

The effect of grandchildren on grandparental labour supply: Evidence from Europe

Ageing, Health and Well-Being Conference

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FACTAGE

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Motivation

- ▶ Most Europeans become grandparents before retirement age
- ▶ At age 64:
 - ▶ 69% of women are grandmothers (GM)
 - ▶ 60% of men are grandfathers (GF)
- ▶ Many grandparents (GP) take care of their grandchildren (GC)
- ▶ 23% of GM and 16% of GF care daily, one third care weekly
- ▶ **Trade-off between GC care and labour supply of GP?**

Motivation

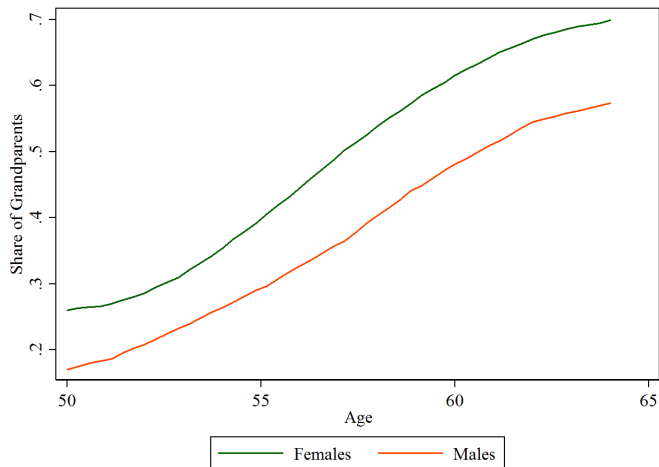


Figure: Share of grandparents at given age

Motivation

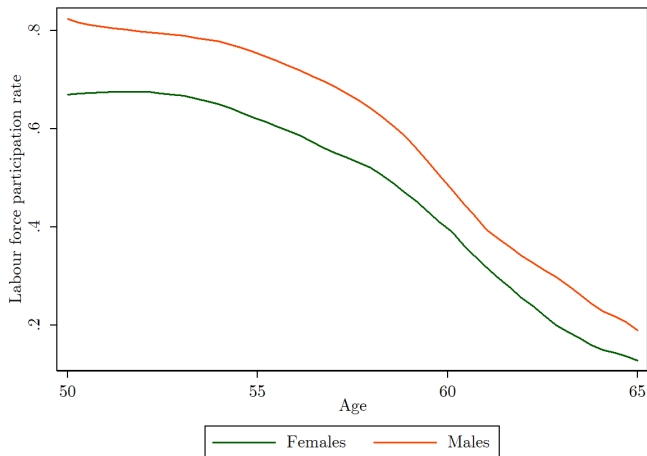
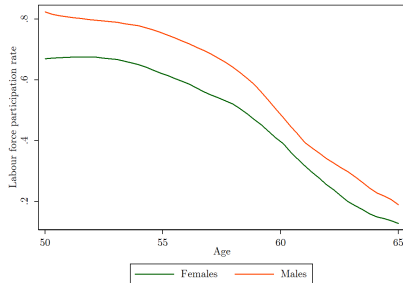
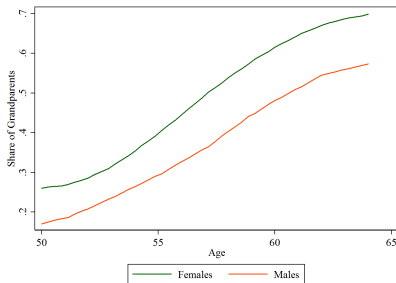


Figure: Labour force participation rates at given age

Motivation

- Causal link between grandparenthood and labour supply?



This paper

- ▶ Estimates the causal effect of GC on labour supply of GP
- ▶ Identification strategy: Gender of first child as IV (Rupert & Zanella, 2018)
- ▶ Data: SHARE project (Börsch-Supan, 2019)
- ▶ Sample: Ten European countries between 2004 and 2017
- ▶ Outcomes: Labour force participation, Hours worked, Transfers
- ▶ Preview: Large negative effect on LFP of maternal grandmothers

Related literature

- ▶ Hagestad (2006): GP as “reserve army” for both children and grandchildren
- ▶ Ho (2015): US data, positive association between arrival of GC and time transfers by GP
- ▶ Rupert & Zanella (2018): IV strategy, US data, large negative effect on hours worked of GM
- ▶ Asquith (2018): IV strategy, US data, negative effects on LFP and hours worked of GM
- ▶ Frimmel et al. (2019): IV strategy, Austrian data, negative effect on LFP of GM

Data

- ▶ SHARE - Survey of Health, Ageing and Retirement in Europe
- ▶ Waves 1, 2, 4, 5, 6, 7. Time period 2004-2017
- ▶ Countries: AT, BE, CH, DK, FR, DE, IT, NL, ES, SE
- ▶ Information on children and existence of grandchildren
- ▶ Rich set of covariates
- ▶ Contextual variables, e.g. spatial distance to children
- ▶ SHARE Job Episodes Panel (Brugiavini et al. 2019, Antonova et al. 2014)

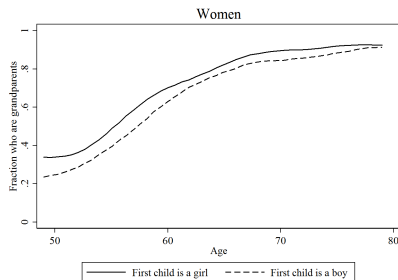
Identification strategy

- ▶ Endogeneity problem: Parents might anticipate LS response of grandparents when deciding whether to have (grand)children
- ▶ Rupert & Zanella (2018): Gender of grandparents' first child as instrumental variable (IV) for grandparenthood
- ▶ Women have children earlier than men:

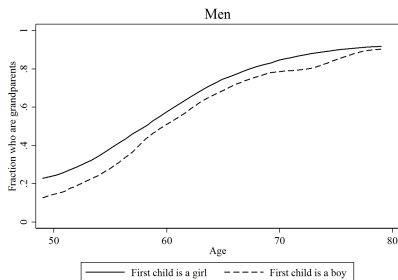
Cohorts	1940-1944	1945-1949	1950-1954	1955-1959
Women	24.5	24.5	24.7	25.0
Men	27.6	27.7	28.2	28.7
Difference	- 3.1	- 3.2	- 3.5	- 3.7

Identification strategy

- ▶ Female first child increases probability of becoming GP at given age:



(a) Women



(b) Men

Figure: Fraction of individuals who are grandparents at given age

Identification strategy

- ▶ Instrument is unrelated to other characteristics:

	Age became GP		Fertility		Cohabiting	
	Women	Men	Women	Men	Women	Men
First Child	-0.794**	-0.978**	0.021	0.006	-0.015	0.011
Female	(0.245)	(0.246)	(0.023)	(0.027)	(0.009)	(0.009)
N	1851	1429	8628	6949	8628	6949

	Working at 30		Working at 40		Working at 50	
	Women	Men	Women	Men	Women	Men
First Child	-0.013	0.001	-0.006	0.003	-0.018	0.003
Female	(0.013)	(0.006)	(0.012)	(0.005)	(0.012)	(0.008)
N	5805	4507	5805	4507	5799	4506

Estimation

- ▶ Linear probability model for the extensive margin:

$$work_{it} = \beta g_{it} + \gamma \mathbf{x}_{it} + \delta a_{i0t} + \theta_j + \mu_t + \varepsilon_{it}$$

- ▶ Linear regression model for the intensive margin:

$$\ln hours_{it} = \beta g_{it} + \gamma \mathbf{x}_{it} + \delta a_{i0t} + \theta_j + \mu_t + \varepsilon_{it}$$

- ▶ $work_{it} = 1$ if individual participates in labour market
- ▶ $\ln hours_{it}$: log weekly hours worked
- ▶ $g_{it} = 1$ if individual has at least one grandchild
- ▶ g_{it} instrumented by First Child Female indicator in 1st stage

Estimation

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$$\ln hours_{it} = \beta g_{it} + \gamma \mathbf{x}_{it} + \delta a_{i0t} + \theta_j + \mu_t + \varepsilon_{it}$$

- ▶ \mathbf{x}_{it} : cubic age spline, education, health, cohabitation, total number of children, age became parent
- ▶ a_{i0t} : household net worth
- ▶ θ_j, μ_t : country FE, year FE
- ▶ SE clustered at individual level

First-stage results

- ▶ Women aged 55-64 years:

	(1)	(2)	(3)
	is GP	is GP	is GP
First Child Female	0.071** (0.009)	0.071** (0.009)	0.069** (0.008)
F excluded instrument	59.57	63.68	85.27
Observations	17926	17926	17926
Country, Year FE	Yes	Yes	Yes
Covariates	No	Yes	Yes
Fertility controls	No	No	Yes

First-stage results

- ▶ Men aged 55-64 years:

	(1)	(2)	(3)
	is GP	is GP	is GP
First Child Female	0.082** (0.011)	0.081** (0.011)	0.075** (0.009)
F excluded instrument	57.96	58.54	73.78
Observations	12795	12795	12795
Country, Year FE	Yes	Yes	Yes
Covariates	No	Yes	Yes
Fertility controls	No	No	Yes

Results: Labour force participation

	OLS		2SLS	
	(1)	(2)	(3)	(4)
	Working	Working	Working	Working
Women , employment rate: 0.43				
Is GP	-0.077** (0.009)	-0.001 (0.01)	-0.251* (0.122)	-0.290* (0.119)
Observations	17926	17926	17926	17926
Men , employment rate: 0.52				
Is GP	-0.065** (0.001)	-0.016 (0.011)	-0.075 (0.115)	-0.102 (0.118)
Observations	12795	12795	12795	12795
Country, Year FE	Yes	Yes	Yes	Yes
All controls	No	Yes	No	Yes

* $p < 0.05$, ** $p < 0.01$

Results: Hours worked

	OLS		2SLS	
	(1)	(2)	(3)	(4)
	Log hours	Log hours	Log hours	Log hours
Women , weekly hours: 31.3				
Is GP	-0.064** (0.016)	-0.037* (0.018)	0.066 (0.227)	0.008 (0.221)
Observations	8076	8076	8076	8076
Men , weekly hours: 39.3				
Is GP	-0.022 (0.014)	-0.012 (0.017)	-0.108 (0.178)	-0.136 (0.186)
Observations	6978	6978	6978	6978
Country, Year FE	Yes	Yes	Yes	Yes
All controls	No	Yes	No	Yes

* $p < 0.05$, ** $p < 0.01$

Robustness of 2SLS estimates

	2SLS			
	(1)	(2)	(3)	(4)
	Working	Working	Working	Working
Women				
Is GP	-0.291*	-0.277*	-0.324**	-0.290*
	(0.119)	(0.118)	(0.121)	(0.121)
Observations	17926	17926	17926	17926
Men				
Is GP	-0.103	-0.118	-0.117	-0.102
	(0.119)	(0.119)	(0.118)	(0.116)
Observations	12795	12795	12795	12795
Country, Year FE	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes
Age dummies	Yes	No	Yes	No
Country FE x Year FE	No	Yes	No	No
Age FE x Country FE	No	No	Yes	No
Country-cohort clusters	No	No	No	Yes

* $p < 0.05$, ** $p < 0.01$

Results: Gift transfers from GP to child

	OLS		2SLS	
	(1)	(2)	(3)	(4)
	Gave gift	Gave gift	Gave gift	Gave gift
Women , gave gifts: 0.187				
Is GP	-0.04** (0.007)	-0.004 (0.008)	0.206* (0.094)	0.211* (0.091)
Observations	18116	18116	18116	18116
Men , gave gifts: 0.220				
Is GP	-0.02* (0.008)	0.003 (0.009)	0.110 (0.099)	0.136 (0.103)
Observations	13220	13220	13220	13220
Country, Year FE	Yes	Yes	Yes	Yes
All controls	No	Yes	No	Yes

* $p < 0.05$, ** $p < 0.01$

Heterogeneity: Distance between GP and first child

	2SLS			
	(1)	(2)	(3)	(4)
	Baseline	Distance control	<1km	>1km
Women				
Is GP	-0.341*	-0.355*	-0.468*	-0.274
	(0.134)	(0.140)	(0.193)	(0.193)
Observations	16185	16185	5015	11170
Men				
Is GP	-0.105	-0.102	0.063	-0.176
	(0.130)	(0.133)	(0.205)	(0.173)
Observations	11648	11648	3610	8038
Country, Year FE	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes

* $p < 0.05$, ** $p < 0.01$

Conclusion

- ▶ **Negative effect on extensive margin of grandmothers' LS**
- ▶ In accordance with existing evidence regarding grandmothers
- ▶ GC affect intensive margin in US, extensive margin in Europe
- ▶ Potential reason: Institutional design of retirement systems
- ▶ GM provide *both* time and gifts to GC
- ▶ Spatial distance is an important margin of the LATE

Conclusion

- ▶ Methodologically:
- ▶ First Child Female IV strategy validated
- ▶ IV results suggest upward bias in OLS estimates
- ▶ Large LATE due to overrepresented maternal grandparents

Conclusion

- ▶ Implications:
- ▶ Trade-off 1: LFP and grandparent care for grandmothers
- ▶ Trade-off 2: LFP of mothers and LFP of grandmothers
- ▶ Public child care and grandparent care: potential substitutes
- ▶ Public child care could affect grandmaternal instead of maternal labour supply
- ▶ Coming cohorts at retirement age have fewer children and hence fewer GC
- ▶ Would expect increasing labour supply of older women