

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

Ageing, Health and Well-Being Conference

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FACTAGE

June 25, 2019

# 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

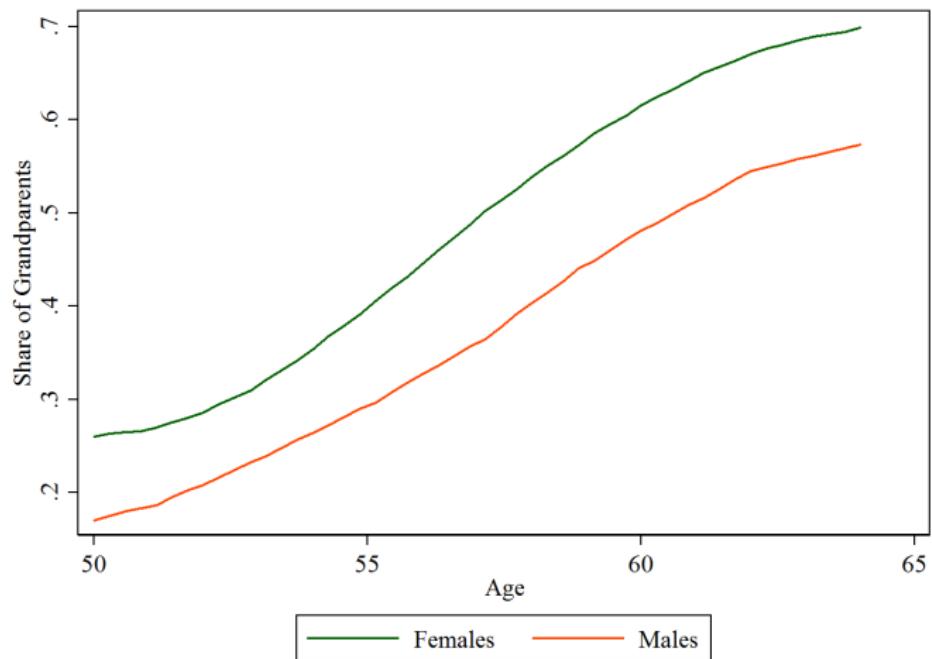


Figure: Share of grandparents at given age

# Motivation

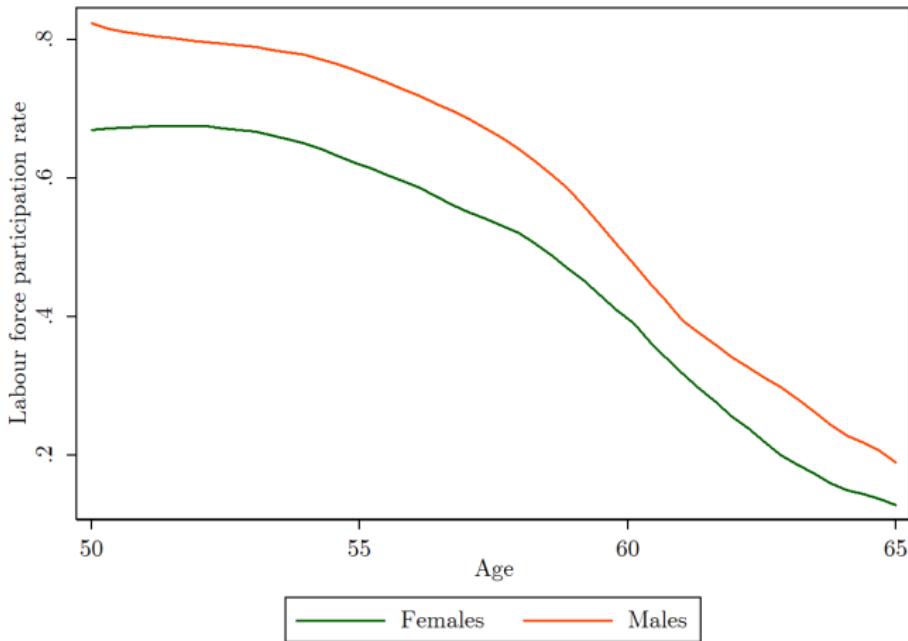
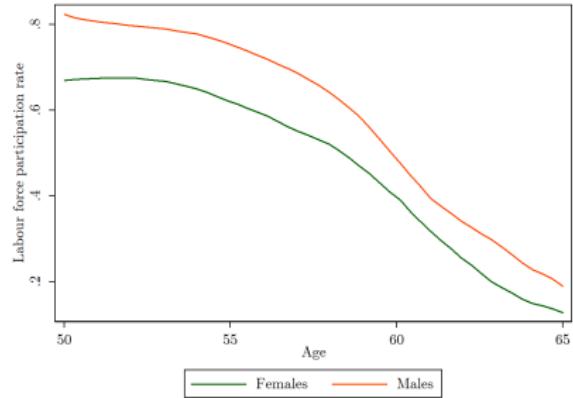
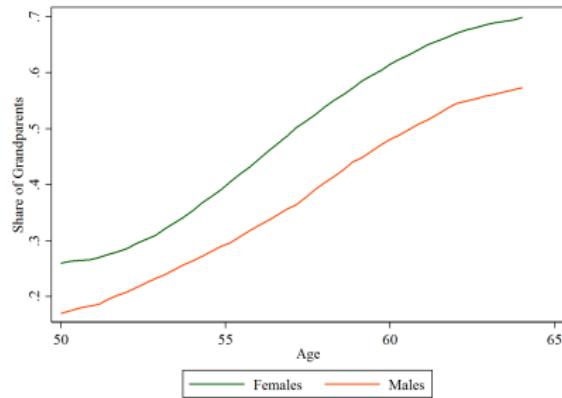


Figure: Labour force participation rates at given age

# 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)

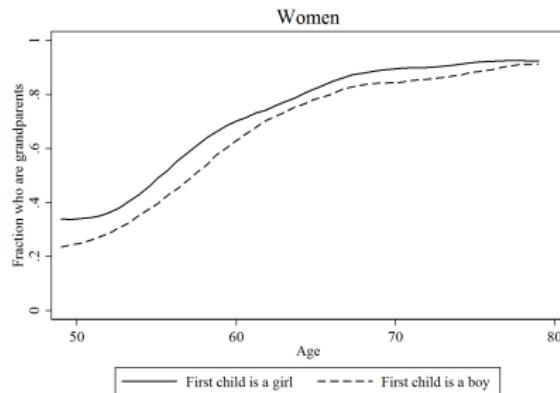
## Identification strategy

- ▶ 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:

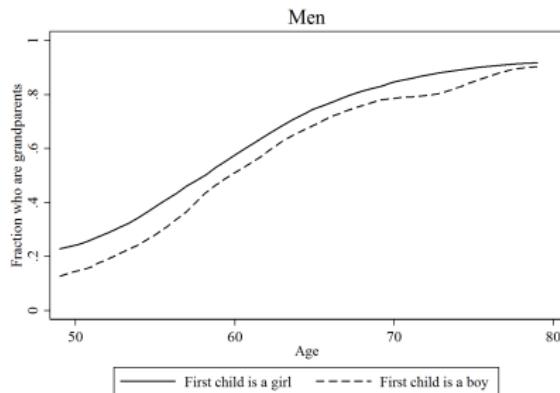
Cohorts	1940-1944	1945-1949	1950-1954	1955-1959
Women	24.5	24.5	24.7	25.0
Men	27.6	27.7	28.2	28.7
Difference	- 3.1	- 3.2	- 3.5	- 3.7

# 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
- ▶  $\theta_j, \mu_t$ : country FE, year FE
- ▶ SE clustered at individual level

## First-stage results

- Women aged 55-64 years:

	(1) is GP	(2) is GP	(3) 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) is GP	(2) is GP	(3) 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
<b>Women</b> , 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
<b>Men</b> , 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
<b>Women</b> , 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
<b>Men</b> , 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) Working	(2) Working	(3) Working	(4) Working
<b>Women</b>				
Is GP	-0.291* (0.119)	-0.277* (0.118)	-0.324** (0.121)	-0.290* (0.121)
Observations	17926	17926	17926	17926
<b>Men</b>				
Is GP	-0.103 (0.119)	-0.118 (0.119)	-0.117 (0.118)	-0.102 (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) Gave gift	(2) Gave gift	(3) Gave gift	(4) Gave gift
<b>Women, gave gifts:</b> 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
<b>Men, gave gifts:</b> 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) Baseline	(2) Distance control	(3) <1km	(4) >1km
<b>Women</b>				
Is GP	-0.341* (0.134)	-0.355* (0.140)	-0.468* (0.193)	-0.274 (0.193)
Observations	16185	16185	5015	11170
<b>Men</b>				
Is GP	-0.105 (0.130)	-0.102 (0.133)	0.063 (0.205)	-0.176 (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