Family pension benefits and maternal employment: Evidence from Germany

DIW GRADUATE CENTER

Andreas Thiemann (DIW Berlin)

Abstract

Child-raising pension benefits in Germany are designed as a compensation for maternal employment interruptions due to child-birth. In comparison to most other family benefits, child-raising pension benefits are accumulated upon child birth but become effective only on the verge of retirement. Hence, the extent to which child-raising pension benefits are determinants of the maternal employment decision essentially depends on a mother's individual discount factor as well as on the length of her planning horizon. This paper tests the hypothesis that child-raising pension benefits influence the maternal employment decision. Exploiting the pension reform 1992 as a natural experiment, a regression-discontinuity method is used. All empirical results indicate that mothers do not consider child-raising pension benefits in their employment decision.

Motivation

Child-raising pension benefits (*Kindererziehungszeiten*) → compensation for employment interruptions due to child birth

- Child-birth → maternal employment interruptions (e.g. Boll, 2010)
- Child-raising pension benefits → "artificial pension contributions"
- In contrast to many other family benefits, such as the child allowance (*Kindergeld*), child-raising pension benefits → only effective at the verge of retirement many years after accrual
- Negative employment reactions to "normal" family benefits documented (e.g. for *Kindergeld*, Rainer et al., 2013)
- If negative employment response → potential negative long-term impact on earnings potential

Aim of the paper

Do mothers consider the provision of child-raising pension benefits in her decision to (re-)enter employment after giving birth to a child?

- Short- and medium-run employment responses
  → pave the way for future earnings potentials
- Policy Perspective
  → Benefit assessment

Institutional background

Table 1: Child-raising pension benefit reforms 1986-2001

Year	Child-raising pension benefit	Duration
1986	max. 0.75 earnings points (EPs)	1 year
1992	max. 0.75 EPs, all births from 1992	3 years
1999	max. 3 x 1 EP + additivity against compulsory contributions from work	3 years
2001	max. 3 x 1 EP + siblings- & part-time bonus	3-10 years

Source: Own illustration.

- Study based only on variation induced by *pension reform in 1992*
  → period of analysis restricted to pre-1999

- One earnings point (EP) → pension contributions made by a reference person with average earnings
- 1 EP increases monthly pension payments at retirement by € 28 (West-Germany, 2012 values)
- Pension reform in 1992
  - *Births prior to 1992*: 0.75 EP p.a. - one year
  - *Births from 1992*: 0.75 EPs p.a. - three years
  - Fully withdrawn against EPs from employment
- Dependent on employment
  - Max. benefit: 0.75 EP p.a. if not employed
  - Min. benefit: 0 EP p.a. if employed and earning more than 75% of the average

Identification

- Comparison of *Treatment*- and *Control group*
  - *Treatment group*: Mothers who had a child shortly after the policy change (i.e. in 1992 Q1)
  - *Control group*: Mothers who had a child shortly before the policy change (i.e. in 1991 Q4)
- Non-random selection into *Treatment*- and *Control group* through strategic timing of child birth?
  → No empirical evidence (Dustmann and Schönberg, 2008)
  - Low media coverage
  - No irregularities in vital statistics
- Parental leave expansion in 1992 from 18 to 36 months
  → consider only mothers w/o pre-child birth employment

Model

$$Pr(employed_{it}) = \Phi(\alpha + \beta_1 post_{it} + \gamma' X_{it} + e_{it}) \qquad (1)$$

- i indicates the mother and t represents child age; model estimated separately for different values of t (19, 28 and 36 months)
- Φ cdf of the standard normal distribution
- $employed_{it}$, one if mother i is employed, zero otherwise
- $post_{it}$, one if mother i had a child after December 1991 (Treatment group), zero else
- X_{it} is a vector of control variables: age_{it}, age_{it}^2, age_{it}^3, $education_{it}$, $region_{it}$, $number\ of\ children_{it}$ and $German_{it}$
- e_{it} is the error term

Data

- Biographical Data of Social Insurance Agencies in Germany (BASiD)
- Entire employment biography (daily spells)
- Sample restrictions:
  - Mothers with a child born in 91Q4/92Q1
  - Only West-German with validated pension accounts
  - Only mothers w/o employment in the 18 months prior to child birth
- Period of analysis restricted to pre-1999

Descriptive results

Figure 1: Maternal employment status by child age
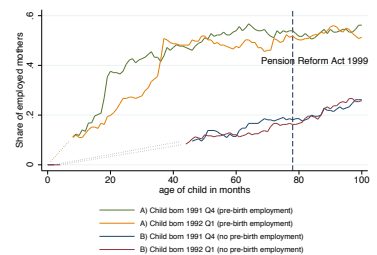
Source: BASiD, own calculations.

Regression results

Child age	Model	Reform effect	95% Confidence interval		N
Range of mothers +/- one quarter around turn of the year					
19	OLS	-.0195908	-.0604853	.0213037	331
	Probit	-.0205439	-.0628055	.0217176	307
28	OLS	.0070266	-.0383567	.0524098	331
	Probit	.0037685	-.0460272	.0535642	307
36	OLS	.0192599	-.0394129	.0779327	331
	Probit	.0207883	-.0381225	.079699	331
Range of mothers +/- two quarters around turn of the year					
19	OLS	-.016401	-.045722	.012921	712
	Probit	-.015654	-.044648	.013341	712
28	OLS	-.031725*	-.067582	.004132	712
	Probit	-.03401*	-.070696	.002669	712
36	OLS	-.014676	-.058315	.028962	712
	Probit	-.014601	-.058220	.029017	712

Note: All specifications include the control variables: *age, age², age³, education, region, number of children, German nationality.* The reform effect column provides the estimated coefficient in case ofthe OLS specification or the estimated marginal effects for the probit model. All OLS estimations are based on robust standard errors. * Statistically significant at the 10%-level.
Data source: BASiD, own calculations.

Summary

- **Neither short- nor medium-run employment responses**
  → particularly important since short- and medium-run employment patterns pave the way for future earnings potentials
- In terms of potential employment responses, child-raising pension benefits (*Kindererziehungszeiten*) **valid measure against maternal old-age poverty**
- Robustness checks
  - Control for potential seasonal effects (Schönberg and Ludsteck, 2011)
  - Control for potential strategical timing of birth (exclusion of births in December 1991 and January 1992)
  - Variation of the bandwidth (± 3 months, ± 6 months)

Selected references

- Boll, C. (2011), Lohneinbußen von Frauen durch geburtsbedingte Erwerbsunterbrechungen, *Wirtschaftsdienst*, 90(10), 700-702.
- Dustmann, C. and Schönberg, U. (2008), The effect of expansions in maternity leave coverage on children's long-term outcomes, *IZA Discussion Paper Series*, 3605.
- Ekberg, J., Eriksson, R. and Friebel, G. (2005), Parental Leave - A Policy Evaluation of the Swedish "Daddy-Month" Reform, IZA Discussion Paper, 1617.
- Lee, D. S. and Lemieux, T. (2010), Regression Discontinuity Designs in Economics, *Journal of Economic Literature*, 48(2), 281-355.
- Rainer, H., Bauernschuster, S., Danzer, N., Hener, T., Holzner, C. and Reinkowski, J. (2012), Kindergeld, *ifo Forschungsberichte*, 60.
- Schönberg, U. and Ludsteck, J. (2011), Expansions in Maternity Leave Coverage and Mothers Labor Market Outcomes after Childbirth, Working Paper.