35***	-5,166.56***	-6,126.59***	-5,515.24***	-4,013.34***	-2,360.47*
	(428.87)	(686.28)	(706.41)	(756.66)	(871.46)	(1,136.33)	(1,370.28)
$r \in [4, 6]$	–	-5,373.93***	-5,025.22***	-5,288.05***	-5,269.29***	-3,654.09***	-3,500.51***
		(376.67)	(428.37)	(494.61)	(611.68)	(782.61)	(1,000.29)
$r \in [7, 9]$	–	–	-5,365.2***	-4,649.43***	-4,349.55***	-2,867.21***	-3,166.45***
			(289.95)	(336.60)	(478.40)	(627.52)	(776.85)
$r \in [10, 12]$	–	–	–	-5,791.22***	-4,507.01***	-3,370.53***	-3,824.65***
				(263.12)	(390.96)	(613.67)	(686.49)
$r \in [13, 15]$	–	–	–	–	-5,582.77***	-3,786.59***	-3,841.98***
					(343.64)	(548.96)	(710.81)
$r \in [16, 18]$	–	–	–	–	–	-6,675.04***	-4,954.51***
						(656.65)	(813.93)
$r \in [19, 21]$	–	–	–	–	–	–	-6,860.34***
							(928.25)
2nd childbirth							
$r \in [1, 6]$	–	-1,789.76**	-1,631.81*	-245.31	-522.47	-314.14	-1,835.62
		(834.66)	(892.24)	(888.11)	(1,361.86)	(1,657.25)	(2,226.38)
$r \in [7, 9]$	–	–	-2,432.48***	-1,397.37**	-1,060.88	-2,167.78**	-2,026.78
			(480.44)	(587.38)	(700.04)	(1,009.02)	(1,344.58)
$r \in [10, 12]$	–	–	–	-2,971.3***	-2,311.94***	-2,564.94***	-2,799.9***
				(358.79)	(536.39)	(720.31)	(901.44)
$r \in [13, 15]$	–	–	–	–	-2,504.18***	-2,188.27***	-1,700.43**
					(402.42)	(609.62)	(750.32)
$r \in [16, 18]$	–	–	–	–	–	-3,788.36***	-2,733.11***
						(592.47)	(814.12)
$r \in [19, 21]$	–	–	–	–	–	–	-3,909.21***
							(745.53)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	626.15	-1,210.54*	-2,833.72*	-3,500.67*	-3,173.46
			(1,034.65)	(669.9)	(1,501.74)	(1,859.45)	(2,701.4)
$r \in [13, 15]$	–	–	–	–	-1,411.9	-1,456.37	-265.57
					(919.87)	(1,297.23)	(1,503.04)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-2,427.57*	-1,944.76
						(1,321.04)	(1,296.11)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table E.2: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-constant UH (discrete distribution with 10 support points)

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-0.073***	-0.166***	-0.167***	-0.181***	-0.159***	-0.117***	0.0003
	(0.021)	(0.029)	(0.029)	(0.031)	(0.033)	(0.044)	(0.055)
$r \in [4,6]$	–	-0.131***	-0.169***	-0.187***	-0.159***	-0.115***	-0.044
		(0.017)	(0.018)	(0.020)	(0.024)	(0.031)	(0.040)
$r \in [7,9]$	–	–	-0.131***	-0.161***	-0.151***	-0.090***	-0.073**
			(0.014)	(0.016)	(0.020)	(0.026)	(0.033)
$r \in [10,12]$	–	–	–	-0.131***	-0.158***	-0.109***	-0.125***
				(0.012)	(0.017)	(0.024)	(0.030)
$r \in [13,15]$	–	–	–	–	-0.137***	-0.115***	-0.128***
					(0.016)	(0.024)	(0.031)
$r \in [16,18]$	–	–	–	–	–	-0.144***	-0.129***
						(0.024)	(0.032)
$r \in [19,21]$	–	–	–	–	–	–	-0.158***
							(0.037)
2nd childbirth							
$r \in [1,6]$	–	-0.029	-0.072*	-0.030	-0.087*	-0.081	-0.110
		(0.033)	(0.038)	(0.043)	(0.046)	(0.062)	(0.075)
$r \in [7,9]$	–	–	-0.081***	-0.079***	-0.073**	-0.074**	-0.058
			(0.022)	(0.027)	(0.028)	(0.038)	(0.048)
$r \in [10,12]$	–	–	–	-0.079***	-0.092***	-0.096***	-0.095***
				(0.017)	(0.022)	(0.027)	(0.035)
$r \in [13,15]$	–	–	–	–	-0.039**	-0.084***	-0.056*
					(0.018)	(0.024)	(0.030)
$r \in [16,18]$	–	–	–	–	–	-0.108***	-0.106***
						(0.023)	(0.032)
$r \in [19,21]$	–	–	–	–	–	–	-0.123***
							(0.031)
3rd childbirth							
$r \in [1,\min(t,12)]$	–	–	0.087	0.008	-0.056	-0.048	-0.093
			(0.058)	(0.036)	(0.048)	(0.063)	(0.078)
$r \in [13,15]$	–	–	–	–	-0.042	-0.045	0.016
					(0.036)	(0.051)	(0.056)
$r \in [16,\min(t,21)]$	–	–	–	–	–	-0.118***	-0.127***
						(0.041)	(0.043)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

Table E.3: Estimated coefficients of the covariates of the labor market outcome equations with time-constant UH (discrete distribution with 10 support points)

	labor earnings			Fraction of days spent in employment		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age at school completion/10§	4,940.41	***	411.19	0.022		0.018
Education - Reference: Lower secondary or less						
Higher secondary	1,396.73	***	205.71	0.081	***	0.006
Tertiary	1,334.35	***	290.22	0.061	***	0.010
Fraction of days worked one year before school completion	5,449.17	***	289.79	0.247	***	0.010
Age of respondent's mother at respondent's birth/10§	-200.87	*	118.59	-0.014	***	0.004
Age of respondent's mother at respondent's birth is missing	-512.30	*	270.19	-0.036	***	0.009
Number of siblings at 14 if IT-SILC wave is 2005/10	2,415.44	***	701.71	0.092	***	0.022
Number of siblings at 14 if IT-SILC wave is 2011/10	4,185.39	***	934.57	0.131	***	0.031
IT-SILC wave 2011	-66.76		196.50	-0.014	**	0.007
Respondent's mother has at least secondary education	-231.53	*	138.84	-0.046	***	0.005
Respondent's mother was employed when respondent was 14	-49.65		129.63	0.005		0.004
Quarter of birth - Reference: January, February, March						
April, May, June	-429.05	**	165.82	-0.013	**	0.005
July, August, September	-296.48	*	162.71	-0.017	***	0.006
October, November, December	-205.30		169.54	0.000		0.006
Regional unemployment rate at t	-12,580.40	***	2,481.23	-0.947	***	0.102
Regional employment rate at t	16,429.20	***	1,632.61	0.633	***	0.064
Regional fertility rate at t	598.05	*	308.21	-0.182	***	0.012
Year of birth/10 (normalized to its minimum)	344.11		352.77	0.065	***	0.016
Geographical area at t- Reference: North-West						
North-East	1,249.43	***	134.82	0.064	***	0.005
Center	-1,272.76	***	139.92	-0.014	***	0.005
South	-3,743.60	***	247.07	-0.076	***	0.008
Islands (Sardinia and Sicily)	-2,826.47	***	325.97	-0.069	***	0.011
Calendar year of t - Reference: After 2005						
Before 1985	-663.68		899.78	0.020		0.042
Between 1986 and 1990	-453.77		692.98	-0.010		0.033
Between 1990 and 1995	-483.70		532.14	-0.052	**	0.025
Between 1996 and 2000	-711.27	*	368.31	-0.043	**	0.018
Between 2001 and 2005	-482.75	**	224.68	-0.015		0.011
Constant at $t = 3$	10,824.50	***	1,513.34	0.859	***	0.070
$\ln(\sigma_3^2)$‡	-0.67	***	0.02	-1.935	***	0.029
Constant at $t = 6$	21,845.00	***	1,495.79	1.184	***	0.068
$\ln(\sigma_6^2)$‡	-0.73	***	0.01	-2.067	***	0.027
Constant at $t = 9$	30,046.90	***	1,497.64	1.380	***	0.065
$\ln(\sigma_9^2)$‡	-0.84	***	0.01	-2.198	***	0.025
Constant at $t = 12$	35,266.10	***	1,491.27	1.562	***	0.064
$\ln(\sigma_{12}^2)$‡	-0.85	***	0.01	-2.302	***	0.026
Constant at $t = 15$	36,623.40	***	1,480.02	1.591	***	0.063
$\ln(\sigma_{15}^2)$‡	-0.70	***	0.01	-2.247	***	0.029
Constant at $t = 18$	36,368.60	***	1,513.15	1.606	***	0.065
$\ln(\sigma_{18}^2)$‡	-0.44	***	0.01	-2.128	***	0.034
Constant at $t = 21$	35,747.70	***	1,489.28	1.554	***	0.073
$\ln(\sigma_{21}^2)$‡	-0.31	***	0.02	-1.990	***	0.042

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.

§ Normalized to zero.

‡ We estimated the model using labor earnings divided by 10,000 to reduce numerical problems. Then, we multiplied all the estimated coefficients by 10,000 before reporting them in the tables with estimations results, apart from the natural logarithms of the variances of the underlying normal distributions. Hence, the latter must be interpreted as the log of the variance of the normal distribution of labor earnings divided by 10,000, i.e. $\ln(\sigma_t^2 \cdot 10,000)$.

Table E.4: Estimated coefficients of the measurement equations with time-constant UH (discrete distribution with 10 support points)

	Employment 1 year before school completion			Number of siblings at 14		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age of respondent's mother at respondent's birth/10[§]	-0.049		0.040	-0.044	*	0.024
Age of respondent's mother at respondent's birth is missing	0.081		0.090	-0.028		0.055
Number of siblings at 14 if IT-SILC wave is 2005/10	0.265		0.215	–		–
Number of siblings at 14 if IT-SILC wave is 2011/10	1.162	***	0.305	–		–
IT-SILC wave 2011	-0.106		0.065	-0.543	***	0.031
Respondent's mother has at least secondary education	-0.083	*	0.046	-0.161	***	0.034
Respondent's mother was employed when respondent was 14	-0.038		0.045	-0.121	***	0.031
Quarter of birth - Reference: January, February, March						
April, May, June	-0.024		0.054	0.051		0.034
July, August, September	-0.096	*	0.055	-0.026		0.035
October, November, December	-0.111	*	0.057	-0.064	*	0.037
Regional unemployment rate at birth	-1.091		1.116	-1.722	***	0.576
Regional employment rate at birth	1.543	**	0.728	-1.465	***	0.431
Regional fertility rate at birth	0.025		0.125	0.809	***	0.061
Year of birth/10 (normalized to its minimum)	-1.029	***	0.062	-0.054	*	0.030
Geographical area at birth - Reference: North-West						
North-East	0.240	***	0.055	0.127	***	0.040
Center	-0.113	*	0.061	-0.112	**	0.046
South	-0.122		0.118	0.194	***	0.070
Islands (Sardinia and Sicily)	-0.103		0.140	0.355	***	0.076
Calendar year of t - Reference: After 2001						
Before 1981	-3.035	***	0.152	–		–
Between 1982 and 1986	-2.475	***	0.128	–		–
Between 1987 and 1991	-1.757	***	0.106	–		–
Between 1992 and 1996	-1.345	***	0.095	–		–
Between 1997 and 2001	-0.771	***	0.087	–		–
Constant	0.543		0.538	1.439	***	0.304
$\ln(\sigma^2)$	–		–	0.337	***	0.010

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
[§] Normalized to zero.

Table E.5: Estimated coefficients of the (ordered probit) equations for the timing of childbirth with time-constant UH (discrete distribution with 10 support points)

	Coeff.		Std. Err.		Coeff.		Std. Err.
(a) Variables with common effect for all the childbirth equations				***(b) Ordered probit thresholds specific to each childbirth equation***			
Age at school completion/10[§]	-0.572	***	0.045	*(b.1) Ordered probit thresholds of 1st childbirth equation*			
Education - Reference: Lower secondary or less				δ_1^1 (birth in $[1,3]$)	-2.367	***	0.222
Higher secondary	0.044		0.028	$\ln(\delta_2^1-\delta_1^1)$ (birth in $[4,6]$)	-0.176	***	0.032
Tertiary	0.076	*	0.046	$\ln(\delta_3^1-\delta_2^1)$ (birth in $[7,9]$)	-0.460	***	0.031
Fraction of days worked one year before school completion	-0.181	***	0.046	$\ln(\delta_4^1-\delta_3^1)$ (birth in $[10,12]$)	-0.602	***	0.031
Age of respondent's mother at respondent's birth/10[§]	0.077	***	0.017	$\ln(\delta_5^1-\delta_4^1)$ (birth in $[13,15]$)	-1.388	***	0.057
Age of respondent's mother at respondent's birth is missing	-0.001		0.040	$\ln(\delta_6^1-\delta_5^1)$ (birth in $[16,18]$)	-0.983	***	0.054
Number of siblings at 14 if IT-SILC wave is 2005/10	-0.367	***	0.088	$\ln(\delta_7^1-\delta_6^1)$ (birth in $[19,21]$)	-1.994	***	0.151
Number of siblings at 14 if IT-SILC wave is 2011/10	-0.647	***	0.132	*(b.2) Ordered probit thresholds of 2nd childbirth equation*			
IT-SILC wave 2011	0.021		0.030	δ_1^2 (birth in $[1,6]$)	-1.433	***	0.229
Respondent's mother has at least secondary education	0.054	**	0.023	$\ln(\delta_2^2-\delta_1^2)$ (birth in $[7,9]$)	0.062		0.047
Respondent's mother was employed when respondent was 14	-0.047	**	0.021	$\ln(\delta_3^2-\delta_2^2)$ (birth in $[10,12]$)	-0.124	***	0.036
Quarter of birth - Reference: January, February, March				$\ln(\delta_4^2-\delta_3^2)$ (birth in $[13,15]$)	-0.349	***	0.035
April, May, June	-0.023		0.025	$\ln(\delta_5^2-\delta_4^2)$ (birth in $[16,18]$)	-0.673	***	0.041
July, August, September	0.043	*	0.025	$\ln(\delta_6^2-\delta_5^2)$ (birth in $[19,21]$)	-1.120	***	0.059
October, November, December	0.079	***	0.026	*(b.3) Ordered probit thresholds of 3rd childbirth equation*			
Regional unemployment rate at birth	0.040		0.437	δ_1^3 (birth in $[1,12]$)	-1.244	***	0.252
Regional employment rate at birth	-0.143		0.313	$\ln(\delta_2^3-\delta_1^3)$ (birth in $[13,15]$)	-0.778	***	0.189
Regional fertility rate at birth	-0.379	***	0.051	$\ln(\delta_3^3-\delta_2^3)$ (birth in $[16,21]$)	-0.342	***	0.073
Year of birth/10 (normalized to its minimum)	-0.036		0.023	***(c) Variables only included in the 2nd childbirth equation***			
Geographical area at birth - Reference: North-West				Time until 1st childbirth	2.129	***	0.047
North-East	-0.074	***	0.027	Twins in the 1st childbirth	-1.672	***	0.300
Center	-0.037		0.029	***(d) Variables only included in the 3rd childbirth equation***			
South	-0.101	**	0.052	Time until 1st childbirth	1.343	***	0.117
Islands (Sardinia and Sicily)	-0.042		0.062	Spacing between 1st and 2nd childbirth	2.256	***	0.171
				First 2 kids of the same gender	-0.128	**	0.064

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
[§] Normalized to zero.

Table E.6: Estimated distribution of the discrete time-constant UH with $H = 10$ support points

	Location of the mass	Logistic weight of the probability masses (ρ^h)	Resulting probabilities (p^h)
θ^1	0.00	1.720***	0.007
		(0.568)	
θ^2	6,641.95***	0.800	0.003
	(562.54)	(0.543)	
θ^3	-7,731.14***	3.865***	0.060
	(382.84)	(0.566)	
θ^4	-10,888.30***	4.957***	0.178
	(431.74)	(0.576)	
θ^5	-13,065.40***	5.148***	0.216
	(469.19)	(0.567)	
θ^6	-18,900.00***	4.963***	0.179
	(489.90)	(0.562)	
θ^7	-15,855.00***	5.407***	0.279
	(459.69)	(0.560)	
θ^8	-3,947.12***	2.777***	0.020
	(317.49)	(0.562)	
θ^9	-22,532.20***	3.803***	0.056
	(556.74)	(0.571)	
θ^{10}	-16,790.90***	0.000	0.001
	(633.87)		

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses. Since the loading factors of the earnings equations are normalized to 1, all the figures are in 2014 Euro.

Table E.7: Estimated loading factors with time-constant UH (discrete distribution with 10 support points)

Equations	Loading factor		Std. Err.
Measurement equations			
Employment 1 year before school completion	-0.248	***	0.059
Number of siblings when 14 years old	-0.140	***	0.040
Selection into treatment equations			
1st pregnancy	0.170	***	0.019
2nd pregnancy	0.029		0.021
3rd pregnancy	-0.061		0.044
Equations for yearly labor earnings			
3 years after school completion	1.000		–
6 years after school completion	1.506	***	0.041
9 years after school completion	1.900	***	0.042
12 years after school completion	2.149	***	0.047
15 years after school completion	2.193	***	0.045
18 years after school completion	2.148	***	0.059
21 years after school completion	2.063	***	0.062
Equations for the fraction of time at work			
3 years after school completion	0.366	***	0.020
6 years after school completion	0.490	***	0.016
9 years after school completion	0.567	***	0.016
12 years after school completion	0.659	***	0.020
15 years after school completion	0.662	***	0.022
18 years after school completion	0.668	***	0.025
21 years after school completion	0.626	***	0.031

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.

F Full Set of Estimation Results for the Model with Time-Constant UH, Mixture of 3 Normal Distributions

Table F.1: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-constant UH (mixture of 3 normals)

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-3,428.22***	-5,187.01***	-5,097.01***	-5,953.19***	-5,353.52***	-3,817.08***	-2,153.23
	(442.8)	(698.64)	(712.0)	(767.11)	(860.26)	(1,168.34)	(1,366.45)
$r \in [4,6]$	–	-5,329.87***	-4,920.08***	-5,117.02***	-5,114.46***	-3,483.33***	-3,338.6***
		(374.97)	(433.06)	(501.9)	(607.82)	(777.6)	(999.01)
$r \in [7,9]$	–	–	-5,386.77***	-4,629.99***	-4,340.06***	-2,876.98***	-3,161.36***
			(290.68)	(335.32)	(477.8)	(618.0)	(768.06)
$r \in [10,12]$	–	–	–	-5,42.62***	-4,357.81***	-3,279.53***	-3,719.52***
				(263.67)	(382.48)	(602.42)	(677.49)
$r \in [13,15]$	–	–	–	–	-5,813.62***	-3,994.98***	-4,049.17***
					(341.95)	(538.1)	(701.36)
$r \in [16,18]$	–	–	–	–	–	-6,467.34***	-4,747.96***
						(635.67)	(803.99)
$r \in [19,21]$	–	–	–	–	–	–	-6,812.01***
							(916.7)
2nd childbirth							
$r \in [1,6]$	–	-1,889.26**	-1,774.34**	-482.47	-728.66	-662.17	-2,141.17
		(828.67)	(876.67)	(889.4)	(1,298.69)	(1,677.74)	(2,172.67)
$r \in [7,9]$	–	–	-2,477.47***	-1,460.41**	-1,060.96	-2,170.59**	-2,019.25
			(477.93)	(587.21)	(690.83)	(986.86)	(1,327.49)
$r \in [10,12]$	–	–	–	-3,025.13***	-2,340.51***	-2,583.97***	-2,808.61***
				(358.64)	(533.02)	(707.95)	(891.61)
$r \in [13,15]$	–	–	–	–	-2,477.99***	-2,126.39***	-1,577.2**
					(399.28)	(600.72)	(740.52)
$r \in [16,18]$	–	–	–	–	–	-3,830.7***	-2,774.19***
						(579.07)	(803.28)
$r \in [19,21]$	–	–	–	–	–	–	-3,867.73***
							(736.06)
3rd childbirth							
$r \in [1, \min(t,12)]$	–	–	544.1	-1,212.64*	-2,871.41*	-3,552.99*	-3,210.17
			(1,044.74)	(663.85)	(1,500.16)	(1,831.11)	(2,625.95)
$r \in [13,15]$	–	–	–	–	-1,680.32*	-1,816.43	-650.54
					(911.7)	(1,277.62)	(1,495.57)
$r \in [16, \min(t,21)]$	–	–	–	–	–	-2,598.8**	-2,100.03
						(1,292.45)	(1,276.76)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.
[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table F.2: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-constant UH (mixture of 3 normals)

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-0.075***	-0.166***	-0.166***	-0.176***	-0.155***	-0.111***	0.006
	(0.021)	(0.029)	(0.029)	(0.031)	(0.034)	(0.042)	(0.056)
$r \in [4,6]$	–	-0.129***	-0.166***	-0.181***	-0.156***	-0.109***	-0.039
		(0.017)	(0.019)	(0.020)	(0.024)	(0.031)	(0.039)
$r \in [7,9]$	–	–	-0.132***	-0.161***	-0.152***	-0.090***	-0.073**
			(0.014)	(0.016)	(0.020)	(0.025)	(0.032)
$r \in [10,12]$	–	–	–	-0.126***	-0.155***	-0.106***	-0.122***
				(0.012)	(0.017)	(0.023)	(0.030)
$r \in [13,15]$	–	–	–	–	-0.145***	-0.122***	-0.136***
					(0.016)	(0.023)	(0.031)
$r \in [16,18]$	–	–	–	–	–	-0.138***	-0.123***
						(0.023)	(0.032)
$r \in [19,21]$	–	–	–	–	–	–	-0.156***
							(0.036)
2nd childbirth							
$r \in [1,6]$	–	-0.032	-0.075**	-0.035	-0.092**	-0.088	-0.118
		(0.033)	(0.038)	(0.042)	(0.047)	(0.060)	(0.076)
$r \in [7,9]$	–	–	-0.083***	-0.081***	-0.074***	-0.074**	-0.059
			(0.022)	(0.027)	(0.028)	(0.037)	(0.047)
$r \in [10,12]$	–	–	–	-0.08***	-0.093***	-0.096***	-0.095***
				(0.017)	(0.022)	(0.027)	(0.034)
$r \in [13,15]$	–	–	–	–	-0.038**	-0.083***	-0.053*
					(0.018)	(0.024)	(0.030)
$r \in [16,18]$	–	–	–	–	–	-0.108***	-0.105***
						(0.023)	(0.032)
$r \in [19,21]$	–	–	–	–	–	–	-0.122***
							(0.031)
3rd childbirth							
$r \in [1, \min(t,12)]$	–	–	0.085	0.006	-0.058	-0.05	-0.096
			(0.058)	(0.036)	(0.048)	(0.063)	(0.077)
$r \in [13,15]$	–	–	–	–	-0.05	-0.057	0.003
					(0.036)	(0.051)	(0.056)
$r \in [16, \min(t,21)]$	–	–	–	–	–	-0.124***	-0.132***
						(0.041)	(0.043)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

Table F.3: Estimated coefficients of the covariates of the labor market outcome equations with time-constant UH (mixture of 3 normals)

	labor earnings			Fraction of days spent in employment		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age at school completion/10[§]	5,310.89	***	412.76	0.034	*	0.018
Education - Reference: Lower secondary or less						
Higher secondary	1,192.43	***	213.94	0.074	***	0.007
Tertiary	1,161.26	***	294.79	0.055	***	0.010
Fraction of days worked one year before school completion	5,541.79	***	324.01	0.250	***	0.011
Age of respondent's mother at respondent's birth/10[§]	-252.67	**	120.37	-0.016	***	0.004
Age of respondent's mother at respondent's birth is missing	-583.81	**	274.33	-0.038	***	0.009
Number of siblings at 14 if IT-SILC wave is 2005/10	3,139.96	***	738.35	0.116	***	0.023
Number of siblings at 14 if IT-SILC wave is 2011/10	4,399.16	***	1,017.11	0.138	***	0.034
IT-SILC wave 2011	118.07		197.56	-0.007		0.007
Respondent's mother has at least secondary education	-332.47	**	139.41	-0.049	***	0.005
Respondent's mother was employed when respondent was 14	-117.33		132.18	0.002		0.005
Quarter of birth - Reference: January, February, March						
April, May, June	-397.41	**	167.94	-0.012	**	0.006
July, August, September	-288.28	*	165.40	-0.017	***	0.006
October, November, December	-238.76		174.86	-0.001		0.006
Regional unemployment rate at t	-11,880.00	***	2,468.30	-0.923	***	0.101
Regional employment rate at t	16,410.20	***	1,620.14	0.632	***	0.064
Regional fertility rate at t	654.75	**	306.77	-0.180	***	0.012
Year of birth/10 (normalized to its minimum)	220.30		348.99	0.060	***	0.016
Geographical area at t- Reference: North-West						
North-East	1,312.23	***	137.09	0.067	***	0.005
Center	-1,318.00	***	140.89	-0.016	***	0.005
South	-3,641.00	***	248.88	-0.072	***	0.008
Islands (Sardinia and Sicily)	-2,818.88	***	328.27	-0.069	***	0.011
Calendar year of t - Reference: After 2005						
Before 1985	-701.77		896.39	0.018		0.042
Between 1986 and 1990	-489.42		689.81	-0.011		0.033
Between 1990 and 1995	-494.17		529.56	-0.052	**	0.025
Between 1996 and 2000	-720.44	**	365.99	-0.043	**	0.018
Between 2001 and 2005	-477.56	**	223.55	-0.015		0.011
Constant at $t = 3$	-3,569.72	**	1,464.12	0.334	***	0.065
$\ln(\sigma_3^2)^‡$	-0.668	***	0.017	-1.936	***	0.030
Constant at $t = 6$	221.23		1,400.41	0.481	***	0.062
$\ln(\sigma_6^2)^‡$	-0.725	***	0.014	-2.066	***	0.027
Constant at $t = 9$	2,798.03	**	1,343.26	0.567	***	0.059
$\ln(\sigma_9^2)^‡$	-0.830	***	0.013	-2.196	***	0.025
Constant at $t = 12$	4,420.83	***	1,297.98	0.616	***	0.056
$\ln(\sigma_{12}^2)^‡$	-0.843	***	0.014	-2.305	***	0.026
Constant at $t = 15$	5,174.52	***	1,260.40	0.643	***	0.054
$\ln(\sigma_{15}^2)^‡$	-0.697	***	0.013	-2.253	***	0.028
Constant at $t = 18$	5,557.66	***	1,229.49	0.648	***	0.052
$\ln(\sigma_{18}^2)^‡$	-0.461	***	0.010	-2.136	***	0.033
Constant at $t = 21$	6,129.68	***	1,224.71	0.656	***	0.051
$\ln(\sigma_{21}^2)^‡$	-0.327	***	0.017	-1.998	***	0.042

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.

§ Normalized to zero.

‡ We estimated the model using labor earnings divided by 10,000 to reduce numerical problems. Then, we multiplied all the estimated coefficients by 10,000 before reporting them in the tables with estimations results, apart from the natural logarithms of the variances of the underlying normal distributions. Hence, the latter must be interpreted as the log of the variance of the normal distribution of labor earnings divided by 10,000, i.e. $\ln(\sigma_t^2 \cdot 10,000)$.

Table F.4: Estimated coefficients of the measurement equations with time-constant UH (mixture of 3 normals)

	Employment 1 year before school completion			Number of siblings at 14		
	Coeff.		Std. Err.	Coeff.		Std. Err.
Age of respondent's mother at respondent's birth/10[§]	-0.049		0.040	-0.044	*	0.024
Age of respondent's mother at respondent's birth is missing	0.080		0.090	-0.027		0.055
Number of siblings at 14 if IT-SILC wave is 2005/10	0.270		0.215	–		–
Number of siblings at 14 if IT-SILC wave is 2011/10	1.173	***	0.305	–		–
IT-SILC wave 2011	-0.108	*	0.065	-0.544	***	0.031
Respondent's mother has at least secondary education	-0.081	*	0.046	-0.159	***	0.034
Respondent's mother was employed when respondent was 14	-0.036		0.045	-0.120	***	0.031
Quarter of birth - Reference: January, February, March						
April, May, June	-0.024		0.054	0.050		0.034
July, August, September	-0.096	*	0.055	-0.025		0.035
October, November, December	-0.110	*	0.057	-0.063	*	0.037
Regional unemployment rate at birth	-0.972		1.115	-1.730	***	0.576
Regional employment rate at birth	1.655	**	0.727	-1.461	***	0.431
Regional fertility rate at birth	0.029		0.125	0.805	***	0.061
Year of birth/10 (normalized to its minimum)	-1.025	***	0.062	-0.054	*	0.030
Geographical area at birth - Reference: North-West						
North-East	0.239	***	0.055	0.126	***	0.039
Center	-0.111	*	0.061	-0.112	**	0.046
South	-0.127		0.118	0.196	***	0.070
Islands (Sardinia and Sicily)	-0.103		0.140	0.356	***	0.076
Calendar year of t - Reference: After 2001						
Before 1981	-3.024	***	0.151	–		–
Between 1982 and 1986	-2.466	***	0.128	–		–
Between 1987 and 1991	-1.750	***	0.106	–		–
Between 1992 and 1996	-1.340	***	0.095	–		–
Between 1997 and 2001	-0.770	***	0.087	–		–
Constant	0.808		0.530	1.641	***	0.299
$\ln(\sigma^2)$	–		–	0.337	***	0.010

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
[§] Normalized to zero.

Table F.5: Estimated coefficients of the (ordered probit) equations for the timing of childbirth with time-constant UH (mixture of 3 normals)

	Coeff.		Std. Err.
(a) Variables with common effect for all the childbirth equations			
Age at school completion/10[§]	-0.585	***	0.044
Education - Reference: Lower secondary or less			
Higher secondary	0.050	*	0.028
Tertiary	0.080	*	0.046
Fraction of days worked one year before school completion	-0.178	***	0.046
Age of respondent's mother at respondent's birth/10[§]	0.079	***	0.017
Age of respondent's mother at respondent's birth is missing	0.004		0.039
Number of siblings at 14 if IT-SILC wave is 2005/10	-0.381	***	0.088
Number of siblings at 14 if IT-SILC wave is 2011/10	-0.657	***	0.132
IT-SILC wave 2011	0.016		0.030
Respondent's mother has at least secondary education	0.055	**	0.023
Respondent's mother was employed when respondent was 14	-0.045	**	0.021
Quarter of birth - Reference: January, February, March			
April, May, June	-0.020		0.025
July, August, September	0.047	*	0.025
October, November, December	0.084	***	0.026
Regional unemployment rate at birth	0.077		0.437
Regional employment rate at birth	-0.097		0.313
Regional fertility rate at birth	-0.383	***	0.051
Year of birth/10 (normalized to its minimum)	-0.033		0.023
Geographical area at birth - Reference: North-West			
North-East	-0.073	***	0.027
Center	-0.030		0.029
South	-0.100	*	0.051
Islands (Sardinia and Sicily)	-0.034		0.061

	Coeff.		Std. Err.
(b) Ordered probit thresholds specific to each childbirth equation			
(b.1) Ordered probit thresholds of 1st childbirth equation			
δ_1^1 (birth in $[1,3]$)	-2.581	***	0.219
$\ln(\delta_2^1 - \delta_1^1)$ (birth in $[4,6]$)	-0.330	***	0.030
$\ln(\delta_3^1 - \delta_2^1)$ (birth in $[7,9]$)	-0.623	***	0.027
$\ln(\delta_4^1 - \delta_3^1)$ (birth in $[10,12]$)	-0.719	***	0.027
$\ln(\delta_5^1 - \delta_4^1)$ (birth in $[13,15]$)	-1.045	***	0.034
$\ln(\delta_6^1 - \delta_5^1)$ (birth in $[16,18]$)	-1.391	***	0.048
$\ln(\delta_7^1 - \delta_6^1)$ (birth in $[19,21]$)	-1.841	***	0.074
(b.2) Ordered probit thresholds of 2nd childbirth equation			
δ_1^2 (birth in $[1,6]$)	-1.449	***	0.226
$\ln(\delta_2^2 - \delta_1^2)$ (birth in $[7,9]$)	0.029		0.042
$\ln(\delta_3^2 - \delta_2^2)$ (birth in $[10,12]$)	-0.134	***	0.035
$\ln(\delta_4^2 - \delta_3^2)$ (birth in $[13,15]$)	-0.350	***	0.035
$\ln(\delta_5^2 - \delta_4^2)$ (birth in $[16,18]$)	-0.669	***	0.041
$\ln(\delta_6^2 - \delta_5^2)$ (birth in $[19,21]$)	-1.110	***	0.057
(b.3) Ordered probit thresholds of 3rd childbirth equation			
δ_1^3 (birth in $[1,12]$)	-1.136	***	0.244
$\ln(\delta_2^3 - \delta_1^3)$ (birth in $[13,15]$)	-0.579	***	0.094
$\ln(\delta_3^3 - \delta_2^3)$ (birth in $[16,21]$)	-0.347	***	0.073
(c) Variables only included in the 2nd childbirth equation			
Time until 1st childbirth	2.128	***	0.047
Twins in the 1st childbirth	-1.672	***	0.299
(d) Variables only included in the 3rd childbirth equation			
Time until 1st childbirth	1.339	***	0.116
Spacing between 1st and 2nd childbirth	2.251	***	0.170
First 2 kids of the same gender	-0.128	**	0.064

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.
[§] Normalized to zero.

Table F.6: Estimated distribution of the time-constant UH with mixture of 3 normals

	Coeff.		Std. Err.
Means and standard deviations of the 3 mixing normal distributions			
Mean of the 1st normal distribution (μ_1)	0.041	***	0.011
$\ln(\sigma_1)$ of the 1st normal distribution	-1.030	***	0.024
Mean of the 2nd normal distribution (μ_2)	-0.042	***	0.006
$\ln(\sigma)$ of the 2nd normal distribution	-1.799	***	0.026
Mean of the 3rd normal distribution (μ_3)§	1.540		–
$\ln(\sigma)$ of the 3rd normal distribution	-0.502	***	0.064
Logistic weights of the probabilities of the mixing distribution			
Logistic weight 1	2.989	***	0.240
Logistic weight 2	4.039	***	0.239
Logistic weight 3	0.000		–
Resulting probability masses of the mixing distribution			
Probability mass 1 (P_1)	0.256		
Probability mass 2 (P_2)	0.731		
Probability mass 3 (P_3)	0.013		

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses. Since the loading factors of the earnings equations are normalized to 1, all the figures are in 2014 Euro (divided by 10,000).

§ The means of the 3 normal distributions are normalized so that their weighted mean (weighted by the probabilities of the mixing distribution) is equal to 0. Hence $\mu_3 = (-P_1\mu_1 - P_2\mu_2)/P_3$

Table F.7: Estimated loading factors with time-constant UH (mixture of 3 normals)

Equations	Loading factor		Std. Err.
Measurement equations			
Employment 1 year before school completion	-0.251	***	0.059
Number of siblings when 14 years old	-0.164	***	0.042
Selection into treatment equations			
1st pregnancy	0.156	***	0.019
2nd pregnancy	0.042	*	0.023
3rd pregnancy	-0.046		0.045
Equations for yearly labor earnings			
3 years after school completion	1.000		–
6 years after school completion	1.509	***	0.042
9 years after school completion	1.903	***	0.043
12 years after school completion	2.170	***	0.046
15 years after school completion	2.167	***	0.045
18 years after school completion	2.187	***	0.059
21 years after school completion	2.080	***	0.063
Equations for the fraction of time at work			
3 years after school completion	0.365	***	0.019
6 years after school completion	0.491	***	0.016
9 years after school completion	0.567	***	0.015
12 years after school completion	0.664	***	0.020
15 years after school completion	0.669	***	0.022
18 years after school completion	0.677	***	0.025
21 years after school completion	0.634	***	0.032

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%.

G Sensitivity Analysis: Estimated Motherhood Penalties

In a first sensitivity analysis, we considered the treatment as starting 9 months before the delivery date, instead of 3. The drawback of bringing forward so much the timing of the treatment is that in the treated group at time t there might be women who deliver in the first 9 months of year $t+1$ but have yet to be affected by their pregnancy at time t. This is the case, for example, if they realize late they are pregnant or in cases of preterm births occurring in $t+1$. This measurement error could generate a bias toward zero in the motherhood penalty. As shown in Tables G.1 and G.2, the short-term motherhood effects from this sensitivity analysis are indeed closer to zero, although very much in line with the ones from the benchmark model.

Second, we included among the regressors of the outcome equations the accumulated work experience up to the previous period in which earnings and the fraction of time spent in employment are measured. Although the accumulated work experience is a regressor with a strong explanatory power, it cannot be safely introduced in the model. It is indeed an endogenous time-varying variable, very likely to be jointly determined with the fertility episodes. This is the main reason why in the benchmark model we do not use it. If we do not include it in the outcome equations, this time-varying component ends up into the time-varying UH. If we are properly modeling the presence of time-varying UH correlated across outcome and fertility equations, the motherhood effects should not be sensitive to its inclusion. Tables G.3 and G.4 show that the motherhood penalties are not sensitive to the inclusion of the accumulated work experience, providing evidence that our benchmark model is able to accommodate the time-varying unobserved determinants of the modeled endogenous processes.

Third, we re-estimated the benchmark model under different combinations of exclusion restrictions. In the baseline model, there are three main sets of exclusion restrictions:

- The dummies for the geographical area of residence at birth are only included in the measurement and treatment (childbirth) equations and excluded from the outcome equations.
- The regional fertility, employment, and unemployment rates at birth are only included in the measurement and treatment (childbirth) equations and excluded from the outcome equations.
- In the three childbirth equations we have exclusion restrictions which naturally arise from

the time sequence of the events. For example, the equation for timing of the 2nd childbirth is explained by an indicator for a twin birth at the first delivery, which do not obviously enter the equation for the time elapsed to the 1st childbirth.

In this sensitivity analysis, we included the dummies for geographical area at birth and/or the regional rates at birth in the outcome equations. The results are reported in Tables G.5–G.10 and are very much in line with the ones of the benchmark model. On top of that, we also removed the exclusion restrictions in the equations for the timing of the different childbirths. Tables G.11 and G.12 confirm that the estimated benchmark effects are not sensitive to those exclusion restrictions.

Fourth, we replicated the estimation only on those women who exited school between 17 and 20 years of age with a secondary school diploma. The sample size shrank from 9,387 to 3,690 women. Because of our sample construction, women from older cohorts and with lower education are likely to have more weight in the identification of the effects for large t and, therefore, for longer-lasting effects, since they are more likely to stay up to the 21st year after school completion in our sample. One may wonder indeed whether women from older cohorts and with lower education could be differently affected by motherhood and partly explain the estimated profiles of the motherhood penalty. By focusing on women with the same education attained at similar age, we retain a much more homogeneous subsample that is less affected by the changing composition of the sample across different follow-up horizons. Tables G.13 and G.14 suggest that the point estimates of the parameters of interest are in most cases very close to those from the benchmark model displayed in Tables D.1 and D.2. The standard errors are much larger, since we removed more than 60% of the initial sample. This should be taken into account when comparing these estimation results with those from the baseline sample.

Fifth, with women in our sample born between 1960 and 1985, we check the existence of cohort effects by splitting the sample in those born in the 1960s and those born in the 1970s-1980s.[5] The results are reported in Tables G.15-G.18. Both groups of women show similar estimated parameters, with however some differences. Women born in the 1970s-1980s suffer somewhat larger motherhood penalties compared to women born in the 1960s, especially for early deliveries.

[5]Table A.5 reports the number of observations and summary statistics of the distribution of the age at school completion by birth decade. It shows that the distribution of years of education did not change much across birth decades.

This might be explained by the reduction in the employment protection legislation in Italy started in 1997 with the introduction of atypical job contracts. The reduced job protection for new entrants might indeed have prolonged the time needed to get a stable position allowing to reduce the motherhood penalties.

Lastly, we assessed whether the estimated parameter vector could be a local optimum. We run two checks in this direction. First, we re-started the maximization process using the final estimated parameters as initial values, while reducing by 1,000 times the termination tolerances for convergence. Second, we re-started 100 times the maximization process, each time using the final vector with each coefficient affected by a random deviation drawn from a uniform distribution centered at 0 with interval of size 0.001. We attained convergence always at the same parameter vector.

Treatment as Starting 9 Months before the Delivery Date

Table G.1: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH, if treatments start 9 months before the delivery date (instead of 3)

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-1646.00***	-2205.11***	-2203.39***	-3143.64***	-2904.84**	-2040.12	-1225.41
	(189.13)	(448.26)	(591.23)	(1024.12)	(1265.96)	(1513.77)	(1648.06)
$r \in [4, 6]$	–	-2281.19***	-1407.24***	-2031.26***	-2061.37**	-1274.28	-592.70
		(234.24)	(415.46)	(768.76)	(927.08)	(1143.77)	(1316.86)
$r \in [7, 9]$	–	–	-2234.57***	-2340.96***	-2257.22***	-1553.08*	-1889.26*
			(293.79)	(578.19)	(739.62)	(932.96)	(1025.71)
$r \in [10, 12]$	–	–	–	-4473.24***	-3443.36***	-2287.55**	-2961.99***
				(468.39)	(655.68)	(889.07)	(972.34)
$r \in [13, 15]$	–	–	–	–	-4930.03***	-3672.64***	-3734.34***
					(636.01)	(901.59)	(1015.15)
$r \in [16, 18]$	–	–	–	–	–	-5152.14***	-4731.78***
						(1026.30)	(1173.92)
$r \in [19, 21]$	–	–	–	–	–	–	-5754.66***
							(1608.37)
2nd childbirth							
$r \in [1, 6]$	–	-1129.94**	-30.38	1266.79	876.61	1708.86	1426.29
		(488.32)	(785.86)	(1355.73)	(1724.68)	(2144.65)	(2367.08)
$r \in [7, 9]$	–	–	-423.30	2.98	521.03	-353.60	-622.60
			(444.95)	(938.95)	(1120.04)	(1309.84)	(1658.25)
$r \in [10, 12]$	–	–	–	-2526.87***	-1648.20*	-1532.84	-2247.16*
				(601.43)	(881.56)	(1015.77)	(1150.73)
$r \in [13, 15]$	–	–	–	–	-2376.24***	-2420.55**	-1684.81
					(735.52)	(987.87)	(1076.20)
$r \in [16, 18]$	–	–	–	–	–	-3397.62***	-2527.42**
						(898.18)	(1188.08)
$r \in [19, 21]$	–	–	–	–	–	–	-3303.98***
							(1221.45)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-1680.70*	-1967.27	-3450.89	-4556.58	-4786.14
			(933.55)	(1224.21)	(2478.09)	(2790.00)	(3477.89)
$r \in [13, 15]$	–	–	–	–	-1578.85	-1205.80	-479.70
					(1577.36)	(1994.76)	(1935.56)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-2410.62	-1925.04
						(2022.28)	(1568.16)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses.
[§] Yearly labor earnings are in 2014 prices. They are deflated by using the consumer price index gathered by ISTAT.

Table G.2: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH, if treatments start 9 months before the delivery date (instead of 3)

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-0.003	-0.014**	-0.016**	-0.050*	-0.070*	-0.071	0.040
	(0.004)	(0.007)	(0.007)	(0.028)	(0.037)	(0.048)	(0.059)
$r \in [4,6]$	–	-0.011**	-0.011**	-0.039*	-0.058**	-0.024	0.062
		(0.004)	(0.005)	(0.021)	(0.028)	(0.036)	(0.044)
$r \in [7,9]$	–	–	-0.012***	-0.080***	-0.089***	-0.052*	-0.033
			(0.004)	(0.017)	(0.023)	(0.031)	(0.040)
$r \in [10,12]$	–	–	–	-0.099***	-0.143***	-0.091***	-0.120***
				(0.014)	(0.021)	(0.029)	(0.037)
$r \in [13,15]$	–	–	–	–	-0.118***	-0.131***	-0.137***
					(0.020)	(0.030)	(0.039)
$r \in [16,18]$	–	–	–	–	–	-0.112***	-0.165***
						(0.031)	(0.040)
$r \in [19,21]$	–	–	–	–	–	–	-0.095*
							(0.049)
2nd childbirth							
$r \in [1,6]$	–	-0.009	0.001	0.038	0.015	0.033	0.016
		(0.009)	(0.010)	(0.041)	(0.053)	(0.070)	(0.083)
$r \in [7,9]$	–	–	-0.001	-0.045*	-0.019	-0.035	-0.040
			(0.007)	(0.027)	(0.033)	(0.044)	(0.053)
$r \in [10,12]$	–	–	–	-0.088***	-0.082***	-0.085***	-0.113***
				(0.018)	(0.026)	(0.033)	(0.041)
$r \in [13,15]$	–	–	–	–	-0.029	-0.101***	-0.063*
					(0.021)	(0.030)	(0.037)
$r \in [16,18]$	–	–	–	–	–	-0.093***	-0.110***
						(0.029)	(0.041)
$r \in [19,21]$	–	–	–	–	–	–	-0.071*
							(0.040)
3rd childbirth							
$r \in [1,\min(t,12)]$	–	–	-0.014	-0.032	-0.091	-0.085	-0.140
			(0.017)	(0.040)	(0.058)	(0.078)	(0.090)
$r \in [13,15]$	–	–	–	–	-0.045	-0.066	-0.039
					(0.041)	(0.061)	(0.066)
$r \in [16,\min(t,21)]$	–	–	–	–	–	-0.110**	-0.119**
						(0.051)	(0.053)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses.

Accumulated Work Experience Among the Regressors of the Outcome Equations

Table G.3: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)§ with time-varying UH, if accumulated work experience is included in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-2113.49***	-2345.34***	-1970.06***	-3314.07***	-2680.58**	-1868.58	-29.60
	(219.75)	(492.45)	(630.05)	(1132.95)	(1164.77)	(1459.83)	(1527.85)
$r \in [4, 6]$	–	-3017.70***	-1586.92***	-1912.96**	-1787.03**	-154.66	56.79
		(259.04)	(393.58)	(776.17)	(875.74)	(1067.79)	(1136.17)
$r \in [7, 9]$	–	–	-2973.82***	-2126.04***	-1499.82**	18.36	-229.24
			(289.15)	(542.25)	(716.65)	(839.54)	(890.49)
$r \in [10, 12]$	–	–	–	-4673.16***	-2619.35***	-814.12	-1065.44
				(449.32)	(578.24)	(801.77)	(805.27)
$r \in [13, 15]$	–	–	–	–	-5163.88***	-2778.41***	-2176.56***
					(554.08)	(766.18)	(840.39)
$r \in [16, 18]$	–	–	–	–	–	-6037.48***	-3633.42***
						(912.61)	(989.32)
$r \in [19, 21]$	–	–	–	–	–	–	-5903.16***
							(1118.50)
2nd childbirth							
$r \in [1, 6]$	–	-1580.35***	-175.33	1815.60	1602.95	1594.62	1251.43
		(562.57)	(852.96)	(1387.06)	(1762.51)	(2047.93)	(2273.32)
$r \in [7, 9]$	–	–	-811.66*	313.95	829.78	-811.10	-207.55
			(417.98)	(995.01)	(1085.90)	(1315.01)	(1530.54)
$r \in [10, 12]$	–	–	–	-2636.95***	-1375.39*	-1493.67	-1189.39
				(612.86)	(830.52)	(983.73)	(1046.26)
$r \in [13, 15]$	–	–	–	–	-2433.23***	-1976.59**	-836.50
					(625.80)	(827.41)	(873.67)
$r \in [16, 18]$	–	–	–	–	–	-3618.39***	-2155.42**
						(792.44)	(955.30)
$r \in [19, 21]$	–	–	–	–	–	–	-3957.49***
							(900.24)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-957.76	-1864.15	-3374.71	-3823.86	-3461.97
			(961.04)	(1177.11)	(2300.86)	(2451.14)	(2939.07)
$r \in [13, 15]$	–	–	–	–	-1670.16	-1178.15	-68.51
					(1448.13)	(1748.85)	(1692.08)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-2664.35	-1572.26
						(1778.73)	(1450.84)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses.

§ Yearly labor earnings are in 2014 prices. They are deflated by using the consumer price index gathered by ISTAT.

Table G.4: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH, if accumulated work experience is included in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.003	-0.017**	-0.011	-0.064**	-0.058*	-0.044	0.083*
	(0.004)	(0.008)	(0.008)	(0.029)	(0.032)	(0.042)	(0.050)
$r \in [4, 6]$		-0.014***	-0.009*	-0.058***	-0.041*	0.001	0.077**
		(0.004)	(0.005)	(0.021)	(0.023)	(0.031)	(0.036)
$r \in [7, 9]$			-0.013***	-0.065***	-0.053***	0.004	0.022
			(0.004)	(0.016)	(0.020)	(0.026)	(0.030)
$r \in [10, 12]$				-0.103***	-0.103***	-0.028	-0.037
				(0.012)	(0.017)	(0.024)	(0.028)
$r \in [13, 15]$					-0.129***	-0.082***	-0.072**
					(0.017)	(0.024)	(0.029)
$r \in [16, 18]$						-0.134***	-0.092***
						(0.024)	(0.030)
$r \in [19, 21]$							-0.138***
							(0.034)
2nd childbirth							
$r \in [1, 6]$		-0.010	0.001	0.040	-0.026	-0.032	-0.035
		(0.010)	(0.012)	(0.042)	(0.047)	(0.060)	(0.070)
$r \in [7, 9]$			-0.005	-0.018	-0.023	-0.057	-0.025
			(0.007)	(0.027)	(0.029)	(0.038)	(0.044)
$r \in [10, 12]$				-0.077***	-0.073***	-0.079***	-0.059*
				(0.018)	(0.022)	(0.028)	(0.032)
$r \in [13, 15]$					-0.045**	-0.094***	-0.043
					(0.018)	(0.025)	(0.028)
$r \in [16, 18]$						-0.112***	-0.094***
						(0.023)	(0.030)
$r \in [19, 21]$							-0.137***
							(0.029)
3rd childbirth							
$r \in [1, \min(t, 12)]$			0.001	-0.018	-0.067	-0.055	-0.103
			(0.022)	(0.039)	(0.051)	(0.065)	(0.072)
$r \in [13, 15]$					-0.056	-0.041	0.017
					(0.037)	(0.053)	(0.053)
$r \in [16, \min(t, 21)]$						-0.135***	-0.123***
						(0.043)	(0.041)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are reported in parentheses.

Estimation Results with Different Sets of Exclusion Restrictions

In this subsection we report the estimation results of the effect of the timing of childbirths on the outcomes (yearly labor earnings and fraction of time spent at work) under different combinations of exclusion restrictions. In the baseline model, there are 3 main sets of exclusion restrictions:

- Dummies for the geographical area of residence at birth are only included in the measurement and treatment (childbirth) equations and excluded from the outcome equations. In the outcome equations we indeed only control for geographical area in the year of observation.
- The regional fertility, employment, and unemployment rates at birth are only included in the measurement and treatment (childbirth) equations and excluded from the outcome equations. In the outcome equations we only control for regional rates in the year of observation.
- The equation for the 2nd childbirth is explained by the timing to the first childbirth and by the dummy for twin birth. Similarly the equation for the 3rd childbirth is explained by the timing to the previous births and by the gender composition of the previous children. Hence, in the three childbirth equations we have exclusion restrictions that naturally arise from the time sequence of the events.

In what follows, we report in:

I. Tables G.5 and G.6 the results if we include the geographical area at birth in the outcome equations;

II. Tables G.7 and G.8 the results if we include the regional fertility, employment, and unemployment rates at birth in the outcome equations;

III. Tables G.9 and G.10 the results if we include both the geographical area at birth and the regional rates at birth in the outcome equations;

IV. Tables G.11 and G.12 the results if we include both the geographical area at birth and the regional rates at birth in the outcome equations and the childbirth equations have the same set of explanatory variables, i.e. we removed from the set of regressors of the 2nd and 3rd childbirths information on the previous births.

I. Including Geographical Area at Birth in the Outcome Equations

Table G.5: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH and by including geographical area at birth in the outcome equations

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-2119.49***	-2207.73***	-2252.42***	-3870.08***	-3544.02***	-2561.80	-734.06
	(224.24)	(496.42)	(637.49)	(1184.94)	(1288.09)	(1642.33)	(1802.79)
$r \in [4,6]$	–	-2789.02***	-1546.41***	-2070.54**	-2258.71**	-816.41	-699.20
		(264.11)	(405.24)	(808.34)	(953.40)	(1199.79)	(1362.85)
$r \in [7,9]$	–	–	-2643.97***	-2145.52***	-1971.06**	-855.94	-1302.44
			(295.20)	(563.65)	(784.36)	(943.90)	(1029.80)
$r \in [10,12]$	–	–	–	-4585.67***	-3038.55***	-2000.88**	-2707.43***
				(467.76)	(628.35)	(902.15)	(943.46)
$r \in [13,15]$	–	–	–	–	-5263.93***	-3634.69***	-3508.47***
					(608.63)	(870.49)	(983.15)
$r \in [16,18]$	–	–	–	–	–	-5978.15***	-4296.65***
						(1046.90)	(1169.77)
$r \in [19,21]$	–	–	–	–	–	–	-6557.42***
							(1358.69)
2nd childbirth							
$r \in [1,6]$	–	-1622.87***	-118.39	1875.75	1651.09	1687.72	1042.56
		(569.23)	(855.52)	(1451.24)	(1860.95)	(2228.59)	(2693.42)
$r \in [7,9]$	–	–	-605.88	398.60	733.18	-940.33	-809.09
			(432.60)	(1027.99)	(1175.89)	(1477.51)	(1792.24)
$r \in [10,12]$	–	–	–	-2653.78***	-1732.77*	-2077.04*	-2437.10**
				(644.38)	(907.58)	(1103.21)	(1225.39)
$r \in [13,15]$	–	–	–	–	-2624.31***	-2293.24**	-1790.56*
					(697.37)	(932.71)	(1022.19)
$r \in [16,18]$	–	–	–	–	–	-3564.40***	-2527.93**
						(895.53)	(1150.06)
$r \in [19,21]$	–	–	–	–	–	–	-3912.61***
							(1111.80)
3rd childbirth							
$r \in [1, \min(t,12)]$	–	–	-1279.95	-1828.26	-3473.01	-4202.91	-4280.98
			(970.32)	(1250.76)	(2581.31)	(2847.36)	(3660.56)
$r \in [13,15]$	–	–	–	–	-1475.04	-814.27	20.08
					(1625.36)	(1989.71)	(1934.75)
$r \in [16, \min(t,21)]$	–	–	–	–	–	-3315.37	-2464.83
						(2104.26)	(1864.74)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.6: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH and by including geographical area at birth in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.006	-0.011	-0.015**	-0.073**	-0.074**	-0.064	0.062
	(0.005)	(0.008)	(0.008)	(0.031)	(0.037)	(0.052)	(0.065)
$r \in [4, 6]$	–	-0.013***	-0.011**	-0.061***	-0.052*	-0.016	0.059
		(0.005)	(0.005)	(0.022)	(0.027)	(0.037)	(0.047)
$r \in [7, 9]$	–	–	-0.013***	-0.073***	-0.076***	-0.028	-0.018
			(0.004)	(0.017)	(0.024)	(0.031)	(0.039)
$r \in [10, 12]$	–	–	–	-0.105***	-0.126***	-0.077***	-0.106***
				(0.014)	(0.020)	(0.029)	(0.036)
$r \in [13, 15]$	–	–	–	–	-0.141***	-0.123***	-0.131***
					(0.020)	(0.029)	(0.038)
$r \in [16, 18]$	–	–	–	–	–	-0.143***	-0.126***
						(0.030)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.169***
							(0.044)
2nd childbirth							
$r \in [1, 6]$	–	-0.013	-0.001	0.048	-0.007	-0.007	-0.026
		(0.011)	(0.013)	(0.045)	(0.054)	(0.073)	(0.093)
$r \in [7, 9]$	–	–	-0.003	-0.014	-0.016	-0.047	-0.032
			(0.007)	(0.029)	(0.033)	(0.047)	(0.058)
$r \in [10, 12]$	–	–	–	-0.076***	-0.082***	-0.094***	-0.098**
				(0.019)	(0.026)	(0.034)	(0.042)
$r \in [13, 15]$	–	–	–	–	-0.046**	-0.102***	-0.075**
					(0.021)	(0.030)	(0.037)
$r \in [16, 18]$	–	–	–	–	–	-0.101***	-0.098**
						(0.028)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.139***
							(0.037)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.009	-0.018	-0.074	-0.066	-0.136
			(0.020)	(0.041)	(0.058)	(0.081)	(0.092)
$r \in [13, 15]$	–	–	–	–	-0.045	-0.027	0.025
					(0.043)	(0.064)	(0.069)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.162***	-0.153***
						(0.052)	(0.053)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

II. Including Regional Rates at Birth in the Outcome Equations

Table G.7: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH and by including regional rates in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-2088.66***	-2216.98***	-2285.71***	-3898.00***	-3591.42***	-2548.46	-731.1084
	(224.22)	(497.35)	(638.39)	(1176.63)	(1283.64)	(1635.48)	(1795.65)
$r \in [4, 6]$	–	-2804.13***	-1569.34***	-2071.04***	-2259.55**	-795.5119	-675.873
		(264.86)	(400.11)	(801.94)	(950.54)	(1194.58)	(1358.23)
$r \in [7, 9]$	–	–	-2653.87***	-2147.70***	-1953.42**	-810.5735	-1269.472
			(295.85)	(560.39)	(782.04)	(938.32)	(1025.74)
$r \in [10, 12]$	–	–	–	-4572.54***	-3023.89***	-1978.44**	-2641.21***
				(465.13)	(626.43)	(897.31)	(942.16)
$r \in [13, 15]$	–	–	–	–	-5257.64***	-3617.62***	-3496.78***
					(607.39)	(864.21)	(980.17)
$r \in [16, 18]$	–	–	–	–	–	-5960.67***	-4276.80***
						(1039.17)	(1164.36)
$r \in [19, 21]$	–	–	–	–	–	–	-6476.77***
							(1347.12)
2nd childbirth							
$r \in [1, 6]$	–	-1615.29***	-83.25	1975.46	1815.50	1810.36	1186.19
		(569.81)	(855.10)	(1443.37)	(1853.20)	(2219.27)	(2686.46)
$r \in [7, 9]$	–	–	-581.00	400.76	759.23	-880.74	-662.55
			(425.47)	(1021.49)	(1170.42)	(1468.68)	(1787.51)
$r \in [10, 12]$	–	–	–	-2649.10***	-1716.03*	-2066.62*	-2368.63*
				(640.49)	(904.97)	(1097.47)	(1220.95)
$r \in [13, 15]$	–	–	–	–	-2623.13***	-2278.97**	-1743.63*
					(695.12)	(927.16)	(1018.88)
$r \in [16, 18]$	–	–	–	–	–	-3564.26***	-2517.48**
						(888.99)	(1145.79)
$r \in [19, 21]$	–	–	–	–	–	–	-3886.37***
							(1106.86)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-1335.35	-1917.11	-3568.86	-4254.32	-4283.84
			(973.55)	(1242.23)	(2571.20)	(2834.72)	(3637.27)
$r \in [13, 15]$	–	–	–	–	-1467.27	-792.26	49.51
					(1620.45)	(1979.65)	(1932.17)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-3269.30	-2424.40
						(2084.25)	(1848.96)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.8: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH and by including regional rates at birth in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.005	-0.012	-0.016**	-0.074**	-0.074**	-0.064	0.062
	(0.005)	(0.008)	(0.008)	(0.031)	(0.037)	(0.052)	(0.064)
$r \in [4, 6]$	–	-0.014***	-0.011**	-0.062***	-0.053*	-0.016	0.059
		(0.005)	(0.005)	(0.022)	(0.027)	(0.037)	(0.047)
$r \in [7, 9]$	–	–	-0.013***	-0.073***	-0.076***	-0.027	-0.017
			(0.004)	(0.017)	(0.024)	(0.031)	(0.039)
$r \in [10, 12]$	–	–	–	-0.104***	-0.126***	-0.077***	-0.104***
				(0.014)	(0.020)	(0.029)	(0.036)
$r \in [13, 15]$	–	–	–	–	-0.140***	-0.123***	-0.130***
					(0.020)	(0.029)	(0.038)
$r \in [16, 18]$	–	–	–	–	–	-0.144***	-0.126***
						(0.030)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.166***
							(0.044)
2nd childbirth							
$r \in [1, 6]$	–	-0.013	-0.001	0.049	-0.007	-0.007	-0.024
		(0.010)	(0.013)	(0.045)	(0.054)	(0.073)	(0.092)
$r \in [7, 9]$	–	–	-0.003	-0.014	-0.015	-0.046	-0.030
			(0.007)	(0.029)	(0.033)	(0.047)	(0.057)
$r \in [10, 12]$	–	–	–	-0.076***	-0.082***	-0.094***	-0.098**
				(0.019)	(0.026)	(0.034)	(0.042)
$r \in [13, 15]$	–	–	–	–	-0.046**	-0.10***	-0.073**
					(0.021)	(0.030)	(0.037)
$r \in [16, 18]$	–	–	–	–	–	-0.101***	-0.098**
						(0.028)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.139***
							(0.037)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.010	-0.019	-0.075	-0.066	-0.135
			(0.020)	(0.041)	(0.058)	(0.081)	(0.097)
$r \in [13, 15]$	–	–	–	–	-0.043	-0.024	0.027
					(0.043)	(0.064)	(0.069)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.161***	-0.152***
						(0.052)	(0.053)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

III. Including Geographical Area and Regional Rates at Birth in the Outcome Equations

Table G.9: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH and by including regional rates at birth in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-2086.05***	-2210.31***	-2289.15***	-3889.05***	-3582.09***	-2550.20	-733.14
	(224.48)	(496.63)	(638.62)	(1179.12)	(1283.37)	(1633.99)	(1795.73)
$r \in [4, 6]$	–	-2794.96***	-1589.87***	-2056.78**	-2246.26**	-771.30	-654.13
		(264.37)	(408.66)	(806.33)	(950.81)	(1192.66)	(1361.12)
$r \in [7, 9]$	–	–	-2638.19***	-2124.73***	-1939.67**	-806.60	-1259.79
			(295.66)	(562.06)	(782.82)	(937.54)	(1027.55)
$r \in [10, 12]$	–	–	–	-4566.34***	-3008.71***	-1977.04**	-2642.88***
				(466.28)	(626.58)	(896.84)	(943.72)
$r \in [13, 15]$	–	–	–	–	-5262.92***	-3630.38***	-3521.73***
					(607.13)	(864.62)	(981.58)
$r \in [16, 18]$	–	–	–	–	–	-5962.54***	-4298.34***
						(1039.52)	(1166.22)
$r \in [19, 21]$	–	–	–	–	–	–	-6512.49***
							(1346.45)
2nd childbirth							
$r \in [1, 6]$	–	-1604.16***	-92.67	1941.96	1792.67	1806.27	1200.42
		(570.63)	(856.09)	(1447.79)	(1855.61)	(2217.52)	(2685.79)
$r \in [7, 9]$	–	–	-580.36	386.80	745.86	-879.86	-690.63
			(434.69)	(1024.79)	(1171.73)	(1470.16)	(1789.89)
$r \in [10, 12]$	–	–	–	-2651.57***	-1716.21*	-2057.46*	-2390.19*
				(642.45)	(904.46)	(1097.81)	(1223.34)
$r \in [13, 15]$	–	–	–	–	-2632.10***	-2289.16**	-1764.81*
					(695.89)	(926.42)	(1019.95)
$r \in [16, 18]$	–	–	–	–	–	-3578.68***	-2538.47**
						(888.83)	(1146.80)
$r \in [19, 21]$	–	–	–	–	–	–	-3861.67***
							(1107.15)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-1289.45	-1885.65	-3548.07	-4308.39	-4319.26
			(971.78)	(1246.63)	(2570.34)	(2842.05)	(3634.43)
$r \in [13, 15]$	–	–	–	–	-1466.17	-790.99	78.39
					(1618.06)	(1976.23)	(1933.89)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-3248.80	-2387.10
						(2076.79)	(1849.32)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.
[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.10: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH and by including regional rates at birth in the outcome equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.005	-0.011	-0.015**	-0.073**	-0.074**	-0.064	0.061
	(0.005)	(0.008)	(0.008)	(0.031)	(0.037)	(0.052)	(0.064)
$r \in [4, 6]$	–	-0.013***	-0.011**	-0.061***	-0.053*	-0.016	0.058
		(0.005)	(0.005)	(0.022)	(0.027)	(0.037)	(0.047)
$r \in [7, 9]$	–	–	-0.013***	-0.073***	-0.076***	-0.027	-0.018
			(0.004)	(0.017)	(0.024)	(0.031)	(0.039)
$r \in [10, 12]$	–	–	–	-0.104***	-0.126***	-0.077***	-0.104***
				(0.014)	(0.020)	(0.029)	(0.036)
$r \in [13, 15]$	–	–	–	–	-0.141***	-0.124***	-0.132***
					(0.020)	(0.029)	(0.038)
$r \in [16, 18]$	–	–	–	–	–	-0.143***	-0.127***
						(0.030)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.167***
							(0.044)
2nd childbirth							
$r \in [1, 6]$	–	-0.013	-0.001	0.048	-0.008	-0.007	-0.024
		(0.011)	(0.013)	(0.045)	(0.054)	(0.073)	(0.092)
$r \in [7, 9]$	–	–	-0.004	-0.014	-0.016	-0.045	-0.029
			(0.007)	(0.029)	(0.033)	(0.047)	(0.057)
$r \in [10, 12]$	–	–	–	-0.076***	-0.082***	-0.093***	-0.097**
				(0.019)	(0.026)	(0.034)	(0.042)
$r \in [13, 15]$	–	–	–	–	-0.046**	-0.101***	-0.073**
					(0.021)	(0.030)	(0.037)
$r \in [16, 18]$	–	–	–	–	–	-0.101***	-0.097**
						(0.028)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.138***
							(0.037)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.009	-0.018	-0.075	-0.067	-0.137
			(0.020)	(0.041)	(0.058)	(0.080)	(0.097)
$r \in [13, 15]$	–	–	–	–	-0.043	-0.024	0.027
					(0.043)	(0.063)	(0.069)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.160***	-0.151***
						(0.052)	(0.053)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

IV. Including Geographical Area and Regional Rates at Birth in the Outcome Equations and Having the Same Regressors in the three Childbirth Equations

Table G.11: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)§ with time-varying UH, by including regional rates at birth in the outcome equations, and with the same regressors in the three childbirth equations

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-2118.07***	-2216.92***	-2282.30***	-3877.48***	-3556.40***	-2490.35	-684.30
	(228.28)	(501.70)	(645.18)	(1181.61)	(1281.07)	(1640.88)	(1795.94)
$r \in [4,6]$	–	-2773.40***	-1531.47***	-2017.24**	-2206.23**	-739.18	-627.28
		(266.92)	(412.22)	(808.15)	(948.92)	(1195.43)	(1362.17)
$r \in [7,9]$	–	–	-2626.22***	-2093.94***	-1929.66**	-788.95	-1234.23
			(298.31)	(563.38)	(782.34)	(941.90)	(1027.81)
$r \in [10,12]$	–	–	–	-4566.73***	-3029.14***	-1978.85**	-2667.70***
				(467.23)	(626.05)	(900.64)	(944.50)
$r \in [13,15]$	–	–	–	–	-5255.73***	-3622.78***	-3512.06***
					(606.51)	(867.78)	(982.34)
$r \in [16,18]$	–	–	–	–	–	-5972.08***	-4301.31***
						(1044.23)	(1167.19)
$r \in [19,21]$	–	–	–	–	–	–	-6517.18***
							(1345.45)
2nd childbirth							
$r \in [1,6]$	–	-1620.45***	-130.55	1875.73	1695.03	1712.45	1171.57
		(576.10)	(861.36)	(1449.54)	(1847.66)	(2215.14)	(2683.11)
$r \in [7,9]$	–	–	-604.19	384.49	762.98	-861.12	-666.12
			(439.22)	(1025.40)	(1169.11)	(1475.88)	(1791.08)
$r \in [10,12]$	–	–	–	-2648.55***	-1683.15*	-1995.76*	-2321.69*
				(644.04)	(903.54)	(1102.04)	(1223.88)
$r \in [13,15]$	–	–	–	–	-2576.99***	-2223.78**	-1687.92*
					(696.93)	(930.93)	(1020.23)
$r \in [16,18]$	–	–	–	–	–	-3549.30***	-2498.44**
						(893.26)	(1146.60)
$r \in [19,21]$	–	–	–	–	–	–	-3851.18***
							(1106.29)
3rd childbirth							
$r \in [1,\min(t,12)]$	–	–	-1285.23	-1855.34	-3532.35	-4296.38	-4319.25
			(978.12)	(1246.71)	(2568.65)	(2855.67)	(3621.04)
$r \in [13,15]$	–	–	–	–	-1408.14	-742.14	139.08
					(1615.61)	(1976.02)	(1933.02)
$r \in [16,\min(t,21)]$	–	–	–	–	–	-3284.78	-2375.06
						(2076.90)	(1841.19)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.
§ Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.12: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH, by including regional rates in the outcome equations, and with the same regressors in the three childbirth equations

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.005	-0.011	-0.016**	-0.072**	-0.073*	-0.062	0.063
	(0.005)	(0.008)	(0.008)	(0.031)	(0.037)	(0.052)	(0.064)
$r \in [4, 6]$	–	-0.013***	-0.011**	-0.060***	-0.051*	-0.014	0.059
		(0.005)	(0.005)	(0.022)	(0.027)	(0.037)	(0.047)
$r \in [7, 9]$	–	–	-0.013***	-0.071***	-0.076***	-0.026	-0.017
			(0.004)	(0.017)	(0.024)	(0.031)	(0.039)
$r \in [10, 12]$	–	–	–	-0.104***	-0.127***	-0.077***	-0.106***
				(0.014)	(0.020)	(0.029)	(0.036)
$r \in [13, 15]$	–	–	–	–	-0.141***	-0.124***	-0.132***
					(0.020)	(0.029)	(0.038)
$r \in [16, 18]$	–	–	–	–	–	-0.144***	-0.127***
						(0.030)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.169***
							(0.044)
2nd childbirth							
$r \in [1, 6]$	–	-0.013	-0.001	0.047	-0.009	-0.008	-0.024
		(0.011)	(0.013)	(0.044)	(0.054)	(0.073)	(0.092)
$r \in [7, 9]$	–	–	-0.003	-0.015	-0.016	-0.046	-0.029
			(0.007)	(0.029)	(0.033)	(0.047)	(0.057)
$r \in [10, 12]$	–	–	–	-0.076***	-0.081***	-0.091***	-0.095**
				(0.019)	(0.026)	(0.034)	(0.041)
$r \in [13, 15]$	–	–	–	–	-0.044**	-0.099***	-0.072*
					(0.021)	(0.030)	(0.037)
$r \in [16, 18]$	–	–	–	–	–	-0.100***	-0.097**
						(0.028)	(0.039)
$r \in [19, 21]$	–	–	–	–	–	–	-0.137***
							(0.036)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.008	-0.018	-0.075	-0.067	-0.137
			(0.020)	(0.041)	(0.058)	(0.080)	(0.096)
$r \in [13, 15]$	–	–	–	–	-0.041	-0.024	0.028
					(0.043)	(0.063)	(0.068)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.161***	-0.150***
						(0.051)	(0.053)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses.

Estimating the Model Using only Women Who Exited School with a Secondary School Diploma when 17–20 Years Old

Table G.13: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH using only women who exited school with a secondary school diploma when 17–20 years old

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-971.46**	-2201.05**	-2813.61***	-3857.26	-4600.66*	-3549.68	-2040.88
	(442.80)	(862.85)	(1051.83)	(2510.01)	(2450.99)	(3465.66)	(3460.90)
$r \in [4,6]$	–	-3010.24***	-2540.84***	-3585.27**	-4153.37**	-2390.43	-2596.64
		(426.39)	(723.09)	(1561.54)	(2053.04)	(2131.53)	(2698.16)
$r \in [7,9]$	–	–	-2971.02***	-2357.11***	-2828.49**	-1370.27	-2065.49
			(419.34)	(912.69)	(1355.75)	(1733.06)	(1916.78)
$r \in [10,12]$	–	–	–	-5166.63***	-4218.37***	-2591.79	-3122.12
				(687.36)	(1177.44)	(1653.11)	(1911.89)
$r \in [13,15]$	–	–	–	–	-5614.22***	-2565.68	-3322.33*
					(1006.97)	(1580.16)	(1893.39)
$r \in [16,18]$	–	–	–	–	–	-6483.37***	-3397.18
						(1880.33)	(2278.72)
$r \in [19,21]$	–	–	–	–	–	–	-7189.54***
							(2688.21)
2nd childbirth							
$r \in [1,6]$	–	-603.54	592.51	-19.79	1221.46	1739.57	1414.04
		(936.20)	(1579.49)	(3367.80)	(4163.16)	(5421.88)	(6032.69)
$r \in [7,9]$	–	–	-421.67	119.22	587.87	-1341.72	-1072.87
			(928.64)	(1883.35)	(2530.71)	(3156.43)	(3961.11)
$r \in [10,12]$	–	–	–	-2555.00**	-1355.51	-2452.43	-2464.49
				(1033.55)	(1781.99)	(2100.49)	(2381.83)
$r \in [13,15]$	–	–	–	–	-2482.94**	-2972.84*	-2175.02
					(1186.08)	(1775.15)	(2179.36)
$r \in [16,18]$	–	–	–	–	–	-4936.56***	-2006.57
						(1630.87)	(2226.77)
$r \in [19,21]$	–	–	–	–	–	–	-1190.42
							(2220.45)
3rd childbirth							
$r \in [1, \min(t,12)]$	–	–	-1429.81	820.88	-1491.01	-3106.99	-3281.33
			(2031.12)	(1777.58)	(4556.56)	(6992.54)	(7640.99)
$r \in [13,15]$	–	–	–	–	-4966.15*	-4126.65	-1088.61
					(2929.10)	(4496.13)	(4244.35)
$r \in [16, \min(t,21)]$	–	–	–	–	–	-3297.31	-3338.78
						(3872.55)	(4368.35)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses. When selecting only women that exited school between 17 and 20 years of age with a secondary school diploma, the sample size shrinks from 9,387 to 3,690 women.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.14: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH using only women who exited school with a secondary school diploma when 17–20 years old

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-0.005	-0.010	-0.020*	-0.077	-0.036	-0.076	0.062
	(0.010)	(0.013)	(0.012)	(0.055)	(0.058)	(0.080)	(0.090)
$r \in [4,6]$	–	-0.009	-0.013*	-0.080**	-0.052	-0.009	0.026
		(0.008)	(0.007)	(0.035)	(0.045)	(0.056)	(0.073)
$r \in [7,9]$	–	–	-0.015***	-0.089***	-0.091**	-0.041	-0.05
			(0.005)	(0.026)	(0.038)	(0.048)	(0.057)
$r \in [10,12]$	–	–	–	-0.106***	-0.121***	-0.034	-0.066
				(0.021)	(0.033)	(0.045)	(0.055)
$r \in [13,15]$	–	–	–	–	-0.115***	-0.013	-0.054
					(0.031)	(0.048)	(0.061)
$r \in [16,18]$	–	–	–	–	–	-0.06	-0.017
						(0.051)	(0.069)
$r \in [19,21]$	–	–	–	–	–	–	-0.12
							(0.080)
2nd childbirth							
$r \in [1,6]$	–	-0.015	0.015	0.003	-0.077	0.001	-0.030
		(0.019)	(0.023)	(0.078)	(0.093)	(0.114)	(0.134)
$r \in [7,9]$	–	–	0.011	-0.007	-0.032	-0.065	-0.017
			(0.010)	(0.046)	(0.056)	(0.074)	(0.090)
$r \in [10,12]$	–	–	–	-0.066**	-0.073*	-0.090*	-0.077
				(0.028)	(0.041)	(0.051)	(0.062)
$r \in [13,15]$	–	–	–	–	-0.053	-0.128***	-0.063
					(0.033)	(0.049)	(0.058)
$r \in [16,18]$	–	–	–	–	–	-0.119***	-0.016
						(0.045)	(0.064)
$r \in [19,21]$	–	–	–	–	–	–	-0.063
							(0.066)
3rd childbirth							
$r \in [1,\min(t,12)]$	–	–	0.001	0.026	-0.031	-0.084	-0.089
			(0.044)	(0.062)	(0.089)	(0.131)	(0.137)
$r \in [13,15]$	–	–	–	–	-0.095	-0.107	0.062
					(0.063)	(0.110)	(0.120)
$r \in [16,\min(t,21)]$	–	–	–	–	–	-0.239***	-0.172*
						(0.083)	(0.098)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses. When selecting only women that exited school between 17 and 20 years of age with a secondary school diploma, the sample size shrinks from 9,387 to 3,690 women.

Estimating the Model Using only Women Born in the 1960s

Table G.15: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH using only women born in the 1960s

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-2376.79***	-1819.64**	-2277.95***	-4142.49**	-3192.42*	-2277.778	-715.132
	(356.28)	(772.99)	(829.25)	(1654.20)	(1758.02)	(2121.88)	(2140.68)
$r \in [4,6]$	–	-1714.12***	-832.00	-1935.38	-2192.33	-419.24	-546.09
		(416.74)	(601.51)	(1211.28)	(1333.85)	(1519.20)	(1581.81)
$r \in [7,9]$	–	–	-2101.16***	-2175.39**	-2207.79*	-797.55	-1283.07
			(467.36)	(843.77)	(1142.78)	(1235.36)	(1252.36)
$r \in [10,12]$	–	–	–	-4163.68***	-3252.14***	-2123.82*	-3024.07***
				(728.64)	(930.63)	(1222.16)	(1150.92)
$r \in [13,15]$	–	–	–	–	-5425.99***	-3172.75***	-3548.36***
					(908.95)	(1148.07)	(1197.35)
$r \in [16,18]$	–	–	–	–	–	-6065.60***	-4294.09***
						(1433.01)	(1486.60)
$r \in [19,21]$	–	–	–	–	–	–	-5815.17***
							(1680.24)
2nd childbirth							
$r \in [1,6]$	–	-2070.76**	39.48	3087.49	1758.53	1665.27	1297.94
		(892.12)	(1113.33)	(1889.60)	(2777.17)	(3150.42)	(3294.61)
$r \in [7,9]$	–	–	-95.72	691.99	1016.17	-1157.75	-1000.70
			(629.72)	(1469.78)	(1660.40)	(1849.92)	(2140.38)
$r \in [10,12]$	–	–	–	-1832.69*	-1499.36	-2352.03*	-2561.10*
				(1055.28)	(1330.47)	(1416.73)	(1465.13)
$r \in [13,15]$	–	–	–	–	-1835.37*	-1673.28	-1233.38
					(1011.93)	(1228.49)	(1245.43)
$r \in [16,18]$	–	–	–	–	–	-4263.53***	-2619.48*
						(1244.90)	(1496.30)
$r \in [19,21]$	–	–	–	–	–	–	-3771.06***
							(1355.62)
3rd childbirth							
$r \in [1, \min(t,12)]$	–	–	-666.82	-3522.62	-4431.26	-5293.53	-4418.54
			(1359.19)	(2591.90)	(3633.14)	(3820.20)	(4229.70)
$r \in [13,15]$	–	–	–	–	-1290.12	-468.43	779.41
					(2853.22)	(2656.64)	(2270.35)
$r \in [16, \min(t,21)]$	–	–	–	–	–	-2790.18	-2528.55
						(2998.08)	(2467.78)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses. When selecting only women born in the 1960s, the sample size shrinks from 9,387 to 3,887 women.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.16: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH using only women born in the 1960s

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.007	-0.015	-0.016	-0.101**	-0.062	-0.060	0.063
	(0.008)	(0.012)	(0.012)	(0.044)	(0.048)	(0.062)	(0.072)
$r \in [4, 6]$	–	-0.005	-0.010	-0.071**	-0.052	-0.015	0.060
		(0.007)	(0.007)	(0.032)	(0.037)	(0.046)	(0.054)
$r \in [7, 9]$	–	–	-0.008	-0.089***	-0.086**	-0.015	-0.019
			(0.005)	(0.025)	(0.033)	(0.041)	(0.047)
$r \in [10, 12]$	–	–	–	-0.103***	-0.127***	-0.090**	-0.117***
				(0.022)	(0.029)	(0.038)	(0.043)
$r \in [13, 15]$	–	–	–	–	-0.134***	-0.106***	-0.110**
					(0.028)	(0.038)	(0.045)
$r \in [16, 18]$	–	–	–	–	–	-0.170***	-0.104**
						(0.040)	(0.046)
$r \in [19, 21]$	–	–	–	–	–	–	-0.118**
							(0.054)
2nd childbirth							
$r \in [1, 6]$	–	-0.012	-0.002	0.105*	-0.012	-0.033	-0.055
		(0.016)	(0.019)	(0.062)	(0.077)	(0.097)	(0.114)
$r \in [7, 9]$	–	–	-0.004	-0.012	-0.010	-0.063	-0.030
			(0.009)	(0.041)	(0.043)	(0.055)	(0.064)
$r \in [10, 12]$	–	–	–	-0.054*	-0.084**	-0.108***	-0.103**
				(0.030)	(0.036)	(0.042)	(0.049)
$r \in [13, 15]$	–	–	–	–	-0.033	-0.096**	-0.063
					(0.030)	(0.040)	(0.044)
$r \in [16, 18]$	–	–	–	–	–	-0.116***	-0.090*
						(0.037)	(0.048)
$r \in [19, 21]$	–	–	–	–	–	–	-0.175***
							(0.045)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.005	-0.012	-0.039	-0.046	-0.094
			(0.039)	(0.064)	(0.081)	(0.104)	(0.109)
$r \in [13, 15]$	–	–	–	–	-0.013	0.009	0.076
					(0.066)	(0.077)	(0.077)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.170**	-0.176***
						(0.072)	(0.068)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses. When selecting only women born in the 1960s, the sample size shrinks from 9,387 to 3,887 women.

Estimating the Model Using only Women Born in the 1970s-1980s

Table G.17: Estimated coefficients of the impact of childbirth and birth timing on yearly labor earnings (€)[§] with time-varying UH using only women born in the 1970s-1980s

Years since school completion	$t=3$	$t=6$	$t=9$	$t=12$	$t=15$	$t=18$	$t=21$
1st childbirth							
$r \in [0,3]$	-1837.26***	-2297.38***	-2072.38*	-3884.81*	-4922.24**	-5084.02*	-2327.54
	(310.22)	(684.14)	(1065.07)	(1982.98)	(2333.20)	(2762.58)	(4645.63)
$r \in [4,6]$	–	-3736.39***	-2222.04***	-2283.02*	-2805.37*	-2855.29	-2399.06
		(364.66)	(630.75)	(1214.67)	(1516.16)	(2504.72)	(4072.57)
$r \in [7,9]$	–	–	-3227.88***	-2061.59**	-1897.42	-1652.34	-2016.25
			(414.86)	(836.54)	(1179.49)	(1454.96)	(1821.66)
$r \in [10,12]$	–	–	–	-5019.61***	-2842.43***	-1790.99	-1604.54
				(629.99)	(825.69)	(1250.08)	(1531.66)
$r \in [13,15]$	–	–	–	–	-5167.92***	-4343.42***	-3451.61**
					(768.39)	(1200.37)	(1585.93)
$r \in [16,18]$	–	–	–	–	–	-5463.81***	-3908.70**
						(1296.09)	(1619.78)
$r \in [19,21]$	–	–	–	–	–	–	-6959.42***
							(1933.24)
2nd childbirth							
$r \in [1,6]$	–	-1506.87*	-982.37	-73.34	958.00	1507.33	1716.81
		(825.52)	(1521.68)	(3336.18)	(3276.42)	(4224.30)	(7464.97)
$r \in [7,9]$	–	–	-1257.71*	185.73	625.55	749.70	2420.23
			(668.80)	(1605.23)	(1817.02)	(3413.00)	(3914.55)
$r \in [10,12]$	–	–	–	-3607.99***	-1775.12	-616.10	-816.94
				(884.11)	(1323.07)	(1822.12)	(2302.55)
$r \in [13,15]$	–	–	–	–	-3697.26***	-3439.19**	-3285.75*
					(960.96)	(1394.64)	(1815.96)
$r \in [16,18]$	–	–	–	–	–	-2371.87**	-2049.17
						(1193.96)	(1625.89)
$r \in [19,21]$	–	–	–	–	–	–	-3481.46*
							(1796.67)
3rd childbirth							
$r \in [1,\min(t,12)]$	–	–	-1843.67	713.51	-1952.89	-1650.74	-5540.01
			(1749.91)	(1843.08)	(4024.78)	(5342.83)	(9038.08)
$r \in [13,15]$	–	–	–	–	-1878.64	-2477.23	-4779.70
					(1877.08)	(6735.37)	(7387.46)
$r \in [16,\min(t,21)]$	–	–	–	–	–	-4757.70	-1764.17
						(3487.48)	(2633.61)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses. When selecting only women born in the 1960s, the sample size shrinks from 9,387 to 5,500 women.

[§] Yearly labor earnings are in 2014 prices and deflated by the ISTAT consumer price index.

Table G.18: Estimated coefficients of the impact of childbirth and birth timing on yearly fraction of days spent in employment with time-varying UH using only women born in the 1970s-1980s

Years since school completion	$t = 3$	$t = 6$	$t = 9$	$t = 12$	$t = 15$	$t = 18$	$t = 21$
1st childbirth							
$r \in [0, 3]$	-0.009	-0.001	-0.013	-0.031	-0.076	-0.061	0.083
	(0.007)	(0.011)	(0.012)	(0.052)	(0.077)	(0.151)	(0.241)
$r \in [4, 6]$	–	-0.023***	-0.013*	-0.041	-0.042	-0.014	0.041
		(0.006)	(0.007)	(0.033)	(0.047)	(0.079)	(0.141)
$r \in [7, 9]$	–	–	-0.022***	-0.046*	-0.048	-0.063	-0.009
			(0.005)	(0.025)	(0.037)	(0.053)	(0.082)
$r \in [10, 12]$	–	–	–	-0.105***	-0.126***	-0.042	-0.057
				(0.019)	(0.030)	(0.047)	(0.073)
$r \in [13, 15]$	–	–	–	–	-0.153***	-0.151***	-0.188**
					(0.029)	(0.048)	(0.078)
$r \in [16, 18]$	–	–	–	–	–	-0.103**	-0.193**
						(0.047)	(0.079)
$r \in [19, 21]$	–	–	–	–	–	–	-0.259***
							(0.079)
2nd childbirth							
$r \in [1, 6]$	–	-0.020	-0.002	-0.032	-0.002	0.063	0.073
		(0.014)	(0.020)	(0.077)	(0.094)	(0.164)	(0.227)
$r \in [7, 9]$	–	–	-0.001	-0.011	-0.020	0.013	-0.056
			(0.010)	(0.046)	(0.063)	(0.117)	(0.184)
$r \in [10, 12]$	–	–	–	-0.104***	-0.074*	-0.040	-0.072
				(0.027)	(0.041)	(0.065)	(0.094)
$r \in [13, 15]$	–	–	–	–	-0.069**	-0.121**	-0.113
					(0.032)	(0.050)	(0.076)
$r \in [16, 18]$	–	–	–	–	–	-0.071	-0.109
						(0.045)	(0.072)
$r \in [19, 21]$	–	–	–	–	–	–	-0.044
							(0.075)
3rd childbirth							
$r \in [1, \min(t, 12)]$	–	–	-0.015	-0.041	-0.172	-0.157	-0.366
			(0.027)	(0.072)	(0.112)	(0.181)	(0.342)
$r \in [13, 15]$	–	–	–	–	-0.122*	-0.182	-0.225
					(0.066)	(0.230)	(0.292)
$r \in [16, \min(t, 21)]$	–	–	–	–	–	-0.152*	-0.054
						(0.086)	(0.102)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Standard errors are in parentheses. When selecting only women born in the 1960s, the sample size shrinks from 9,387 to 5,500 women.

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