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Does the Child Penalty Strike Twice?

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Motivation

- ▷ During the last century, gender gaps have narrowed
 - ▷ Education: age 45-54 36% w vs 32% m, age 55-64 28% w vs 27% m have tertiary education (OECD, 2019).
- ▷ Yet, women earn less than men → largely due to children (Adda et al., 2017 JPE; Kleven et al., 2019 AEJ AE)
 - ▷ *Child penalties* of 20 percent persist 20 years after birth of first child.
- ▷ Often assumed that grandparents a readily available source of child care.
 - ▷ However, average age of first-time grandparents is early 50s—10y before normal pension age
- ▷ Few papers investigate how grandparenthood affects labor outcomes (Rubert and Zanella, 2018 JPublEcon; Frimmel et al., 2020 JHR)
- ▷ Overlooked problem: Gender dimension of grandparenthood → *Grandchild penalty*.

Data

High-quality register data for the entire Danish population

Sample

- ▷ Individuals who have their first grandchild 1985-2012.
- ▷ Balanced panel, observed 5 years before/after birth of first grandchild.
- ▷ Sample: 1,193,767 individuals, grandparents to 556,503 grandchildren.

Outcomes

- ▷ Earnings, participation, full time, hours, wage rate and disposable income.

Heterogeneity

- ▷ Living alone, commuting time, formal daycare, time periods, gender of the parent.

Mechanisms

- ▷ DTUS and SHARE data on grandchild care, data on social norms.

Event study design

Estimate model separately for grandmothers and grandfathers:

$$Y_{ist}^{gp} = \sum_{j \neq -1, -2} \alpha_j^{gp} \cdot 1[j = t] + \sum_k \beta_k^{gp} \cdot 1[k = age_{is}] + \sum_\lambda \gamma_\lambda^{gp} \cdot 1[\lambda = s] + v_i^{gp} + \mu_{ist}^{gp}$$

Y_{ist}^{gp} is outcome for individual i of age k in year s at event time t in $[-5;5]$. $t=0$ is time of birth of first grandchild. Full set of event time dummies, omitting $t = -1$ and $t = -2$, as well as age, year and individual fixed effects.

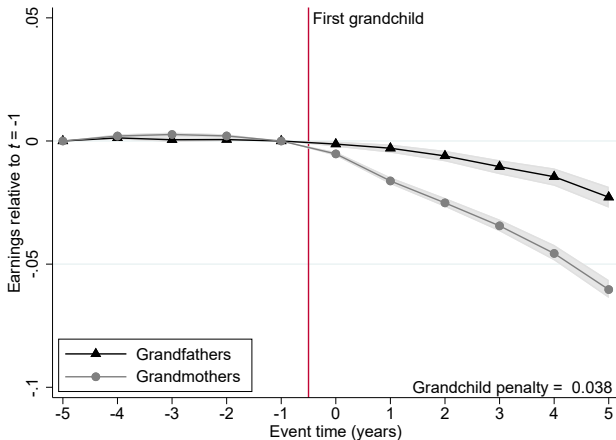
Convert to percentages by scaling estimates with the counterfactual outcome absent grandchildren: $P_t^{gp} \equiv \hat{\alpha}_t^{gp} / \mathbb{E}[\tilde{Y}_{ist}^{gp} | t]$, where \tilde{Y}_{ist}^{gp} is the predicted outcome when the event time dummies are omitted.

“Grandchild penalty”—the percentage by which grandmothers are falling behind grandfathers due to grandchildren—at event time t :

$$P_t \equiv \frac{\hat{\alpha}_t^{gf}}{\mathbb{E}[\tilde{Y}_{ist}^{gf} | t]} - \frac{\hat{\alpha}_t^{gm}}{\mathbb{E}[\tilde{Y}_{ist}^{gm} | t]}$$

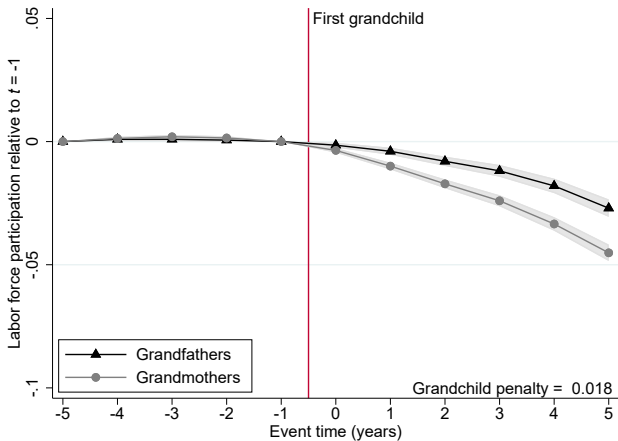
Results - Earnings

- ▷ Women's earnings drop relative to men's after the arrival of the first grandchild
- ▷ Grandchild penalty—evaluated five years after birth of first grandchild—is 3.8 percent



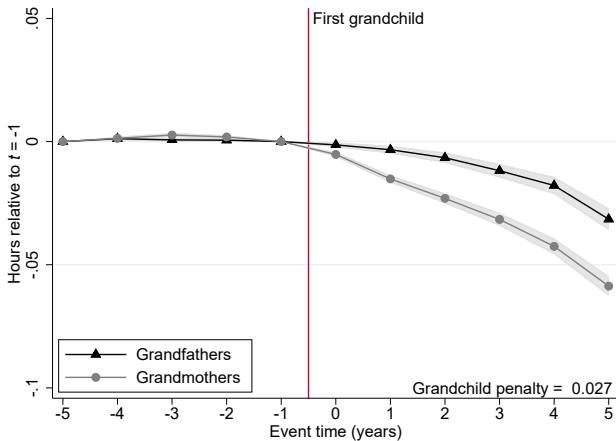
Results - Labor force participation

▷ Participation alone does not explain the grandchild penalty in earnings



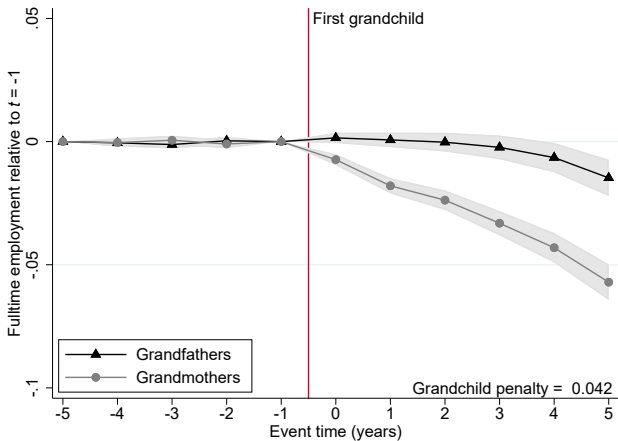
Results - Hours worked

- ▷ Women reduce their hours worked substantially more than men



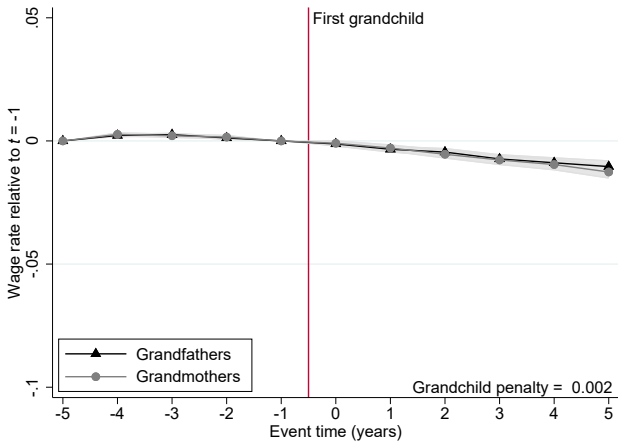
Results - Full-time employment

- ▷ Large grandchild penalty in full-time employment



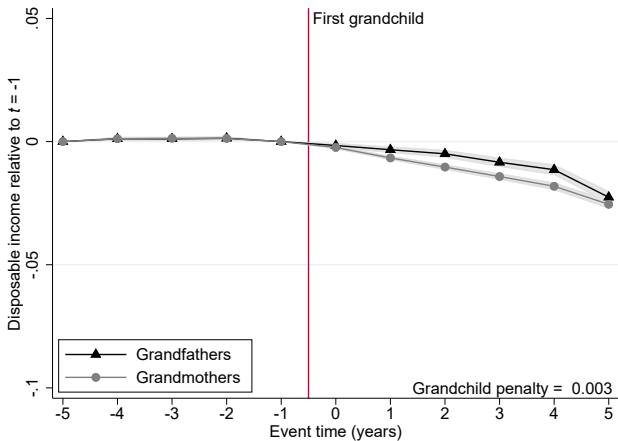
Results - Wage rate

- ▷ No evidence that women move to lower paid jobs when becoming grandmothers



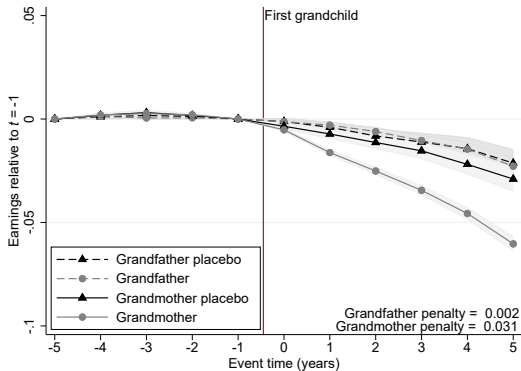
Results - Disposable income

▷ No substantive grandchild penalty in disposable income



Robustness: DiD event study

- ▷ Assign placebo grandchildren to individuals who do not become grandparent within a ten year window, but have a child age 15-45
- ▷ Allow us to estimate the effect of grandparenthood per se for grandmothers and grandfathers

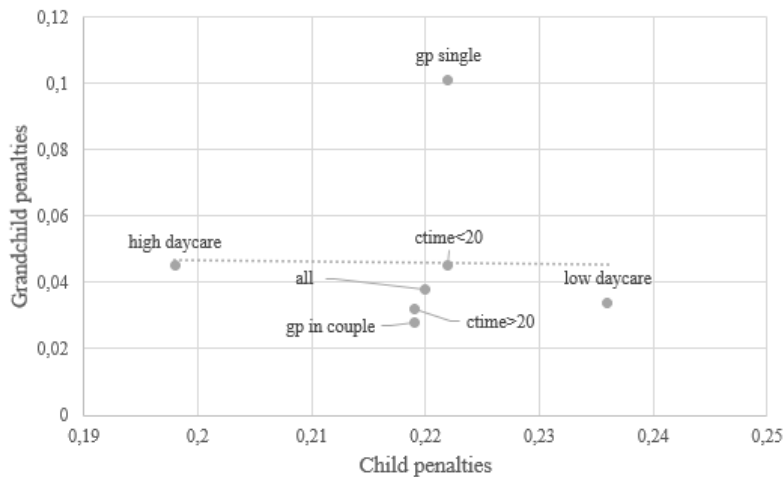


- ▷ Grandchildren reduce men's earnings by 0.2% and women's by 3.1%

Heterogeneity

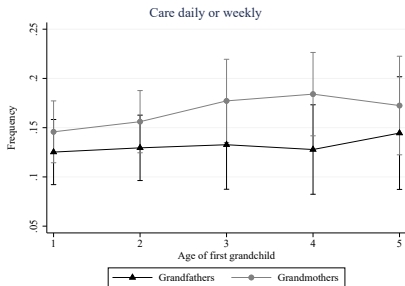
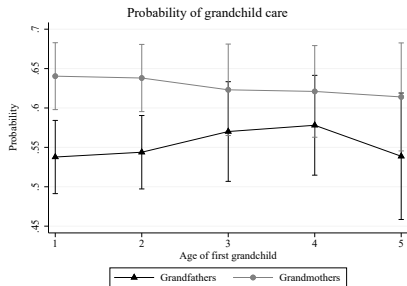
- ▷ Marital status: Largest effect for single grandmothers (10.1 vs 2.8 percent) [▶ Show graph](#)
 - ▷ Daughter/son: Maternal grandchild penalty is 4.3 percent (vs 3.0 percent) [▶ Show graph](#)
 - ▷ Time, 1985-2000 vs. 2001-2012: Slightly larger effects in early period - earlier retirement age and less favorable family policies (4.2 vs. 3.0) [▶ Show graph](#)
 - ▷ Penalties slightly higher for commute time less than 20 min (4.5 vs 3.2) [▶ Show graph](#)
 - ▷ Municipal daycare: Slightly higher penalties if high daycare enrollment (4.5 vs 3.4) [▶ Show graph](#)
 - ▷ Grandmothers complement rather than substitute to formal daycare
- Use heterogeneity to correlate *child penalties* and *grandchild penalties*

Intergenerational correlation



Mechanism: Time in childcare activities

- ▷ Descriptive evidence using SHARE waves 1-2, 4-6
- ▷ Grandmothers spend more time doing childcare activities than grandfathers, especially when the grandchild is younger

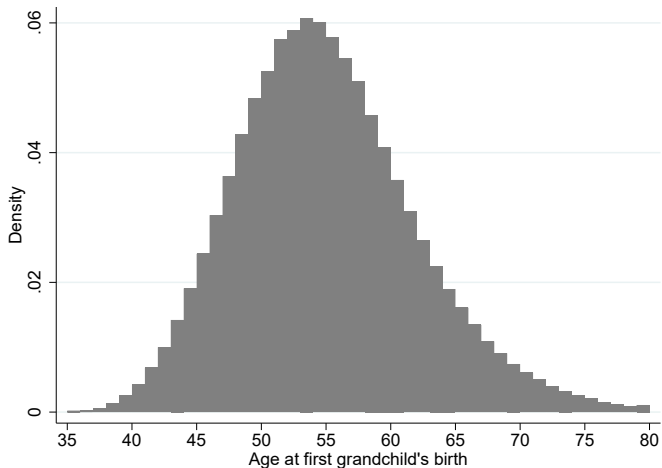


Discussion and conclusion

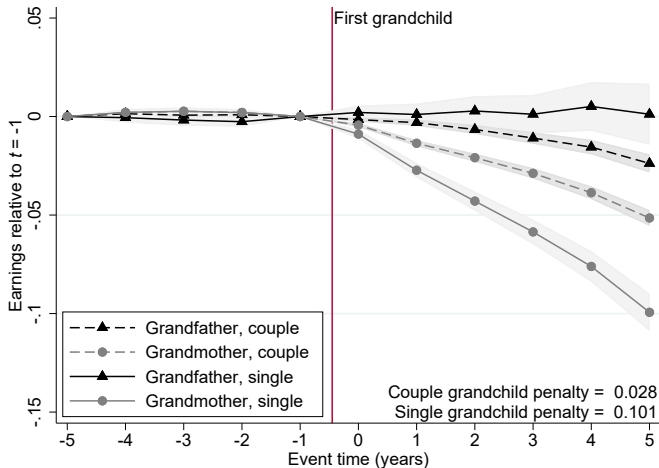
- ▷ Grandparenthood affects women and men differently
- ▷ The grandchild penalty is 3.8 percent.
 - ▷ 1/5 of Kleven et al.'s (2019, AEJ AE) child penalty of 19.4 percent
- ▷ Robustness: DiD event study confirm results.
- ▷ Driven by women moving out of full-time employment
 - ▷ Negative effect on pension wealth
- ▷ Lower bound estimate, favorable family policies in Denmark
- ▷ Grandchild penalty is larger for
 - ▷ Single grandmothers (single grandfathers not affected)
 - ▷ Early periods (earlier retirement age, weaker family policies)
 - ▷ Grandmothers who get their first grandchild by their daughter
 - ▷ Grandmothers who live within 20 minutes commuting time
 - ▷ Grandmothers with grandchildren in high daycare enrollment areas → informal care complementing formal daycare

Appendix

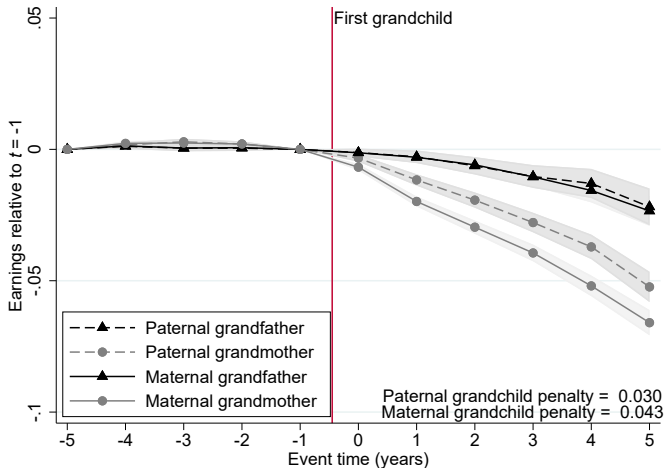
Distribution of age at first grandchild



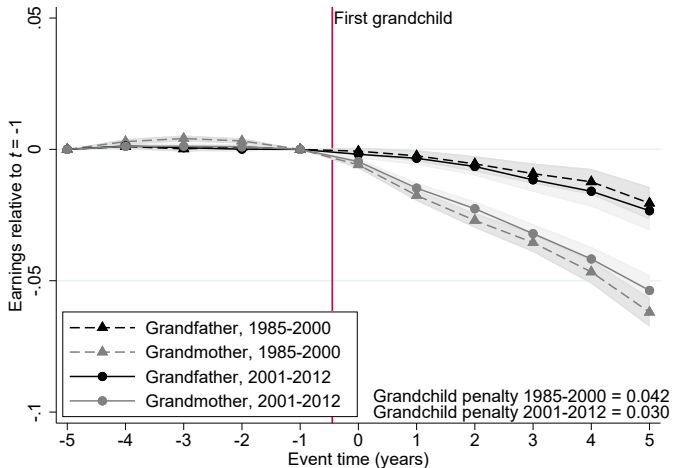
Heterogeneity by household type



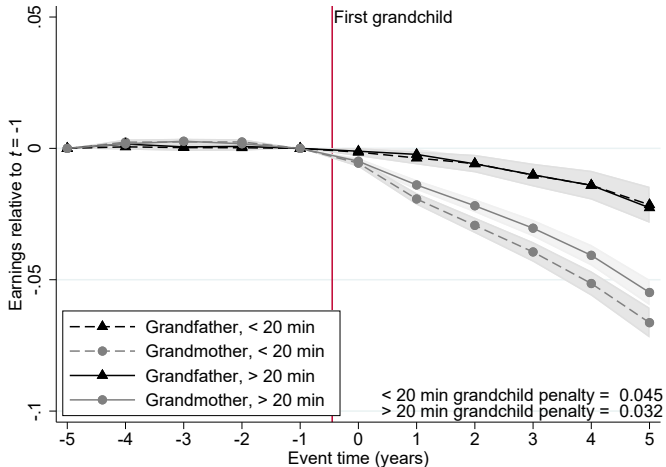
Heterogeneity by gender of parent to firstborn grandchild



Heterogeneity by time periods



Heterogeneity by proximity, i.e. commuting time 20 min



Heterogeneity by high/low daycare enrollment

