

Peer Effects and Retirement Decisions: Evidence from Pension Reform in Germany

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Studying Retirement Behavior is Important

- Solvency of Social Security Programs is at risk
- We know a lot about individual retirement incentives,
- Some about spillover of investment decisions,
- But not so much about the impact of peer retirements on individual retirement **behavior**.

Prior Studies Find Large Positive Effects

- Brown and Laschever (2012)
 - Ignoring peers would underestimate effect of an increase in pensionable age by 10.5-12.5%
- Chalmers, Johnson and Reuter (2008)
 - Peer retirements nearly double own retirement probability
- Manoli and Weber (2012)
 - Spillovers of Austrian increase in ERA to unaffected cohorts.
- But:
 - Very specific sectors
 - Broadly defined peer groups
 - Changes in incentives were complex
 - **Identification strategies do not tackle all 3 challenges to estimating peer effects.**

3 Challenges to Identification of Peer Effects

- ① Simultaneity (The Reflection Problem)
- ② Correlated Unobservables
- ③ Endogenous Group Membership

We Produce Estimates Of Peer Effects on Retirement

- Using a census of all West German establishments with 100+ employees,
- With peer groups defined by occupation within establishment,
- In response to gradual increases in pensionable age affecting some, **but not all**, peers.

We Also Find Positive Peer Effects

- **1 percentage point** reduction in the share of workers eligible to retire leads to
- **.15 percentage point** reduction in the share who retire,
- And creates an additional **.04 percentage point** reduction in the share of peers retiring.

Peer effect is **21%** of the total reduction in retirement.

Unique Linked Employer-Employee Data (IAB)

- Census of West German establishments with 100 or more employees 1993-2002
 - 7,833 establishments
- Complete employment biographies for all workers born 1931 to 1945 with at least one day of employment in a sampled establishment
 - 1.2 million person-year spells
- Plus characteristics of younger workers in these occupational groups.

Peer Group Definition

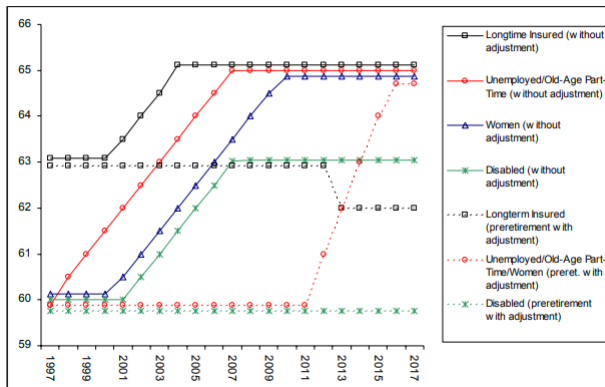
- Age 50 to 65
- Same establishment
- Same occupation (Blossfeld)
 - Agricultural jobs, simple manual jobs, simple services, simple sales jobs, medium-skilled manual jobs, medium-skilled services, technicians, medium-skilled sales jobs, engineers, semi professionals, professionals, and managers
- 14,739 peer groups, with an average size of approx. 25

Identification

- Standard IV criteria must be met (relevance and exogeneity)
- Must exhibit within and between-peer-group variation

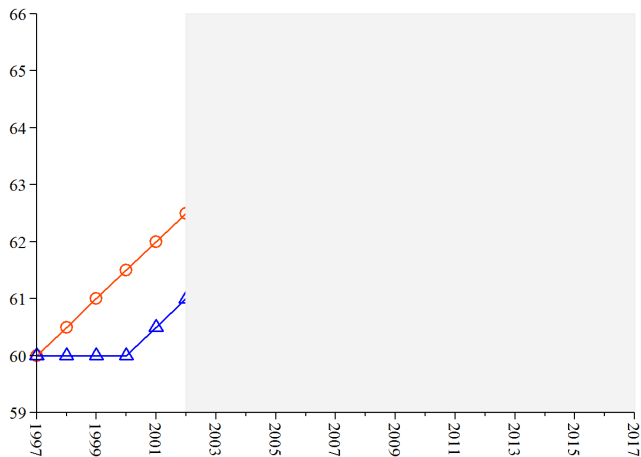
The 1992 Pension Reform

Figure 5: Retirement age with and without “actuarial” adjustments (1992 and 1999 reforms)

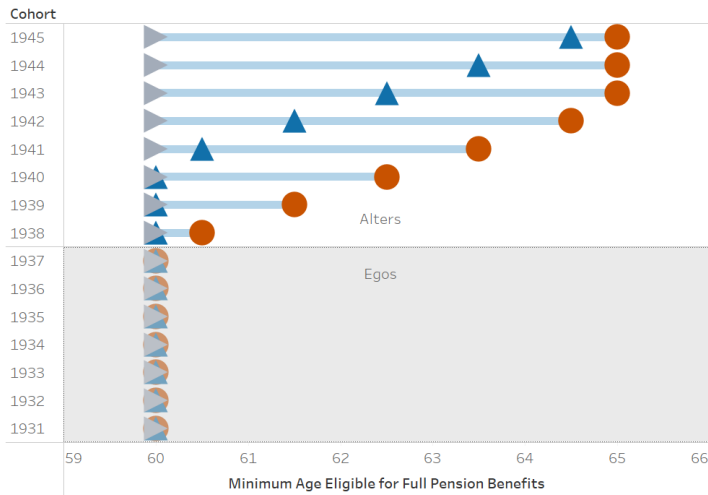


Source: Börsch-Supan and Wilke (2004)

Relevant Changes During Our Study Period



Our Instrument



- ▶ Pre Reform Pensionable Age
- ▲ Post Reform Pensionable Age for Women
- Post Reform Pensionable Age for Men

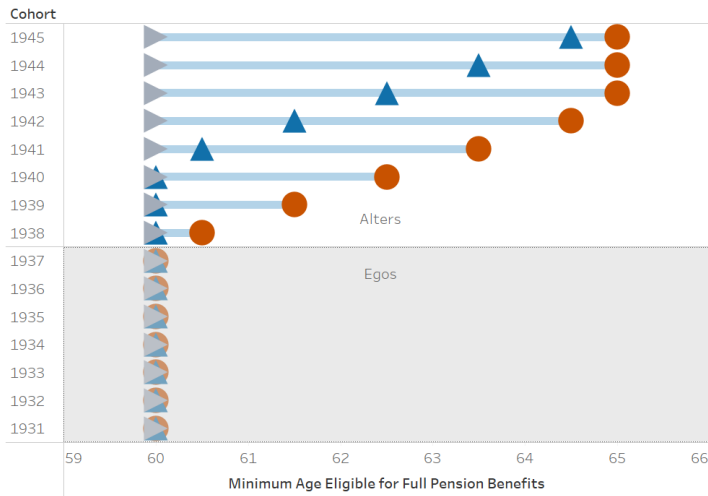
Empirical Model

$$AlterRetires_{g,t} = \delta_0 + \delta_1 P_{g,t} + Z'_{g,t} \delta_2 + \phi_g + \phi_t + \eta_{g,t} \quad (1)$$

$$EgoRetires_{g,t} = \beta_0 + \beta_1 \widehat{AlterRetires}_{g,t} + Z'_{g,t} \beta_2 + \phi_g + \phi_t + \epsilon_{g,t} \quad (2)$$

Estimated via 2SLS with heteroskedasticity robust standard errors clustered at the establishment level.

Exclusion Restriction



- ▶ Pre Reform Pensionable Age
- ▲ Post Reform Pensionable Age for Women
- Post Reform Pensionable Age for Men

“As Good as Random”

Within group correlations in cohort employment shares:

	Cohort 1938	Cohort 1939	Cohort 1940	Cohort 1941
Cohort 1938	1.0000	-	-	-
Cohort 1939	0.2079	1.0000	-	-
Cohort 1940	0.1797	0.1557	1.0000	-
Cohort 1941	0.1342	0.1133	0.1062	1.0000

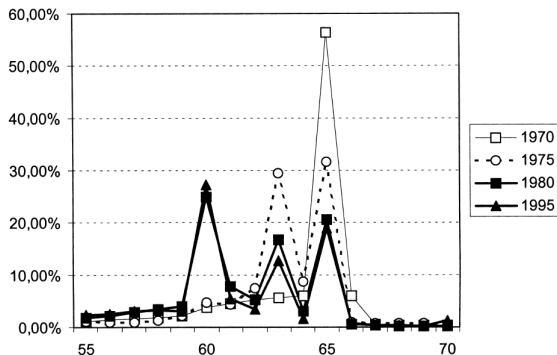


Fig. 5. Distribution of retirement ages, 1970, 1975, 1980 and 1995. Source: Verband deutscher Rentenversicherungsträger (VdR), 1997.

Source: Börsch-Supan (2000)

Variation

The average share of alters eligible to retire per year is 1.9%

Within residual standard deviation 1.9

- Across residual standard deviation 1.8
- 52% of variation attributable to group FE.

Results: Pooled Egos and Alters

		Ego Retires Pooled*		Share Alter Retires Pooled*
		(1)	(2)	(3)
Model		OLS	IV	First Stage
Share Alter Retires Pooled		0.042*** (0.006)	-0.001 (0.035)	- -
Share Alter Eligible to Retire Pooled		-	-	0.157*** (0.009)
N		88,309	86,225	86,225

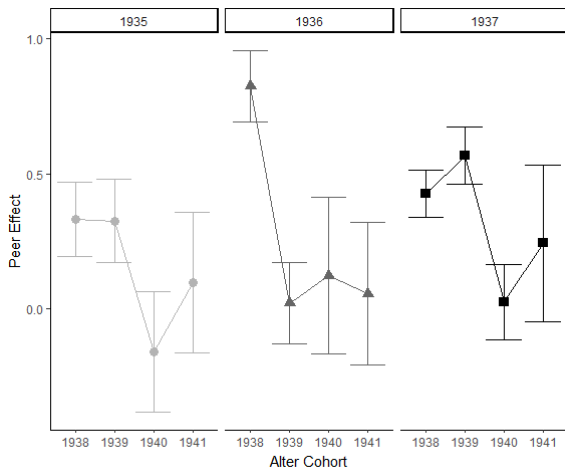
First stage F: Kleibergen-Paap 317.27

Results: Cohort by Cohort Alters

	Ego Retires Pooled*	
	(1)	(2)
	OLS	IV
Share Alter Retires 1938	0.103*** (0.009)	0.258*** (0.051)
Share Alter Retires 1939	0.039*** (0.010)	0.000 (0.056)
Share Alter Retires 1940	0.006 (0.011)	-0.272*** (0.076)
Share Alter Retires 1941	0.009 (0.012)	-0.167 (0.114)
N	130,070	127,161

First stage F: Kleibergen-Paap 29.17.

Results: Cohort by Cohort Alters and Egos



Peer effects are percentage point changes in the share of peer members who are egos and retire

Robustness Checks

- Omit time varying establishment and peer group controls
 - Pooled peer effect 0.46
 - Cohort by Cohort range from 0.65 to 0.35
- 2nd stage estimated at the individual level
 - 1.6 to 5.3 pct. pt. change in retirement hazard rates (6% to 18%)
 - Possible differences by gender (Manoli and Weber 2013 find this too)

Details

Conclusions

- Workplace peers have an important impact on retirement timing, even when the driver is a simple increase in pensionable age.
- Policies that encourage later retirements spillover to adjacent cohorts, and spillovers among neighboring cohorts are very large.
- Failure to account for peer effects when estimating impact of policies intended to postpone retirements may lead to underestimation by 21%.

Results: First Stage Cohort by Cohort

Share Eligible	Share Retire 1938	Share Retire 1939	Share Retire 1940	Share Retire 1941
1938	0.193*** (0.007)	-0.005 (0.007)	0.006 (0.005)	-0.009** (0.004)
1939	0.015*** (0.006)	0.175*** (0.008)	-0.025*** (0.006)	-0.009** (0.005)
1940	0.048*** (0.009)	0.016** (0.007)	0.163*** (0.009)	-0.020** (0.009)
1941	-0.009 (0.010)	0.035*** (0.013)	-0.013 (0.010)	0.164*** (0.016)

Back to [2nd Stage](#)

Robustness Check: Only Fixed Effects

	Ego Retires 1937*		Ego Retires 1936*		Ego Retires 1935*	
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	IV	OLS	IV	OLS	IV
Alt. 1938	0.123*** (0.006)	0.426*** (0.045)	0.083*** (0.007)	0.824*** (0.067)	0.057*** (0.007)	0.332*** (0.071)
Alt. 1939	0.073*** (0.007)	0.568*** (0.055)	0.055*** (0.007)	0.021 (0.077)	0.028*** (0.007)	0.326*** (0.079)
Alt. 1940	0.050*** (0.008)	0.025 (0.071)	0.012 (0.008)	0.123 (0.148)	0.007 (0.010)	-0.158 (0.114)
Alt. 1941	0.021*** (0.008)	0.244* (0.148)	0.003 (0.009)	0.057 (0.134)	0.024** (0.011)	0.096 (0.133)
N	108,080	105,404	95099	92,338	80650	77,690

Robustness Check: 2nd Stage Individual Level

	Ego Retires (1)	Std. Err. (2)	N (3)
	Full Sample*		
Alter Retires 1938 to 1945	3.446***	0.506	1,037,332
	Men*		
Alter Retires 1938 to 1945	2.135***	0.480	723,578
	Women*		
Alter Retires 1938 to 1945	0.774	2.360	312,648

	Ego Retires (1)	Std. Err. (2)	N (3)
	Full Sample*		
Alter Retires 1938	2.340***	0.466	1,245,107
Alter Retires 1939	2.112***	0.624	1,245,107
Alter Retires 1940	1.634**	0.950	1,245,107
Alter Retires 1941	5.289***	1.377	1,245,107
	Men*		
Alter Retires 1938	1.146**	0.457	879,389
Alter Retires 1939	1.211*	0.657	879,389
Alter Retires 1940	2.444**	1.059	879,389
Alter Retires 1941	4.907**	1.590	879,389
	Women*		
Alter Retires 1938	0.948	2.028	364,053
Alter Retires 1939	-0.349	1.458	364,053
Alter Retires 1940	-0.213	1.494	364,053
Alter Retires 1941	7.264***	2.048	364,053