The Effect of Increasing Retirement Age on Households' Savings and Consumption Expenditures

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Introduction

▶ Due to population ageing, many recent pension reforms have increased statutory retirement ages aiming to prolong working life.

▶ Extensive literature showing labor supply responds to pension incentives (Krueger and Pischke 1992, Coile and Gruber, 2007, Staubli and Zweimuller, 2013, Manoli and Weber, 2016, Blundell et al 2016)

▶ Little is known about how they adjust savings plans.
  ▶ The overall effect of public pension wealth on private savings relies on the magnitude of the changes in future labor earnings. (Feldstein 1974)
  ▶ In anticipation of prolonged employment and a shortened retirement duration, households may dissave.

▶ How do households' private savings change when facing an increase in the early retirement age?

This Paper

- ▶ This paper exploits a sizable increase in the early retirement age (ERA) for German women to estimate the response of private savings.
  - ▶ a large and cohort-based discontinuity increase in ERA
  - ▶ this reform has a large effect on labor supply (Geyer and Welteke 2019)
  - ▶ allows us to show evidence of dissaving when people expect that the increase in future labor earnings absorbs the loss in pension wealth.

- ▶ We compare savings and consumption expenditures of households with women younger than 60, who were differentially treated by the reform

- ▶ We find that the treated households adjust their savings rates downwards by around 0.6 percentage points due to the rising ERA.

German Pension System

Germany has a pay-as-you-go compulsory public pension system.

▶ Replaces 50% of pre-retirement wage on average

▶ Normal retirement age (NRA) via regular old age pension: 65

▶ The pension benefit levels are closely tied to the lifetime wage incomes. Workers with longer contribution years or higher relative wage incomes receive higher pension benefits.

▶ Actuarially unfair :retirement before the NRA renders a 3.6% benefit deduction for each year of early claiming (Börsch-Supan et al. 2004, Queisser and Whitehouse 2006).

The Abolishment of the Women's Pension in Germany

In 1999, Germany abolished women's old age pension which allowed women born until 1951 to retire early at age 60. `More details` `Men`

- ▶ Born before 1952: ERA 60
- ▶ Born in and after 1952: ERA 63
- ▶ A sizeable effect on future labor supply (delay claiming, delay exiting). Responses
- ▶ A considerable time to react to the forecastable income changes.
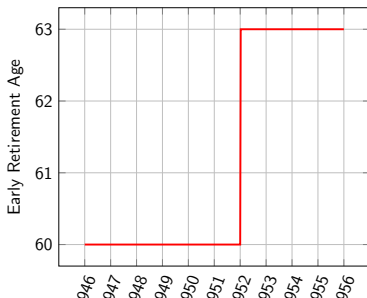
Expected Impacts: Ambiguous Effect on Private Savings

The increase in distance to retirement can affect private savings in two ways:

- ▶ Direct effect (changes in PW): delayed retirement $\rightarrow$ loss in expected pension wealth $\rightarrow$ increase the need for private savings

- ▶ Indirect effect (changes in FE): a longer working horizon $\rightarrow$ increase in future expected labor earnings and shorter retirement duration $\rightarrow$ reduce the need for private savings

$\Rightarrow$ The overall effect is ambiguous. Simulated changes

- ▶ The sign depends on individual's planned retirement/employment decisions.
- ▶ The longer working horizon of this reform is very salient. We expect to see that the reform has a small or even negative impact on the savings rate.

Data

- We use the Income and Consumption Survey in Germany
    - Repeated cross-sectional every 5 years
    - 60,000 households (about 0.3 percent of all households) per wave
    - Savings, consumption expenditures, asset accumulation, birth year, gender

- Three restrictions:
    - We drop HH with women older than age 60 to makes sure that the changes in pension wealth are not materialized
    - We take four years around the cutoff (HH with women born in years 1948 to 1955)
    - We use two reform waves (2003, 2008) and two non-reform waves (1993, 1998)
        - Women aged 38-50 in the non-reform waves
        - Women aged 48-60 in the reform waves

- Looking at responses 4-9 years after the reform

Data summary

Age profiles of the household saving rate in Germany
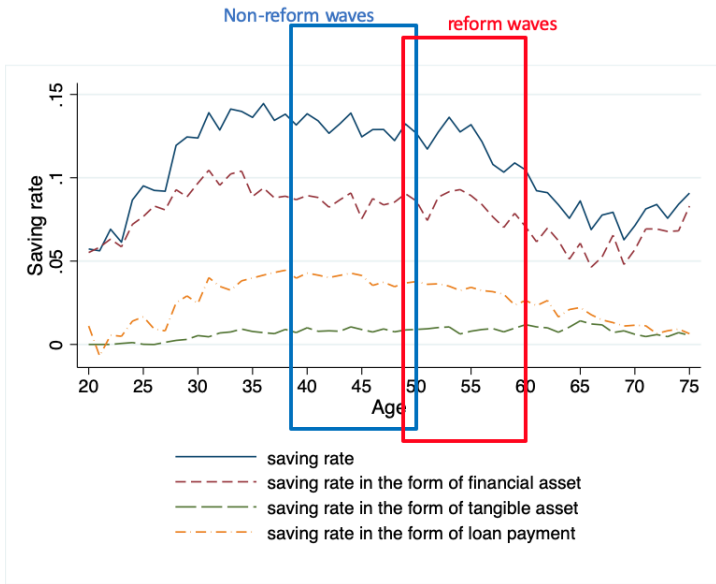
Empirical Strategy: RD

▶ Regression Discontinuity Design:

$$Y_{it} = \alpha + \gamma D_i + \delta_l f_l(S_i - c) + \delta_r f_r(S_i - c) + \beta X_{it} + \tau_t + \epsilon_{it}$$

  ▶ $\hat{\gamma}$ measures the Intention-to-Treat (ITT) effect of the increase in ERA.
  Smoothness

▶ One complication with the RD setup in our context is that we only know the birth information at the yearly level. Therefore, we have to compare individuals born a few years apart.

▶ We augment our RD model with a DD setting by using the non-reform years to wash out any mechanical correlation between the outcome variables and birth year.

$$Y_{it} = \alpha + \sum_{\tau=0}^{1} \mathbb{1}[Post_{it} = \tau] \times \{\gamma_\tau D_i + \delta_{l\tau} f_l(S_i - c) + \delta_{r\tau} D_i f_r(S_i - c) + \rho Post_{it}\}$$

$$+ \tau_t + \beta X_{it} + \epsilon_{it}$$

RD-DD: Saving Rate

The treated households adjust savings rates downwards by about 0.6 percentage points ($\sim 8\%$).

Table 2a: Effects on household savings rates

	RD reform year	RD control years	RD-DD
	Full sample		
Born after 1951	-0.010*	-0.005*	
	(0.005)	(0.002)	
Born after 1951=1 $\times$ post=1			-0.006
			(0.006)
Observations	11,239	13,604	24,843
R^2	0.019	0.017	0.022
Dependent Variable Mean	0.109	0.132	0.121
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 This table reports the RD estimates in the reform waves (column 1) and the control waves (column 2), and the RD-DD estimates in column 3.

Graphic   Event study   By wave

RD-DD: by marital status

The effect is driven by couple households — a 1.5 percentage points reduction ($\sim 11\%$).

Table 2b: Effects on household savings rates - couple and single households

	RD reform year	RD control years	RD-DD
	Couples		
Born after 1951	-0.015**	-0.000	
	(0.006)	(0.001)	
Born after 1951=1 × post=1			-0.015**
			(0.005)
Observations	8,710	11,198	19,908
R^2	0.012	0.002	0.011
Dependent Variable Mean	0.117	0.142	0.131
	Singles		
Born after 1951	0.007	-0.025**	
	(0.015)	(0.010)	
Born after 1951=1 × post=1			0.033
			(0.025)
Observations	2,529	2,406	4,935
R^2	0.014	0.012	0.012
Dependent Variable Mean	0.080	0.086	0.083
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Heterogeneous Effects

Households consisting of highly-educated women reduce their savings rate by 0.24 percentage points, which drives the overall impact. (Table)

- ▶ Better understanding of the law ↑ (Bottazzi et al. (2006) and Hess (2017))

- ▶ Easier to prolong working life ↑

- ▶ Possible higher share of eligibility ↑

- ▶ Possible prefer to exit late in absence of the reform ↓

Homeowners, regardless of their marital status, reduce their savings rates. (Table)

- ▶ Homeowners can better buffer the reform shock ↓

- ▶ Homeowners prefer exit earlier in absence of the reform ↑

Robustness Checks and Placebo Tests

▶ Men

▶ Vary number of controls, year fixed effects. The estimates are stable by varying the choices of controls Controls

▶ Vary the choice of bandwidth, and polynomial orders. The impacts are stable with three and four years of bandwidth. The estimates are not sensitive to quadratic age controls. But a quadratic cohort trends makes the estimates insignificant. Bandwidth Quadratic age Quadratic cohort

▶ Perform a placebo test by using placebo cutoffs Placebo cutoff .

▶ Perform a placebo test by compare the reform year RD estimate with the placebo estimate obtained by using a pooled sample of older cohorts observed in non-reform years with the same age composition as the baseline sample. Placebo 2003 Placebo 2008

Other Responses I: Expectations

► The role of expectations

  ► The reform effects run through the channel of changes in expectations toward the individual retirement age, retirement benefits and future labor earnings.

► Using the Survey of Health, Ageing and Retirement in Europe (SHARE) to obtain suggestive evidence

  ► SHARE collects data on a representative sample of individuals aged 50 and over.
  ► Sample: individuals older than age 60 at the survey year, born between 1948 and 1955.

► The difference in expected retirement age is around 1 year and statistically significant. Table

Other Responses II

▶ No change in monthly equivalized disposable income in anticipation of the reform. Disposable Income

▶ The increase in monthly equivalized consumption expenditure is driven by more spending on leisure activities (sports, concerts, dining out, hotels and etc.). Consumption

▶ Savings in monetary assets (such as deposits in checking accounts and buying stock shares) are the most responsive. Savings Categories

  ▶ Show RD effects using the reform waves
  ▶ Because the information on subcategories of consumption expenditures and savings in the 1993 wave is not comparable with other waves.

Conclusion and Discussion

Exploring a sharp increase in ERA for women born after 1951 in Germany, we find:

▶ The reform has a non-positive and decreasing effect on private savings.

▶ Treated households increase their leisure spending while maintaining an unchanged level of disposable household income.

▶ Highly educated women, married women and homeowners are responsive.

We show that the treated middle-aged households dissave in anticipation of a longer working horizon.

▶ When the increase in working horizon is salient, workers tend to cope the loss in public pension wealth by working longer rather than saving more.

▶ Future extension: households might be overconfident and spent too much too soon.

Thank You!

Related literature and Contribution

- ▶ Studies on the implications of pension reforms that **raise the statutory retirement age**
  - ▶ Impacts on labor supply at individual level (Manoli and Weber 2016; Geyer and Welteke 2019), in the household context (Cribb et al. 2016, Geyer et al. 2020) and labour supply and health behavior response of middle-aged individuals (De Grip et al. 2013; Bertoni et al. 2018).

- ▶ Studies on the substitution between public pension wealth and private savings using quasi-experiments. (Attanasio and Brugiavini 2003, Attanasio and Rohwedder 2003, Botazzi et al. 2006, Lachowska and Myck 2018)

- ▶ Studies on the consumption response to anticipated permanent income changes

Back

Related literature and Contribution

▶ Studies on the implications of pension reforms that **raise the statutory retirement age**

▶ Studies on the substitution between public pension wealth and private savings using quasi-experiments. (Attanasio and Brugiavini 2003, Attanasio and Rohwedder 2003, Botazzi et al. 2006, Lachowska and Myck 2018)

    ▶ A common feature is that they do not explicitly change the statutory retirement age and typically have smaller impacts on retirement age.

    ▶ In this paper, we explore a setting where the increase in working horizon (future labor earnings) is very salient.

▶ Studies on the consumption response to anticipated permanent income changes

Related literature and Contribution

▶ Studies on the implications of pension reforms that **raise the statutory retirement age** (Manoli and Weber 2016; Geyer and Welteke 2019, Geyer et al. 2020, De Grip et al. 2013; Bertoni et al. 2018).

▶ Studies on the substitution between public pension wealth and private savings using quasi-experiments. (Attanasio and Brugiavini 2003, Attanasio and Rohwedder 2003, Botazzi et al. 2006, Lachowska and Myck 2018)

▶ Studies on the consumption response to **anticipated permanent income changes** (See Hsieh 2003; also see Attanasio and Weber 2010 and Jappelli and Pistaferri 2010 for reviews)

Details of different pathways `Back`

- ▶ Women born before 1952 can claim pension earliest at age 60 with a penalty of 18%.
- ▶ Women born in and after 1952 can claim pension earliest at age 63 with a penalty around 9%.
- ▶ Effectively raised the ERA for women from age 60 to at least 63.

Impact of Pension Reform by Birth Cohort

	1948	1949	1950	1951	1952	1953	1954	1955	Reform Year
Regular retirement age	$65\frac{2}{12}$	$65\frac{3}{12}$	$65\frac{4}{12}$	$65\frac{5}{12}$	$65\frac{6}{12}$	$65\frac{7}{12}$	$65\frac{8}{12}$	$65\frac{9}{12}$	2007
Pension for women (ERA^w)	60	60	60	60	-	-	-	-	1997
Deductions at ERA^w	18%	18%	18%	18%	-	-	-	-	1992
Pension for unemployed (ERA^u)	62	63	63	63	-	-	-	-	1997
Deductions at ERA^u	10.8%	7.2%	7.2%	7.2%	-	-	-	-	1992
Pension for long-term insured (ERA^l)	63	63	63	63	63	63	63	63	
Deductions at ERA^l	7.2%	7.5%	8.4%	8.7%	9.0%	9.3%	9.6%	9.9%	1992

Note: Own calculation according to the SBG VI.

Pension Eligibility

Eligibility of old-age pension for women (ERA$= 60$):

- ▶ at least 15 years of pension insurance contributions
- ▶ at least 10 years of pension insurance contributions after the age of 40.
- ▶ born before 1952
- ▶ 60% women who are eligible for this pathway

Eligibility of old-age pension for long-term insured (ERA$= 63$):

- ▶ A contribution period of 35 years, including child raising periods
- ▶ 90% women who are eligible for pension for women are also qualify for this pathway (Geyer and Welteke 2019)

Figure 1: Employment status by age group and cohort, sample of eligible women
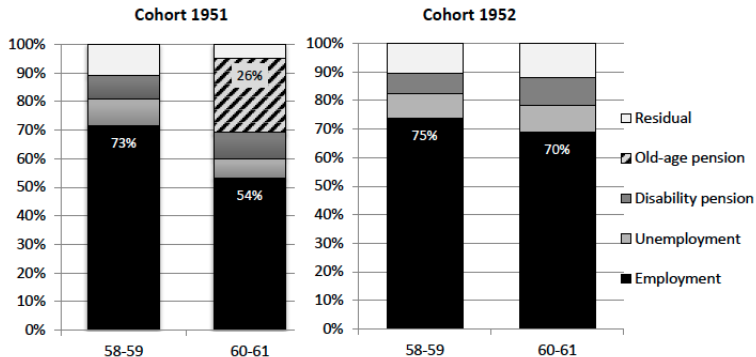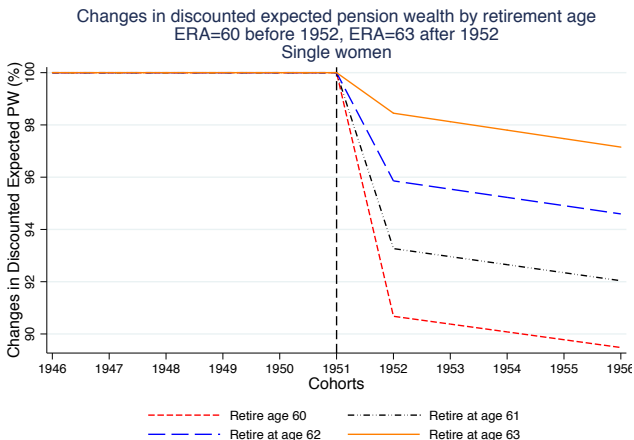

Source: Figure 1, Geyer and Welteke 2019 Back

Retirement pathways for men Back

▶ In the baseline sample, we don't restrict the partner's birth cohorts. The average age gap between spouses is around 3 years.

▶ Men face the a few cohort based pension reforms during the sample periods:

  ▶ 1937 Jan -1941 Dec: NRA for UI pathway increase gradually from 60 to 65.
  ▶ 1946 Jan to 1948 Dec: ERA for UI pathway increase gradually from 60 to 63.

▶ The changes in statutory retirement age for men is gradual. These ages increase linearly with birth cohort. Therefore, we are not worried that the estimated discontinuous change in savings rate is driven by changes in the partner's statutory retirement age.

▶ We also show robustness by restricted the partner born in and after 1949. The results remain.

Simulated Change in Expected Pension Wealth

Changes in discounted expected pension wealth by retirement age
ERA=60 before 1952, ERA=63 after 1952
Single women

Note: we assume constant lifetime expectancy and accumulated pension points at age 60 across cohorts. The discount rate is set to 0.03. The variations in expected pension wealth are due to increases in pension points due to additional years of work, increases in pension points due to delayed claiming (adjustment factor), and decreases in total pension wealth due to forgone pension.

Simulated Change in Expected Future Labor Earnings

Expected future income by retirement age
ERA=60 before 1952, ERA=63 after 1952
Single women

Note: we assume constant lifetime expectancy and accumulated pension points at age 60 across cohorts. The discount rate is set to 0.03. The variations in expected future earnings are due to additional years of work.

Simulated Change in Earnings After Age 60

Discounted expected expected Income after age 60 by retirement age
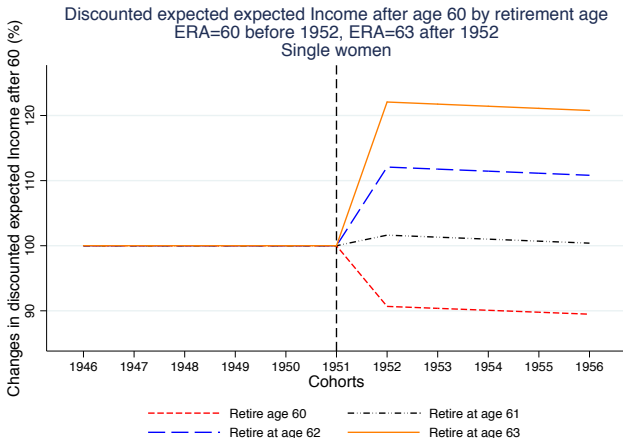ERA=60 before 1952, ERA=63 after 1952
Single women

Note: we assume constant lifetime expectancy and accumulated pension points at age 60 across cohorts. The discount rate is set to 0.03. The variations in expected pension wealth are due to increases in pension points due to additional years of work, increases in pension points due to delayed claiming (adjustment factor), and decreases in total pension wealth due to delayed claiming.

Table 1: Summary statistics

| | Reform waves (2003, 2008) | | Control waves (1993, 1998) | |
	Born from 1952	Born before 1952	Born from 1952	Born before 1952
Covariates				
Age	51.37	55.45	43.48	45.98
	(2.90)	(2.46)	(1.66)	(2.75)
Spouse Age Diff	3.24	3.28	3.07	3.21
	(4.23)	(4.31)	(4.06)	(4.18)
German	0.98	0.98	0.98	0.98
	(0.13)	(0.13)	(0.15)	(0.15)
East German	0.26	0.25	0.22	0.21
	(0.44)	(0.43)	(0.41)	(0.41)
Household size	2.49	2.15	3.39	3.13
	(1.07)	(0.82)	(1.24)	(1.24)
Savings information				
Savings Rate	0.11	0.11	0.13	0.13
	(0.15)	(0.16)	(0.16)	(0.17)
Property savings rate	0.03	0.03	0.06	0.06
	(0.51)	(0.39)	(0.58)	(0.46)
Monetary savings rate	0.06	0.06	0.05	0.06
	(0.26)	(0.25)	(0.22)	(0.35)
Paying back loans	0.02	0.02	0.02	0.01
	(0.49)	(0.34)	(0.55)	(0.35)
Income				
Household disposable income	3635.30	3343.68	5320.70	5338.39
	(2108.91)	(1971.71)	(2858.42)	(2817.35)
Consumption information				
Overall consumption	1520.96	1568.28	1955.60	2077.25
	(901.00)	(951.41)	(1061.03)	(1088.10)
Basic Goods	422.35	437.27	537.97	573.40
	(268.07)	(282.70)	(309.85)	(318.65)
Food, Cloth and Rent	747.56	775.31	966.06	1040.38
	(329.17)	(326.77)	(366.65)	(393.04)
Leisure Goods	253.91	256.46	341.70	357.05
	(243.35)	(249.08)	(318.08)	(279.20)
Observations	6844	5921	8213	6774

Note: We use the OECD equivalence scale, which assigns a weight of 1 for the first adult in the household, 0.5 for each additional household member aged 14 and above, and 0.3 for each additional household member under 14. The table reports means and (standard deviations) of characteristics for households in reform years and control years, respectively.

Savings Rates by Marital Status Back
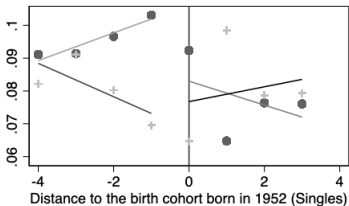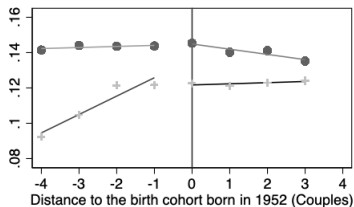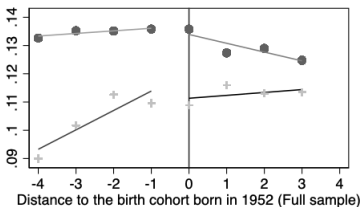
- ● Mean savings rates in the control waves
- + Mean savings rates in the reform waves

Table A1: Smoothness of the predetermined variables

	(1) Linear cohort trend	(2) Quadratic cohort trend	N
Age female	-0.000*** (0.000)	0.000*** (0.000)	12765
Home ownership	0.020 (0.019)	0.025 (0.037)	12765
East	-0.025 (0.016)	-0.004 (0.033)	12765
Number of household members	0.018 (0.033)	-0.021 (0.063)	12765
German	-0.005 (0.005)	-0.013 (0.010)	12537
Married	0.003 (0.016)	0.038 (0.033)	12765
High education	-0.020 (0.018)	-0.008 (0.037)	12765
Age difference with the husband	-0.265 (0.187)	-0.348 (0.378)	9714

Notes: Standard errors in the parentheses. * p<0.10, ** p<0.05, *** p<0.01. It shows smoothness for a set of predetermined variables at the cut-off with a cohort linear trend (column 1) and with a quadratic cohort trend (column 2). Pre-determined variables seem to be smooth around the cut-off in the sample. Wave fixed effect is included in all specifications.

Back

Heterogeneous Effects by education

Households consisting of highly-educated women reduce their savings rate by 0.24 percentage points, which drives the overall impact.

- ▶ Better understanding of the law ↑ (Bottazzi et al. (2006) and Hess (2017))
- ▶ Easier to prolong working life ↑
- ▶ Possible higher share of eligibility ↑
- ▶ Possible prefer to exit late in absence of the reform ↓

	Full sample	Couples	Singles
Low education	-0.003	-0.010	0.031
	(0.007)	(0.006)	(0.029)
Observations	13,891	11,259	2,632
Dependent Variable Mean	0.121	0.129	0.084
High education	-0.009	-0.024***	0.037
	(0.008)	(0.006)	(0.026)
Observations	10,952	8,649	2,303
Dependent Variable Mean	0.122	0.133	0.082
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Heterogeneous Effects by Homeownership

Homeowners, regardless of their marital status, reduce their savings rates.

- Homeowners can better buffer the reform shock ↓

- Homeowners prefer exit earlier in absence of the reform ↑

	Full sample	Couples	Singles
Not homeowner	0.002	-0.015	0.044
	(0.017)	(0.016)	(0.027)
Observations	12,175	8,785	3,390
Dependent Variable Mean	0.108	0.124	0.067
Homeowner	-0.017**	-0.016**	-0.030*
	(0.004)	(0.005)	(0.015)
Observations	12,668	11,123	1,545
Dependent Variable Mean	0.134	0.137	0.118
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Back

Robustness

Effects by bandwidth

Saving rates	BW=3	BW=4	BW=5
Full Sample	-0.003	-0.006	0.001
	(0.005)	(0.006)	(0.006)
Observations	18,808	24,843	30,251
Couple	-0.012*	-0.015***	-0.006
	(0.005)	(0.005)	(0.007)
Observations	15,083	19,908	24,312
Single	0.036	0.033	0.036
	(0.021)	(0.025)	(0.027)
Observations	3,726	4,935	5,939
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Robustness

Effects by control variables

	Savings rate	Savings rate	Savings rate
		Full Sample	
Born after 1951=1 × post=1	-0.006	-0.006	-0.006
	(0.007)	(0.007)	(0.006)
Observations	25,198	25,198	24,843
Dependent Variable Mean	0.121	0.121	0.121
		Couples	
Born after 1951=1 × post=1	-0.015**	-0.015**	-0.015**
	(0.005)	(0.005)	(0.005)
Observations	20,134	20,134	19,908
Dependent Variable Mean	0.131	0.131	0.131
		Singles	
Born after 1951=1 × post=1	0.032	0.033	0.033
	(0.023)	(0.023)	(0.025)
Observations	5,064	5,064	4,935
Dependent Variable Mean	0.083	0.083	0.083
Cluster at birth cohort	✓	✓	✓
Year fixed effects		✓	✓
Further control variables			✓

Robustness

Effects including quadratic age controls

	RD reform year	RD control years	RD-DD
		Full Sample	
Born after 1951	-0.009	-0.004	
	(0.005)	(0.002)	
Born after 1951=1 × post=1			-0.006
			(0.006)
Observations	11,239	13,604	24,843
Dependent Variable Mean	0.094	0.118	0.107
		Couples	
Born after 1951	-0.014**	0.001	
	(0.006)	(0.001)	
Born after 1951=1 × post=1			-0.015**
			(0.005)
Observations	8,710	11,198	19,908
Dependent Variable Mean	0.094	0.118	0.107
		Singles	
Born after 1951	0.010	-0.026**	
	(0.014)	(0.010)	
Born after 1951=1 × post=1			0.033
			(0.025)
Observations	2,529	2,406	4,935
Dependent Variable Mean	0.094	0.118	0.107
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Back

Robustness

Effects including quadratic cohort controls

	RD reform year	RD control years	RD-DD
		Full Sample	
Born after 1951	0.004	-0.002	
	(0.003)	(0.001)	
Born after 1951=1 × post=1			0.006
			(0.004)
Observations	11,239	13,604	24,843
Dependent Variable Mean	0.094	0.118	0.107
		Couples	
Born after 1951	0.001	0.003	
	(0.006)	(0.002)	
Born after 1951=1 × post=1			-0.002
			(0.006)
Observations	8,710	11,198	19,908
Dependent Variable Mean	0.094	0.118	0.107
		Singles	
Born after 1951	0.015*	-0.026***	
	(0.008)	(0.003)	
Born after 1951=1 × post=1			0.042***
			(0.011)
Observations	2,529	2,406	4,935
Dependent Variable Mean	0.094	0.118	0.107
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Back

Placebo Cutoffs

Effects on household savings rates at the placebo cutoffs

	Full Sample		Couples		Single	
	RD	RD-DD	RD	RD-DD	RD	RD-DD
	reform year		reform year		reform year	
Placebo cutoff 1950	-0.005	-0.004	-0.000	-0.000	-0.022	-0.018
	(0.006)	(0.007)	(0.010)	(0.010)	(0.013)	(0.011)
Observations	10,217	21,384	7,963	17,132	2,254	4,252
Placebo cutoff 1953	0.000	0.004	-0.012**	-0.010	0.042***	0.056***
	(0.004)	(0.003)	(0.005)	(0.006)	(0.005)	(0.012)
Observations	11,653	22,271	9,032	17,698	2,621	4,573
Placebo cutoff 1954	-0.001	-0.000	0.003	0.006**	-0.017	-0.027
	(0.003)	(0.007)	(0.002)	(0.002)	(0.019)	(0.030)
Observations	11,956	26,628	9,240	21,334	2,716	5,294
Cluster at birth cohort	✓	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓	✓
Further control variables	✓	✓	✓	✓	✓	✓

Placebo Test for 2003 RD

- ▶ RD sample in 2003 (cohorts 1948-1955): ages $\in$ (48, 55), age cut-off ($>$ age 52), cohort cut-off ($>$1952)

- ▶ Placebo sample in 1993 (cohorts 1938-1945): ages $\in$ (48, 55), age cut-off ($>$ age 52), cohort cut-off ($>$1941)

- ▶ Placebo sample in 1998 (cohorts 1943-1950): ages $\in$ (48, 55), age cut-off ($>$ age 52), cohort cut-off ($>$1946)

	Full sample	Couples	Singles
Younger than 52 in non-reform waves	0.000	0.000	0.003
	(0.005)	(0.003)	(0.022)
Observations	10,079	8,206	1,873
R^2	0.019	0.005	0.032
Dependent Variable Mean	0.125	0.135	0.084
Born after 1941 (younger than 52) in 1993	0.009	0.005	0.023
	(0.009)	(0.006)	(0.027)
Observations	4,787	3,898	889
R^2	0.034	0.008	0.040
Dependent Variable Mean	0.126	0.139	0.069
Born after 1946 (younger than 52) in 1998	-0.001	-0.009	0.029
	(0.006)	(0.009)	(0.037)
Observations	5,292	4,308	984
R^2	0.012	0.004	0.023
Dependent Variable Mean	0.124	0.131	0.097
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Placebo Test for 2008 RD Back

- ▶ RD sample in 2008 (cohorts 1948-1955): ages ∈ (53, 60), age cut-off (> age 57), cohort cut-off (>1952)

- ▶ Placebo sample in 1993 (cohorts 1932-1940): ages ∈ (53, 60), age cut-off (> age 57), cohort cut-off (>1936)

- ▶ Placebo sample in 1998 (cohorts 1938-1945): ages ∈ (53, 60), age cut-off (> age 57), cohort cut-off (>1941)

	Full sample	Couples	Singles
Younger than 57 in non-reform waves	-0.008**	-0.007	-0.012
	(0.003)	(0.004)	(0.012)
Observations	9,643	7,666	1,977
R^2	0.022	0.012	0.020
Dependent Variable Mean	0.106	0.114	0.072
Born after 1936 (Younger than 57 in 1993)	-0.007	-0.009	-0.001
	(0.007)	(0.008)	(0.018)
Observations	4,435	3,514	921
R^2	0.035	0.016	0.040
Dependent Variable Mean	0.109	0.119	0.066
Born after 1941 (Younger than 57 in 1998)	-0.008**	-0.004	-0.017***
	(0.003)	(0.004)	(0.005)
Observations	5,208	4,152	1,056
R^2	0.015	0.010	0.015
Dependent Variable Mean	0.103	0.109	0.078
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓

Other Responses I: Expectations

The difference in expected retirement age is around 1 year and statistically significant.

Expectations of retirement age in the SHARE data

| | Mean of expected retirement age | | Difference | |
	born before 1952	born since 1952	without controls	with controls
Full sample	62.39	63.42	1.03**	0.97*
	(6.39)	(6.48)	(0.37)	(0.38)
Observations	562	1,035	1,328	1,321
Married	62.07	63.66	1.59**	1.45**
	(7.61)	(3.93)	(0.46)	(0.47)
Observations	279	452	731	614
Non-married	62.73	63.22	0.49	0.41
	(4.83)	(8.02)	(0.57)	(0.59)
Observations	283	583	866	696

Notes: Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Columns 1 and 2 show the sample means for cohorts born before 1952 and cohorts born since 1952. Columns 3 and 4 report the estimated treatment effect from a simple first-difference OLS regression without and with controls (age, education, East Germany). Sample consists of individuals younger than age 60 at the survey year and born between 1948 and 1955.
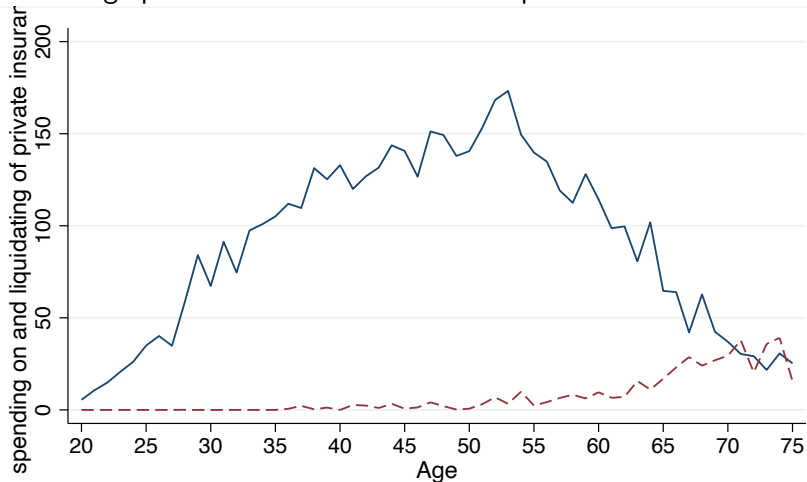Data Source: SHARE waves 1,2,4,5,6,7.

Age profiles of of the accumulation of real estate assets
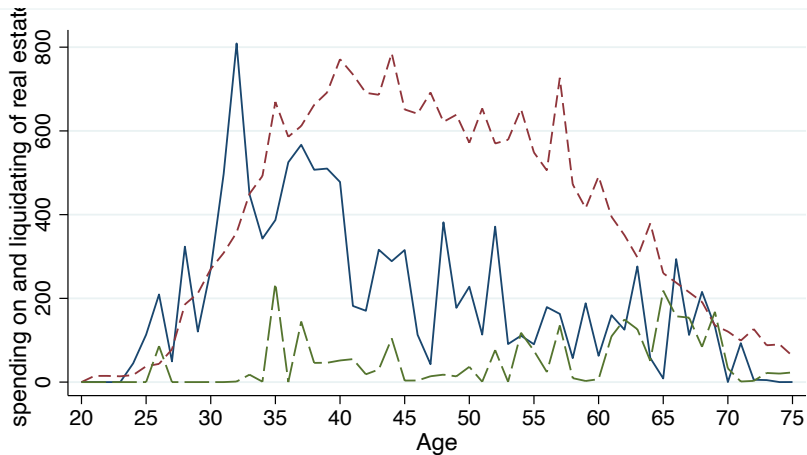
*

Age profiles of the accumulation of private insurance

Figure 2: Wave-by-wave point estimates- savings rates
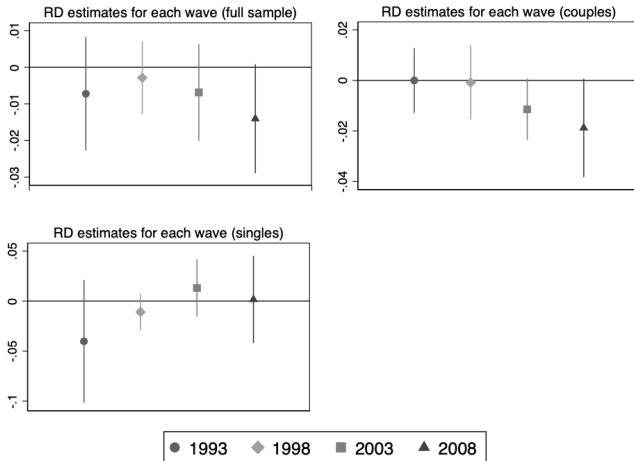
Notes: This figure shows the RD estimates for each wave of EVS (1993, 1998, 2003 and

Event Study: Saving Rate Back
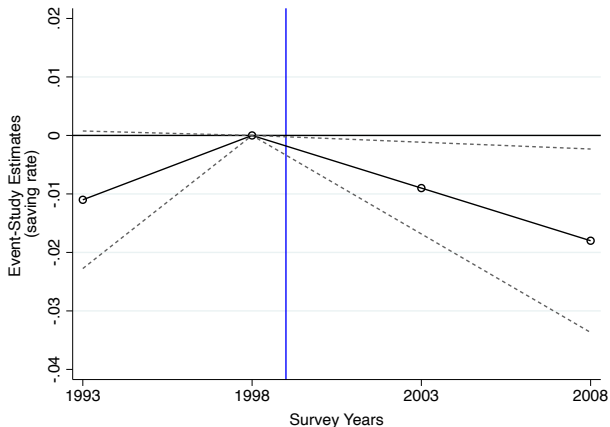
Note: Using alternative event study design to compare mean outcomes of households with women born before 1952 and since 1952 over survey waves when they are of comparable ages.

Other Responses II: Disposal income

No change in monthly equivalized disposable income in anticipation of the reform.

	Full sample	Couples	Singles
Born after 1951	6.937	-6.669	58.545
	(33.261)	(25.625)	(66.525)
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓
Observations	12,537	9,766	2,771
R^2	0.156	0.141	0.133
Dependent Variable Mean	2,115.388	2,235.853	1,698.372

Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Back

Other Responses II: Consumption

The increase in monthly equivalized consumption expenditure is driven by more spending on leisure activities (sports, concerts, dining out, hotels and etc.).

	Full sample	Couples	Singles
Total consumption expenditure	39.527	51.439*	2.437
	(26.076)	(24.234)	(64.312)
Dependent Variable Mean	1,556.203	1,615.878	1,349.625
Basic Goods	3.202	5.349	-2.960
	(6.463)	(6.597)	(19.682)
Dependent Variable Mean	432.375	446.760	382.581
Leisure Goods	29.921***	35.394***	11.317
	(7.190)	(7.844)	(8.114)
Dependent Variable Mean	259.077	275.599	201.883
Insurance consumption	6.560	4.301	12.743
	(5.408)	(5.182)	(8.607)
Dependent Variable Mean	143.227	155.676	100.134
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓
Observations	12,537	9,766	2,771

Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Other Responses II: Subcategories of Savings Rate

Savings in monetary assets (such as deposits in checking accounts and buying stock shares) are the most responsive.

- ▶ Monetary savings: savings account, cash, financial assets
- ▶ Property savings: savings to create property assets
- ▶ Loan payment: repayment of loans, interests on loans, interest/payback of credits

	Full sample	Couples	Singles
Monetary savings rate	-0.019***	-0.018***	-0.020*
	(0.002)	(0.005)	(0.010)
Dependent Variable Mean	0.057	0.062	0.040
Property savings rate	-0.006	-0.026**	0.063*
	(0.010)	(0.008)	(0.031)
Dependent Variable Mean	0.031	0.032	0.028
Loan payment rate	0.014	0.030	-0.036
	(0.016)	(0.016)	(0.040)
Dependent Variable Mean	0.021	0.024	0.012
Cluster at birth cohort	✓	✓	✓
Year fixed effects	✓	✓	✓
Further control variables	✓	✓	✓
Observations	11,239	8,710	2,529

Standard errors in parentheses.*** $p<0.01$, ** $p<0.05$, * $p<0.1$