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Fertility and Parental Retirement

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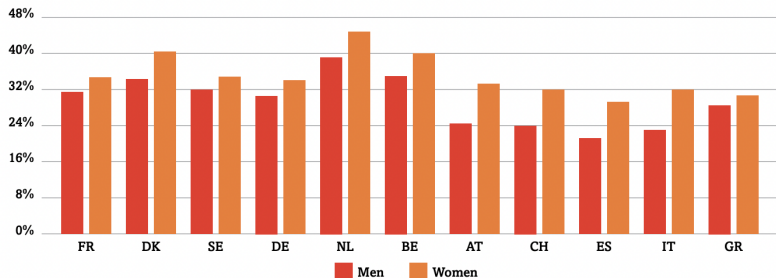
Motivation

Child care access is central to female labor force participation and fertility

- As a tool to increase female labor force participation by alleviating child care burden on women
- As a tool to increase fertility by reducing both direct and opportunity costs of having children

Grandparental Child Care

Figure 5-3 Percentages of parents who have a child that is looked after by a grandparent, by gender and country



Source: Glaser et al. (2013)

Research Question

Does delaying retirement affect subsequent generation's fertility and labor force participation?

Relevance

- Policy side: Could delaying retirement threaten the stability of pension systems by reducing subsequent generation's fertility or labor force participation?
- Academic side: what is parents' role in their adult daughters fertility and labor force participation?

Related Literature

Eibich & Siedler (2020) early retirement threshold in Germany.

- Parents become eligible for retirement → daughters fertility ↑

Series of Italian pension reforms → parents retire later:

- Bratti et al. (2018): daughters' LFP ↓
- Battistin et al. (2014): daughters' fertility ↓
- Aparicio-Fenoll & Vidal-Fernandez (2015): daughters' fertility ↑, LFP ↓

Frattola (2023) old-age pension thresholds around Europe.

- Parents become eligible for retirement → daughters fertility in Mediterranean ↑, no impact elsewhere

Retirement in the Netherlands

Three pillars

- Social security (old age pension), $\approx 50\%$ entitlements.
- Sectoral pensions - main doorway to retirement, $\approx 45\%$ entitlements.
- Individual insurance schemes, $\approx 5\%$ entitlements.

Retirement in the Netherlands

2006 pension reform

- Eliminated the tax deductibility of sectoral pension contributions.
- Individuals had to work longer to reach planned benefit level.

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⇒ people born just a few days apart face very different retirement opportunities.

Methodology

- Whether a person is born just before January 1, 1950 or just after should be as good as random
- Sharp regression discontinuity design for parents being born after December 1949.

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$$Y_{ij} = \beta_0 + \beta_1 T_j + \beta_2 distance_j + \beta_3 T_j distance_j + X_{ij}\gamma + \varepsilon_{ij},$$

- Y_{ij} - fertility or labor market outcome for woman i with parent j
- T_j - dummy that takes value 1 if parent j was born from January 1, 1950 onward and 0 otherwise
- $distance_j$ - distance from the birth month of parent j to January 1950 measured in months
- X_{ij} - vector of covariates measured before the reform
- β_1 **measures the impact of the reform**

RDD Details

$$Y_{ij} = \beta_0 + \beta_1 T_j + \beta_2 \text{distance}_j + \beta_3 T_j \text{distance}_j + X_{ij} \gamma + \varepsilon_{ij},$$

- Separate analysis by woman-parent link.
- Bandwidth of 12 months.
- In specifications with controls: quadratic functions of woman's age, income in 2004, and employment status in 2004 and equivalent controls for their partners and parents.

Data

Main sample

- Administrative data from Statistics Netherlands
- Sample includes all cohabiting childless opposite sex couples together on January 1 2005 with at least one parent(-in-law) born within 12 months of January 1950 and alive in 2004.

Effect on Retirement

Effect on Retirement Age

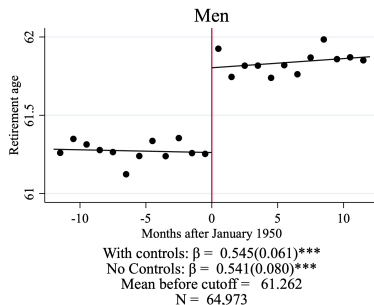
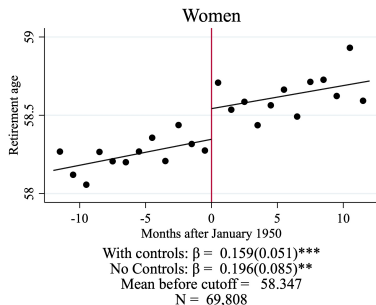


Figure 1: Parent generation's retirement age

Effect on Retirement by Year

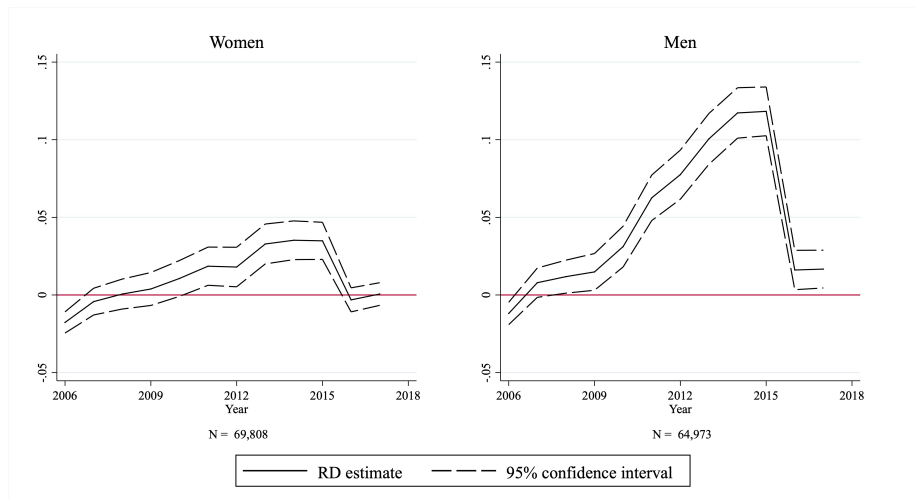


Figure 2: Effect on working in parent generation by year

Effect on Fertility

Effect on Fertility in Next Generation

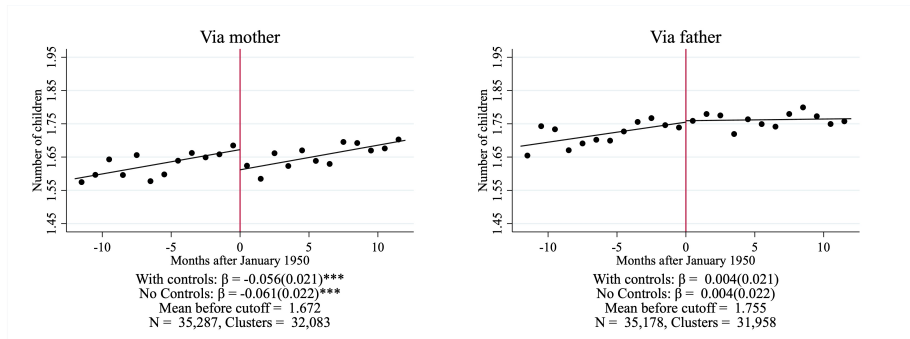


Figure 3: Fertility in 2021, in relation to women's parents' birth dates

Standard RDD Robustness Checks

Standard RDD Robustness Checks

- Bandwidth choice **Bandwidth**
- Polynomial choice **Polynomial**
- Balance in observables **Balance**
- Manipulation of running variable **Manipulation**
- Placebo cutoffs **Placebo tests**

Fertility Effect Dynamics

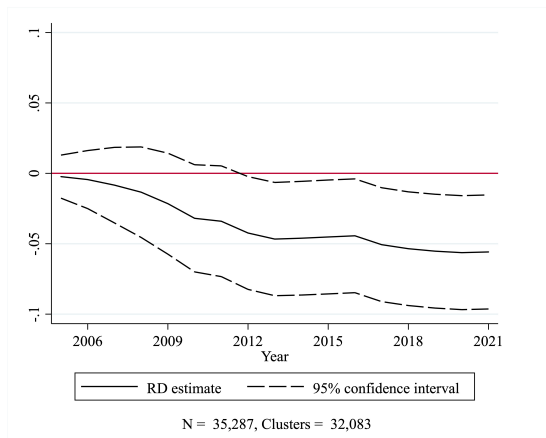


Figure 4: Effect on total fertility via mother by year

Is the Fertility Effect Permanent?

Table 1: Heterogeneity analysis for the effects through women's mothers

	RF	N
(1) Baseline sample	-0.056*** (0.021)	35,287
(2) 44 and older	-0.094*** (0.029)	17,698
(3) Younger than 44	-0.020 (0.029)	17,589

Note: Regression discontinuity effect estimates. *significant at 10%, **significant at 5%, ***significant at 1%.

Effect on Labor Force Participation

Effect on Work hours in Next Generation

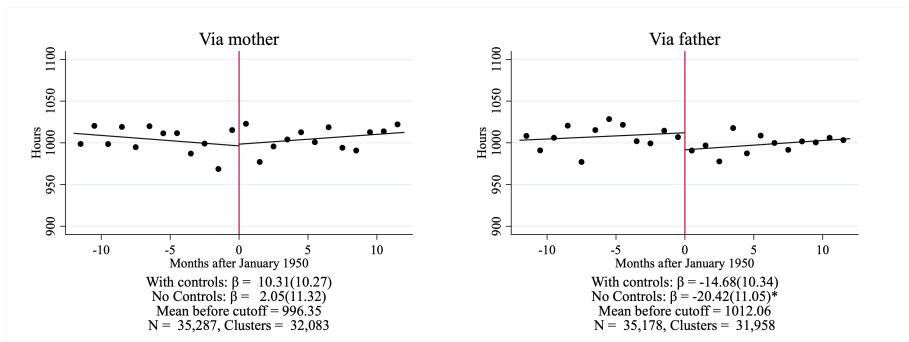


Figure 5: Average yearly work hours between 2010 and 2015, in relation to women's parents' birth dates

Is Child Care the Mechanism?

Time transfers versus income transfers?

- Effect limited to families living close by **Distance heterogeneity**
- Grandparental childcare is prevalent while income transfers are rare **Transfers**
- Reform had a large effect on retirement age but a limited effect on income **Income**

Conclusion

- Pension reform reduced fertility in the next generation
 - Effect runs through women's mothers
 - Grandparental child care seems to be the primary mechanism
- Little effect on female LFP.
 - Likely due to formal childcare subsidies linked to working hours Formal
- Reforms aimed at balancing pension systems may be less effective than though previously because lower fertility could reduce future contributions.

Appendix

Sensitivity to bandwidth and polynomial

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Table A1: Sensitivity analysis for the effect on fertility through women's mothers

		RF	FS	IV	N
<i>Bandwidth and polynomial</i>					
(1)	Baseline: linear, 12-month	-0.056*** (0.021)	0.210*** (0.067)	-0.266** (0.131)	35,287
(2)	Linear, 6-month	-0.086*** (0.030)	0.175* (0.096)	-0.491 (0.319)	17,602
(3)	Quadratic, 12-month	-0.084*** (0.032)	0.242** (0.102)	-0.347* (0.197)	35,287
(4)	Linear, 24-month	-0.027* (0.014)	0.087* (0.048)	-0.313 (0.239)	70,108
(5)	Quadratic, 24-month	-0.062*** (0.022)	0.178** (0.072)	-0.351* (0.188)	70,108
(6)	Cubic, 24-month	-0.092*** (0.030)	0.293*** (0.096)	-0.313** (0.145)	70,108
(7)	Optimal bandwidth (Calonico et al., 2020)	-0.075*** (0.025)	0.222*** (0.081)	-0.303* (0.145)	104,629

Note: Standard errors clustered at the parent level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%.

Sensitivity to outcome measure and placebo tests

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Table A2: Sensitivity analysis for the effect on fertility through women's mothers

		RF	FS	IV	N
<i>Alternative outcomes</i>					
(8)	Fertility by mothers' 70th birthday	-0.055*** (0.021)	0.210*** (0.067)	-0.263** (0.130)	35,287
(9)	Age at first birth	0.240** (0.121)	0.210*** (0.067)	1.145* (0.682)	35,287
<i>Placebo tests</i>					
(10)	Placebo January 1, 1949	0.014 (0.021)	0.125** (0.064)	0.115 (0.174)	34,762
(11)	Placebo January 1, 1948	0.018 (0.021)	0.001 (0.060)	0.000 (0.000)	34,438
(12)	Placebo January 1, 1947	0.008 (0.021)	0.053 (0.060)	0.162 (0.444)	33,396

Note: Standard errors clustered at the parent level in parentheses. *significant at 10%, **significant at 5%, ***significant at 1%.

Pre-reform Characteristics

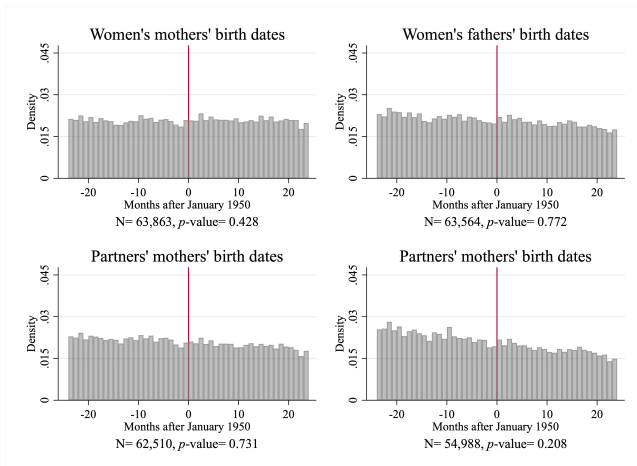
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Table A3: Balance table for females in relation to their mothers

	Control mean	Treated mean	<i>p</i> -value at threshold
<i>Background characteristics</i>			
Age 2004	27.67	27.07	0.355
Partner's age 2004	30.12	29.63	0.871
Relationship duration	3.26	3.01	0.843
Other unaffected parents	2.219	2.059	0.630
Oldest parent	0.052	0.040	0.975
Distance to parent (km)	25.39	24.53	0.206
Higher education	0.400	0.384	0.646
<i>Labor market outcomes in 2004</i>			
Working	0.944	0.951	0.677
Income (1,000s of euros)	22.53	21.75	0.355
Couple's income (1,000s of euros)	51.02	49.55	0.476
Parent's income (1,000s of euros)	8.27	8.93	0.424
Parent working	0.494	0.528	0.865
Parent working in public sector	0.254	0.271	0.750

Note: Comparison of females with mothers born up to 12 months before 1950 (control group) and mothers born up to 12 months after 1950 (treated group). *p*-values from RDD flexible linear specification. N = 35,449, cluster = 32,215

Figure A1: Distributions of birth dates for women's parents and parents-in-law



Note: Distributions of birth dates for women's parents and parents-in-law in my main sample. p -values from a test for manipulation of the running variable following Cattaneo et al. (2020) implemented with default parameters described in Cattaneo et al. (2018).

Effect of Reform on Retirement Age: Employed

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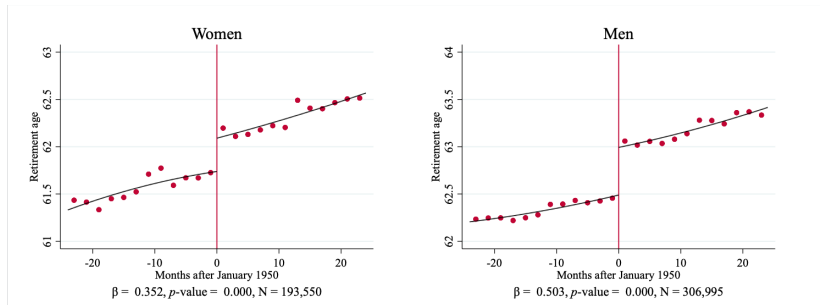


Figure A2: Parent generation's retirement age, employed on 53rd birthday

Note: Scatter plots for the mean of retirement age censoring at 53 and 67. Point estimates refer to regression discontinuity effect estimates from a flexible quadratic specification.

Fertility by Distance to Woman's Mother

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Table A4: Heterogeneity analysis for the effects through women's mothers

	RF	N
(1) Baseline sample	-0.056*** (0.021)	35,287
(4) Within 15 km of mother	-0.073*** (0.025)	22,935
(5) More than 15 km away from mother	-0.022 (0.036)	12,352

Note: Regression discontinuity effect estimates. *significant at 10%, **significant at 5%, ***significant at 1%.

Gender and Generations Survey: Grandparental Childcare

Back

Table A5: Grandparental childcare in GGS

	Fraction	p -value against subsequent row
<i>With children under 15</i>		
Female's Mother	0.486	0.000
Female's Father	0.316	0.498
Male's Mother	0.306	0.000
Male's Father	0.219	
<i>With children under 3</i>		
Female's Mother	0.659	0.000
Female's Father	0.463	0.737
Male's Mother	0.452	0.014
Male's Father	0.373	

1. Households with children under 15 years of age were asked if their household regularly receive help with childcare from informal sources.
2. With children under 15: $N = 1643$, With children under 3: $N = 451$
3. p -values from a paired t -test for equal means

Gender and Generations Survey: Income Transfers

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Table A6: Grandparental income transfers in GGS

	Fraction	p -value against subsequent row
<i>With children under 15</i>		
Female's Father	0.114	0.201
Female's Mother	0.101	0.031
Male's Father	0.080	0.120
Male's Mother	0.067	
<i>With children under 3</i>		
Female's Father	0.184	0.007
Female's Mother	0.126	0.828
Male's Father	0.122	0.005
Male's Mother	0.073	

1. Household representatives were asked if their household received money, goods, or assets from people outside the household in the last 12 months.
2. With children under 15: N = 1638, With children under 3: N = 451
3. p -values from a paired t -test for equal means

Effect of Reform on Parents' Income

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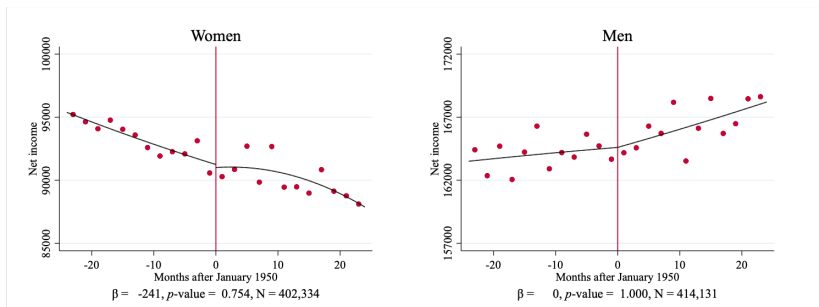


Figure A3: Parent generation's retirement age

Note: Scatter plots for the mean of income from 2011-2018 period. Point estimates refer to regression discontinuity effect estimates from a flexible quadratic specification.

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Income transfers?

- Small fraction of household reports receiving income transfers.
- Women's fathers provide more income transfers than mothers.
- We find no effect for women's fathers.
- Result may not be consistent with income transfer channel.

Grandparental childcare?

- Women's mothers provide significantly more grandparental childcare than women's fathers.
- We find an effect for women's mothers.
- Result is consistent with the grandparental childcare channel.

Reconciling Fertility and Labor Market Outcomes

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I investigate two possible explanations:

1) Indirect effect via fertility diminished the direct effect on labor market outcomes

- Women who did not reduce fertility might work less.
- Women who reduced fertility might work more than if they were to have children.
- Opposing forces could cancel out.

2) Grandparental childcare is not (very) important for female labor force participation

- May be important for fertility through enabling more leisure or providing psychological support and advice.

Dutch Formal Childcare System

Back

- Five days of kindergarten per week from 7am to 6pm can often cost as much as 1500 euros per month, making childcare prohibitively expensive.
- Government provides subsidies as high as 80% of the formal childcare cost.
- The number of subsidized hours depends on the number of hours both parents spend working

Dutch Formal Childcare System's Implications

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- In families where the male partner is working full time, the female partner can access cheap childcare if they wish to work more. However, they face expensive childcare costs if they wish to substitute childcare time with other activities.
- Women who wish to work already have access to childcare. Gaining access to grandparental childcare might not affect them much.
- Grandparental childcare may be particularly important for women with weaker labor market engagement.

GGG: Grandparental Childcare and Work

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Table A7: Grandparental childcare and work in GGS

	Weekly working hours			
	With children under 15	With children under 15	With children under 3	With children under 3
Receiving childcare help	0.196 (0.656)	0.345 (0.707)	0.340 (1.292)	0.328 (1.291)
Constant	17.620*** (0.456)	17.512*** (0.474)	17.714*** (1.047)	17.722*** (1.046)
Child age fixed effects	No	Yes	No	Yes
N	1622	1615	448	448

1. Gender and Generations Survey results. Representatives of households with children under 15 years of age were asked if their household regularly receives help with childcare from informal sources. Those answering positively were asked to list up to five informal childcare providers.

2. The table presents point estimates from a regression of female partner's weekly working hours on a dummy taking value one if the household reported receiving regular help with childcare from the female's mother.

3. Coefficient for the constant in the specifications with fixed effects refers to the average fixed effect

GGS: Grandparental Childcare and Work

Back Lack of clear relationship between working and receiving grandparental childcare help suggests two things:

- First, grandparental childcare access may not be pivotal for LFP (only correlation)
- Second, grandparental childcare is just as popular among women with lower labor market engagement
- ⇒ grandparental childcare is likely important for reasons other than enabling labor force participation, which helps explain the effect on fertility and the absence of effects on labor market outcomes

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