The effect of raising the full retirement age on old workers' labor market outcomes

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- Motivation
- Literature

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- Descriptive statistics

Empirical analysis
- Identification strategy
- Econometric specification

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Motivation

Aging requires reforms of Pay-As-You-Go (PAYG) pensions schemes to ensure **fiscal sustainability**

Three main **instruments**:

- **Pension benefits**: Diminishing the replacement rate or changing the indexation scheme
- **Social Security Contributions (SSC)**: Increasing payroll taxes
- **Legal retirement age(s)**: Increasing the demographic ratio $\frac{\#\text{ of contributors}}{\#\text{ of retirees}}$

Challenges with (ex post) **evaluations of pension reforms**:

- Life-cycle analysis: Requires long panels, mechanically takes more time (e.g., lag before eligible cohorts actually retire)
- Pension systems are not always comparable (even within the OECD)
- Importance of institutional setting (see, e.g., mixed evidence about anticipation effects of pensions reforms on old workers' labor market state)

Pensions in France

Mandatory PAYG system: Up to $8 \times 48,000$ euros annually (P99.5 of the wage distribution), quite comprehensive

Unfunded, contributory, defined-benefit (DB) scheme

Rules differ depending on the sector, though

- We focus on the main pension scheme (among the 42 ones) in the private sector (14.4 million workers)

Claiming benefits: Possible from the **Early Retirement Age (ERA)** onward, but potentially at some cost (an actuarial reduction factor or a penalty called the *décote*)

To obtain **full-rate pension benefits**, one of the two following conditions must be fulfilled:

- Being older than the **Full Retirement Age (FRA)** - the **age criterion**
- Having the required number of contributory quarters, i.e. having spent enough time on the labor market - the **insurance duration criterion**

Pension reforms made both criteria cohort-specific

The 2010 reform

Various aspects, including the rise of the Early Retirement Age (ERA) from 60 to 62

Focus here on **the sole increase of the Full Retirement Age (FRA) from 65 to 67**

Table 1: Pension benefit-claiming: Eligibility rules (private sector)

Cohort	ERA	FRA	Insurance duration	Penalty
1950	60	65	162	-1.625%
1951 (S1)	60	65	163	-1.5%
1951 (S2)	60 1/3	**65 1/3**	163	-1.5%
1952	60 3/4	**65 3/4**	164	-1.375%
1953	61 1/6	**66 1/6**	165	-1.25%

Insurance duration: in quarters. Penalty: per quarter (for claiming ages below the FRA).

Our goal is to quantify both **fiscal** and **redistributive** effects of that part of the reform

Preview of results

Following the increase in the FRA implemented by the 2010 pension reform in France,

- The spike in claiming age moved in lockstep with the FRA
- By contrast, retirements tied to welfare benefits exhibit persistent stickiness at 65
- Policy-induced changes on the labor market between 65 and 66:
  - $\downarrow$ Retirement (-8 pp)
  - $\uparrow$ Employment (+1 pp)
  - $\uparrow$ Unemployment (+3 pp)
  - $\uparrow$ Inactivity (+4 pp)
- Fiscal effects: About €500 million annually
- Redistributive effects: Mostly at the expense of the bottom 25%

Literature

Abundant literature about implications of shifting the ERA (Aubert et al., 2025; Rabaté and Rochut, 2020; Staubli and Zweimüller, 2013; Manoli and Weber, 2016)

- Rabaté (2019) (FR): 2003 reform, exit rates from employment decrease by 6%

Evidence about the FRA is relatively scarce

- Behaghel and Blau (2012) (US): 1983 reform, shift from 65 to 66 (+2 months per cohort). Retirement age moves in lockstep with FRA, employment rate does not
- On administrative data, Deshpande, Fadlon, and Gray (2024) (US) further document that while the claiming age quickly adjusts to the new FRA, the retirement age exhibits persistent stickiness at the former FRA, suggesting a role for employer-based explanations

Importance of behavioral explanations (social norms, etc.)

- Seibold (2021) (DE) find that financial incentives alone fail at accounting for the large observed concentration of job exits at specific ages

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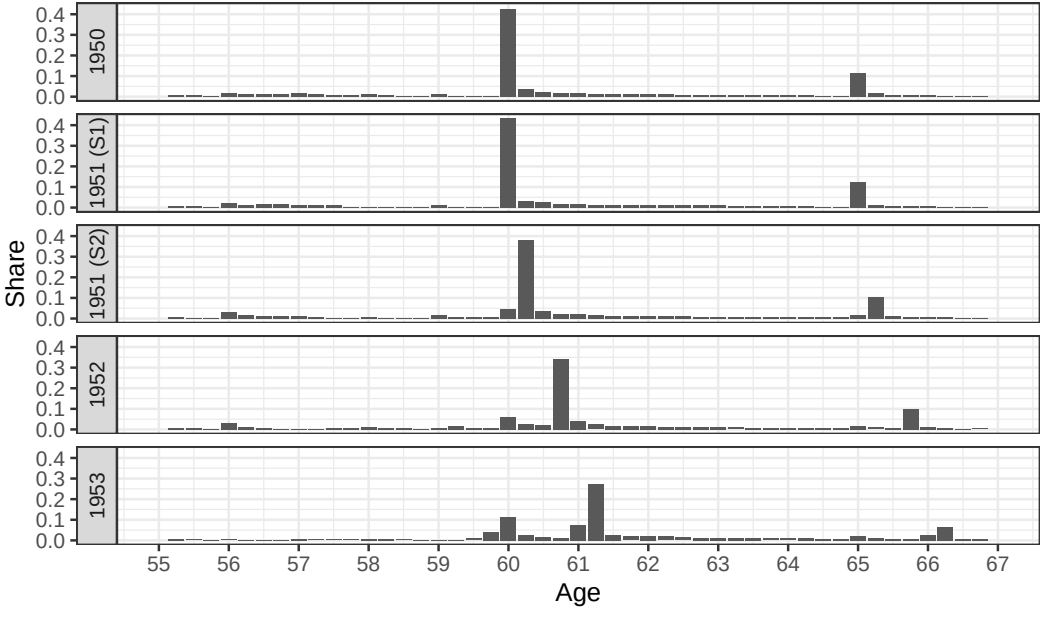
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Sources

1. **Retirement:** *Échantillon Interrégimes de Retraités (EIR 2020)* (representative sample of the population of retirees on December 31st 2020)
   - Unit of observation: Individual
   - Information on claiming age, pension benefits, minimum contributory (MICO) and non-contributory old-age benefits (ASPA), part of the social safety net
2. **Employment:** *Panel Tous Actifs (PTA 2020)* (representative sample of employed and self-employed workers after 50)
   - Unit of observation: Individual $\times$ Year $\times$ Firm
   - Information on employment spells and wages
3. **Unemployment:** *Fichier des allocataires de France Travail (2020)*
   - Unit of observation: Individual $\times$ Unemployment spell
   - Information on unemployment spells and unemployment benefits
4. **Welfare benefits:** *Eniacrams (2020)*
   - Unit of observation: Individual $\times$ Year
   - Information on welfare benefits (RSA, AAH, APL), the remaining part of the social safety net

Claiming age (depending on cohort)



Bunching at the FRA

Possible explanations:

- Financial incentives - 1: **Eligibility** rules to **minimum contributory pension benefits (MICO)** include fulfilling requirements for full-rate pension benefits (**claiming age higher than the Normal Retirement Age (NRA)**)
- Financial incentives - 2: **Eligibility** rules to **UI** include **being aged less than the NRA**
- Role played by social norms: **FRA** is a **salient** parameter

Who claims for pension benefits at the FRA?

Benefit-claiming age	FRA	Other
Women	0.645	0.479
Married	0.553	0.625
# of children	1.3	1.0
Age of first contribution	22.6	18.1
Insurance duration (in quarters)	95.1	144.7
Monthly pension benefits (in €)	986	1,613
MICO (minimum contributory pension benefits)	0.61	0.272
ASPA (old-age welfare benefits)	0.124	0.03
# of individuals	10,953	109,490

Mostly women, workers with shorter careers or/and smaller pension benefits, and who are eligible to minimum pension benefits (either contributory or not)

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Identification strategy

Cohort differences-in-differences / event study

- *Age* plays the role of *time*

Identifying assumption: Parallel Trend Assumption (PTA)

In the absence of reform, the outcomes (employment, unemployment, . . .) would have followed similar trends after 64.5 among cohorts 1950 to 1953

Threats to identification

Possible **confounding factors**:

- Joint shift of the ERA
- Changes in the pension scheme for workers with a long career

} No effect after 62

- Increase in required insurance duration
- Decrease in the actuarial reduction factor

} Compare 1951 (S2) with 1951 (S1)

- Period effects Including or excluding them does not alter results

Econometric specification

Estimating equation

Let Y_{ica} be the outcome considered (namely, the state on the labor market) for individual i from cohort c at age a :

$$Y_{ica} = \sum_{c'=1950}^{1953} \sum_{a'=62}^{67} \beta_{c',a'} \times \mathbf{1}(c' = c) \times \mathbf{1}(a' = a) + \mathbf{X}_i'\delta + \alpha_c + \gamma_a + \epsilon_{ica}$$

- β_{ca} corresponds to $\left(\overline{Y}_{\bullet ca} - \overline{Y}_{\bullet c,a_0}\right) - \left(\overline{Y}_{\bullet c_0,a} - \overline{Y}_{\bullet c_0,a_0}\right)$
- *Baseline*: $c_0 = 1950$, $a_0 = 64.5$
- $\mathbf{X}_i$ are individual-specific covariates (gender, birthplace, marital status, # of children, age when first employed, wage and # of days worked from 52 to 59)

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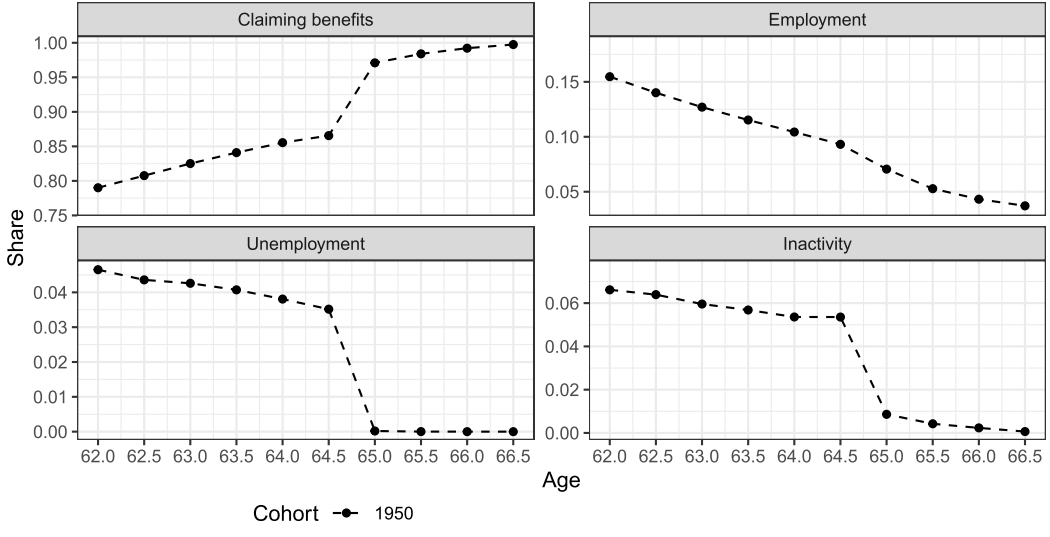
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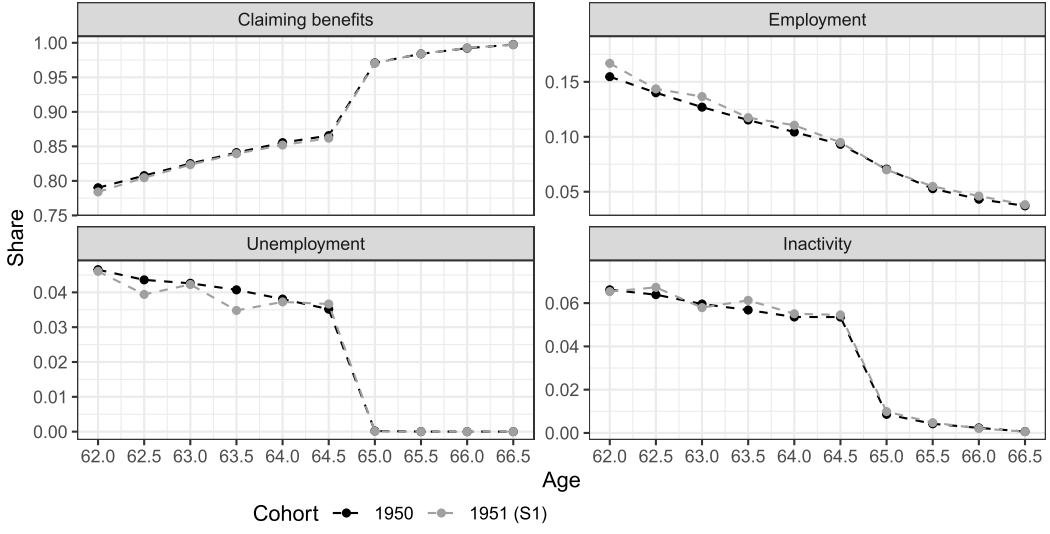
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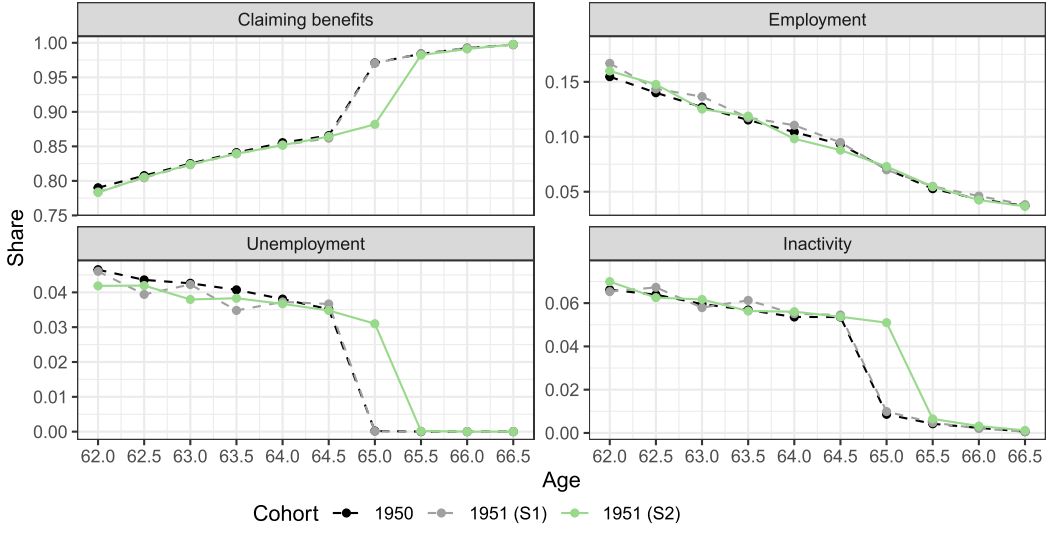
Labor market states



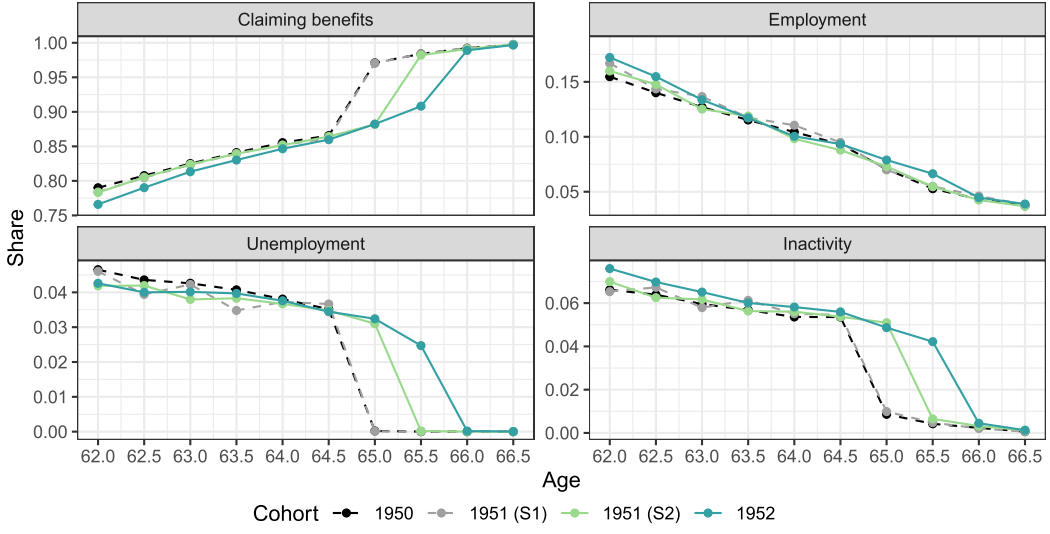
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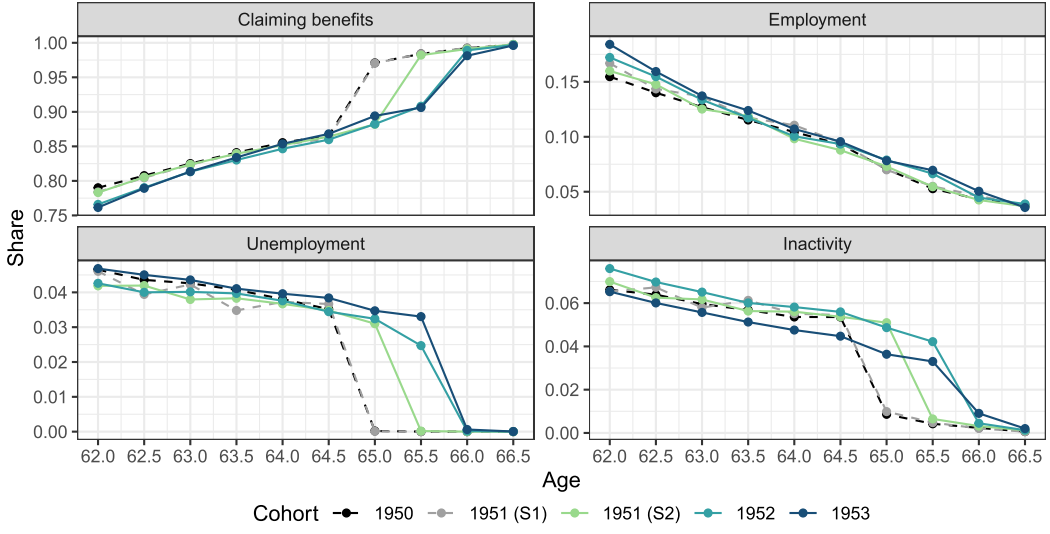
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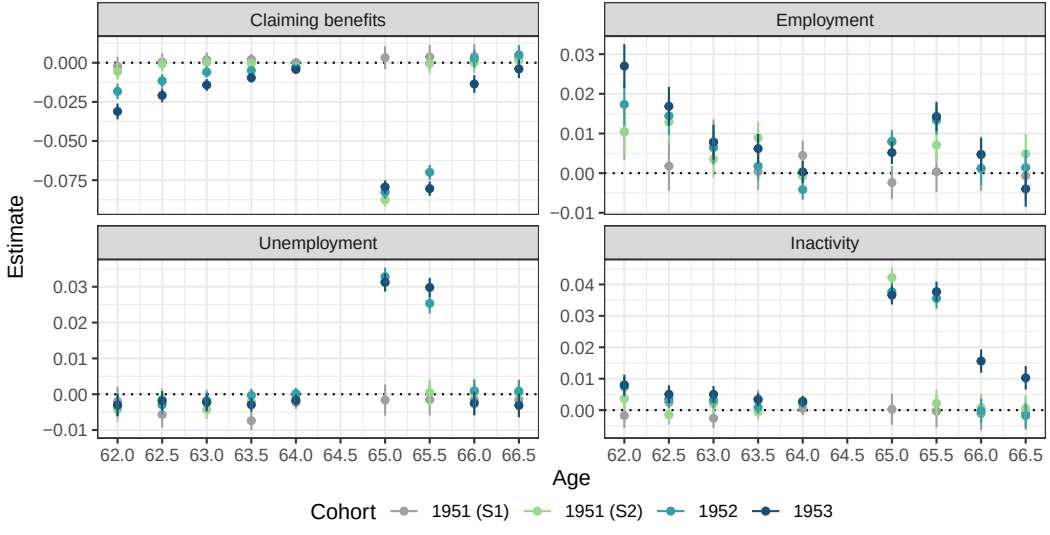
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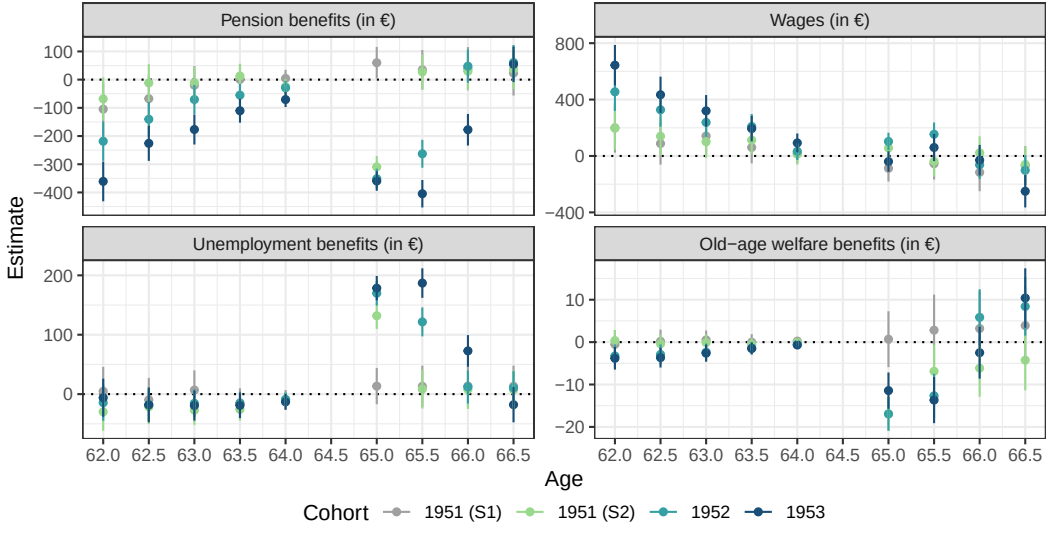
Labor market states



Effect of the reform on labor market states



Effect of the reform on earnings



Mechanisms

- *Active* vs. *passive* substitution
  - Outcomes: Transitions across labor market states
  - Empirical evidence of **passive substitution** ▸ Transitions
- Financial incentives
  - Retirees with minimum contributory pension benefits ▸ MICO
  - Retirees with old-age welfare benefits (ASPA, social safety net) ▸ ASPA
- Role played by social norms ▸ Non-MICO
- Heterogeneity
  - Gender ▸ Gender
  - Marital status

Fiscal effects

Annual gain for the social insurance: Sum of previous estimates at ages 65-66 for the 1953 cohort (about 555,000 individuals)

- Direct effect: +€967 (Pension benefits, including ASPA)
- Substitution effect from retirement to employment: Negligible impact on labor income, hence on payroll taxes / Social Security contributions (SSC) and on income tax revenues as well
- Substitution effect from retirement to unemployment: -€438 (Unemployment benefits)

That part of the reform thus yields an annual fiscal gain of approximately $+967-438 =$ **+529 euros** per individual (**+€294 million**)

Further extrapolating our estimates to ages 66-67, we obtain an annual gain of **€504 million** (about **0.16% of total pension expenditures** and **5.8%** of pension expenditures **for this cohort**, assuming a uniform replacement rate of 0.7)

Redistributive effects - 1

Heterogeneity of effects wrt **reference wage** (the proxy for life-cycle labor earnings used to compute pension benefits)

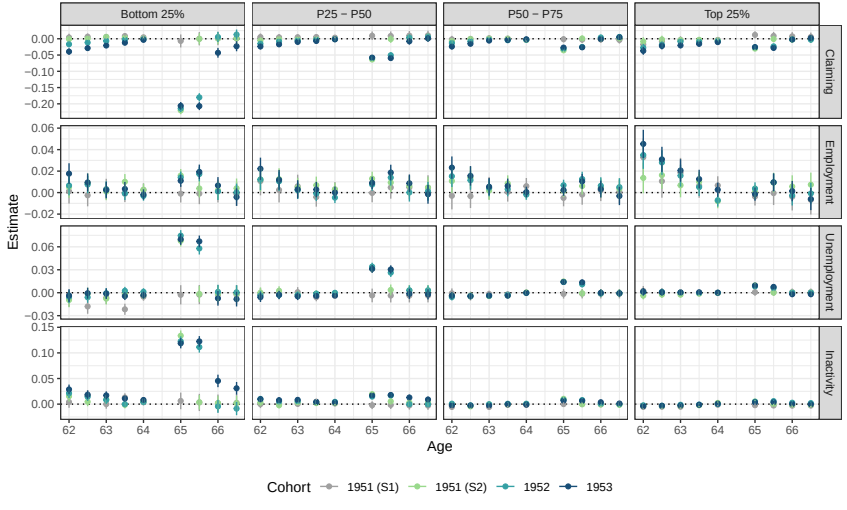


Figure 1: Heterogeneity of effects on labor market states (depending on the reference wage)

Redistributive effects - 2

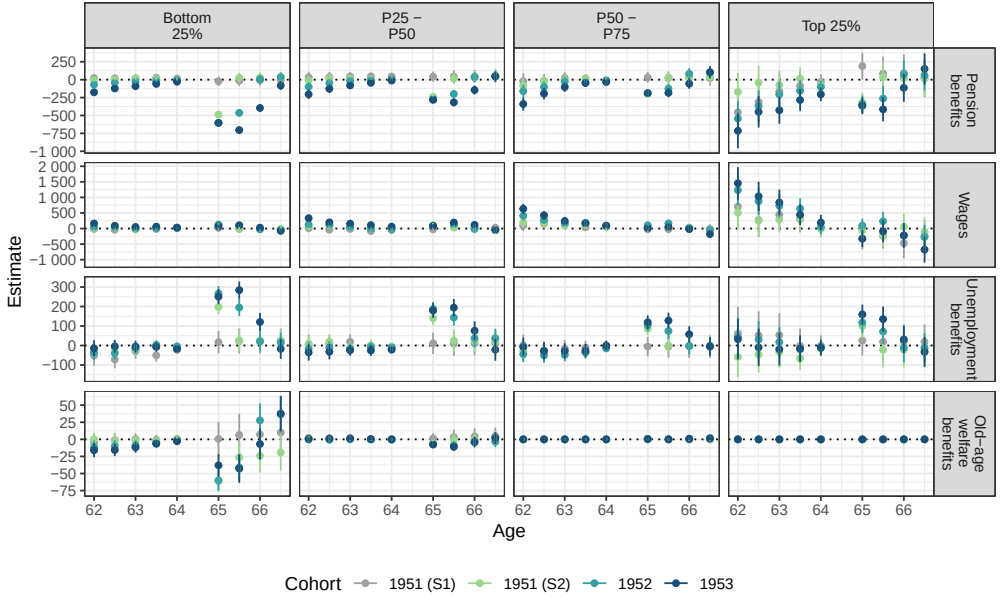


Figure 2: Heterogeneity of effects on earnings (depending on the reference wage)

Redistributive effects - 3

Interpretation

- Effects are mostly concentrated in the bottom 25% of the reference wage
- For these workers, retirement rate decreased by 27 pp, inactivity rose by 18 pp, unemployment by 7.5 pp, employment rate hardly varied at all
- The CATE keeps on decreasing with the location in the distribution of life-cycle labor earnings
- No substantial impact on the employment rate including for the top 25%

Fiscal gains along the job ladder

- Bottom 25%: Direct effect: +€1,788/yr, Substitution with UI: -€655/yr, hence social insurance saved about 10.2% (+0.161-0.059) of these workers' labor earnings (14.6% of their pension expenditure, still assuming a 0.7 replacement rate)
- Rest of the distribution: Social insurance saved almost nothing (Direct effect being **quite entirely offset** by substitution effects)
- Saved money mostly stems from reduced benefits to the bottom 25%, hence making that part of the reform **regressive**

Robustness check - Period effects

Period effects can play the role of confounding factors

- When treated cohort 1953 became 65 in 2018, the business cycle was more favorable than when control cohort 1950 reached the same age in 2015
- This could bias previous results (probably an upward bias on the employment rate and a downward bias on the retirement rate)

We thus include period effects in our estimating equation:

$$Y_{icap} = \sum_{c'=1950}^{1953} \sum_{a'=62}^{67} \beta_{c',a'} \times \mathbf{1}(c' = c) \times \mathbf{1}(a' = a) + \mathbf{X}_i'\delta + \alpha_c + \gamma_a + \xi_p + \epsilon_{icap},$$

and follow the methodology of Deaton and Paxson (1994) to jointly identify corresponding coefficients

- Idea: Re-defining and normalizing ξ_p so that they sum to zero while being orthogonal to a time trend

This procedure does not significantly alter our results

Robustness check - Period effects

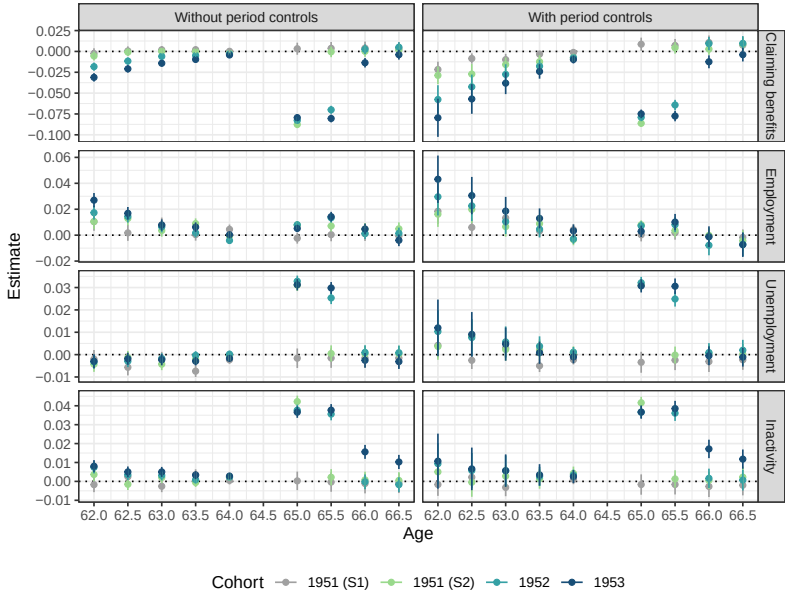


Figure 3: Period effects

Robustness check - Comparing 1951 (S2) with 1951 (S1)

- Pros: No confounding factor, the sole legislative change among these two half-cohorts being the increase in the FRA by 4 months (Pure causal impact of the increase in the FRA)
- Cons: Impossible to learn about possible effects after 65 1/3 (by construction)

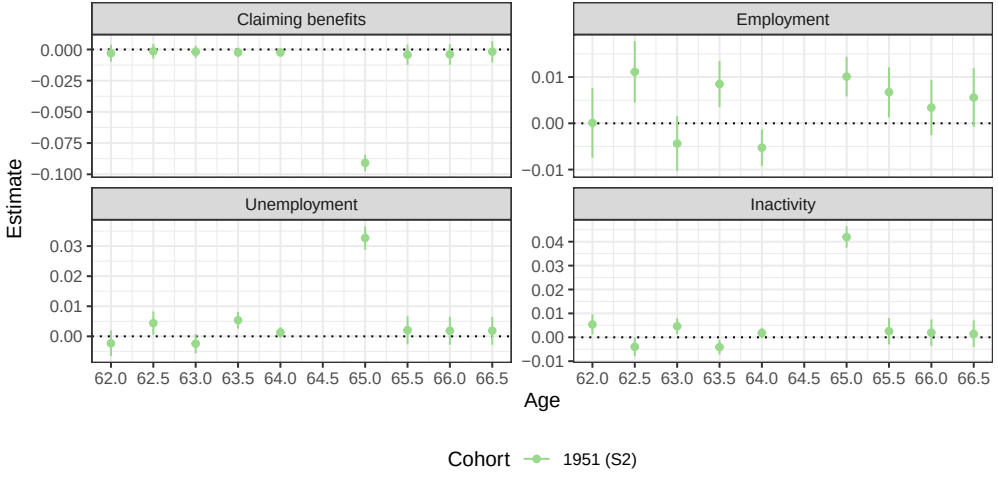


Figure 4: T: 1951 (S2) vs C: 1951 (S1)

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Summary

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- By contrast, retirements tied to welfare benefits exhibit persistent stickiness at 65
- Policy-induced changes on the labor market between 65 and 66:
  - $\downarrow$ Retirement (-8 pp)
  - $\uparrow$ Employment (+1 pp)
  - $\uparrow$ Unemployment (+3 pp)
  - $\uparrow$ Inactivity (+4 pp)
- Fiscal effects: About €500 million annually
- Redistributive effects: Mostly at the expense of the bottom 25%

Limits

- External validity: Extrapolation to public sector, self-employed, other countries?
- Nonlinearity of effects (wrt age: 65-67 shift might differ, say, from 60-62 or 68-70)

Extension

- Normative approach to pension reforms: Decrease pension benefits, SSC rates, or increase legal ages (ERA or/and FRA)? See, e.g., Haller (2023)

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Appendix

Literature (continued) Back

Dubois and Koubi (2017) (FR): 2010 reform increasing the ERA by 2 years. Substantial impacts on the probability of retirement (-27 pp), employment (+17 pp), unemployment (+7 pp) and inactivity (+3 pp) at 60

Gruber, Kanninen, and Ravaska (2022) (FI): Change in the framing / definition of the NRA that did not alter financial incentives but that still influenced retirement behavior

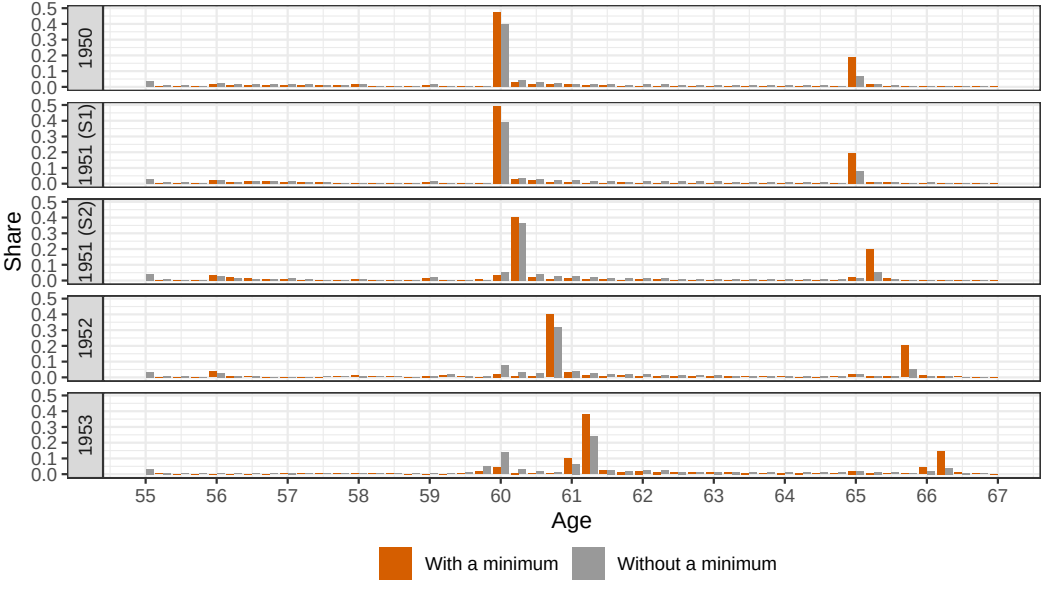
Dolls and Krolage (2023) (DE): 2014 reform that decreased the FRA for workers with a long career, the new FRA being framed as the reference age, which resulted in bunching at the new FRA

Ardito et al. (2021) (IT): Shift of the NRA from 60 to 65. A non-negligible share of individuals retires without any pension benefit, which claims for caution (unintended effects on the labor market, especially for the most fragile)

Duggan, Singleton, and Song (2007) (US): 1983 reform of the Social Security that increased the FRA from 65 to 67, and that rose the enrollment rate to disability benefits between 45 and 64 (by 0.6% for men and 0.9% for women)

Bunching at the FRA (with or without minimum contributory pension benefits)

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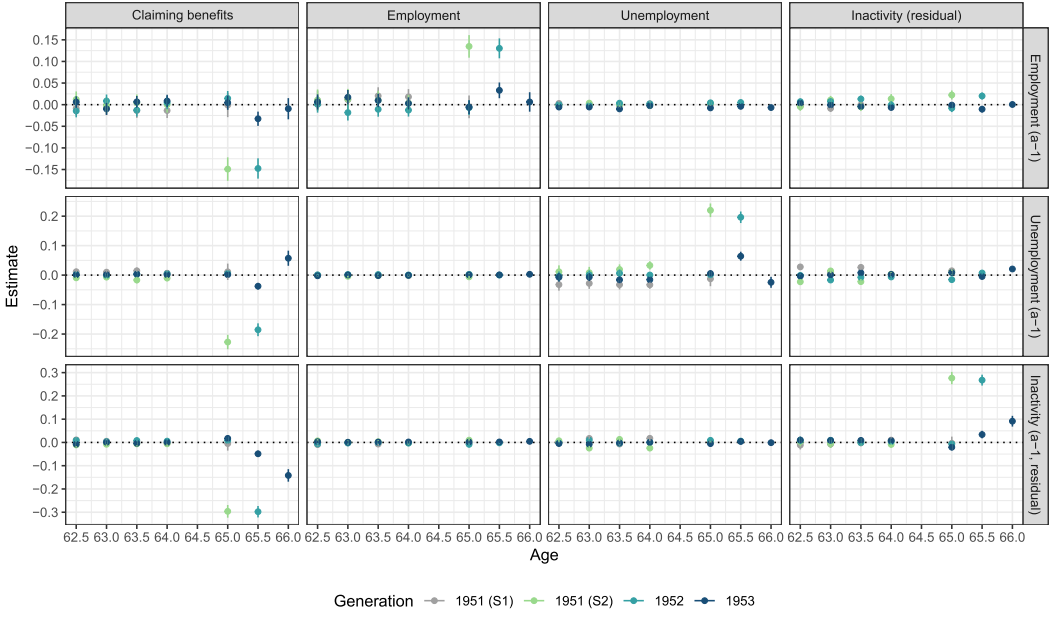
Pre-FRA labor market state

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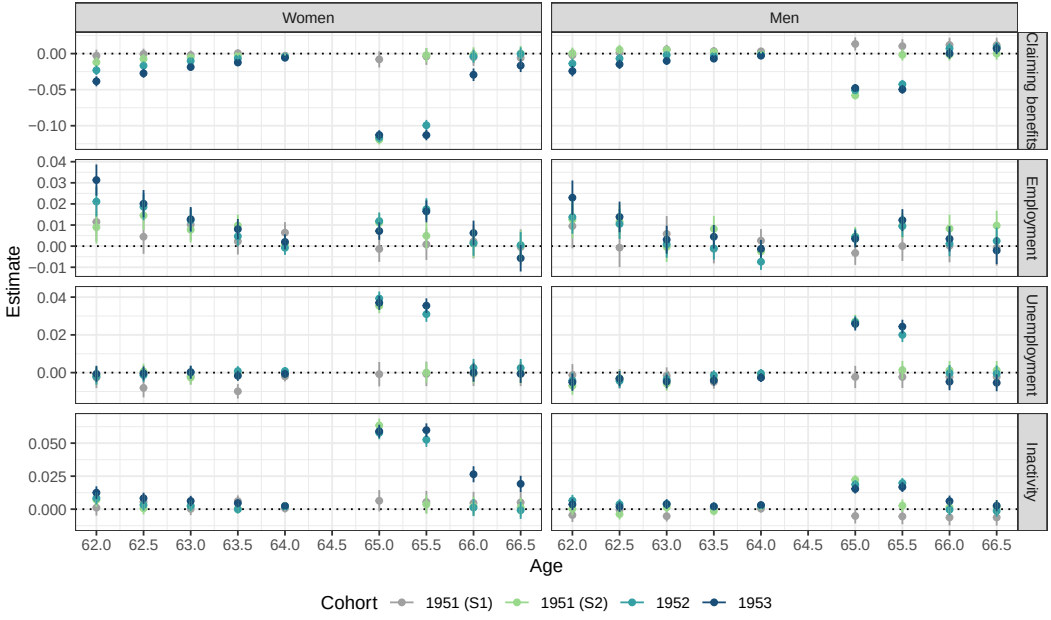
Effect of the reform on labor market transitions

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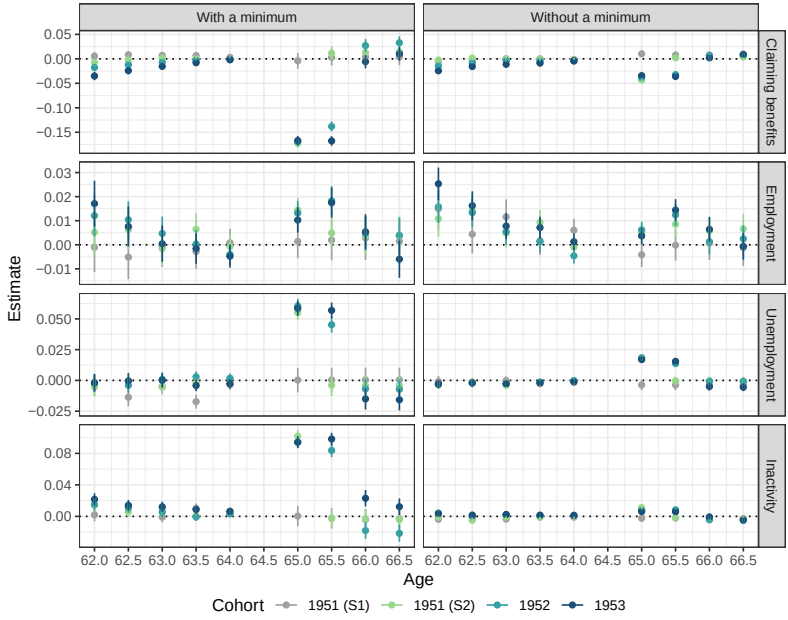
Heterogeneity of effects (depending on gender)

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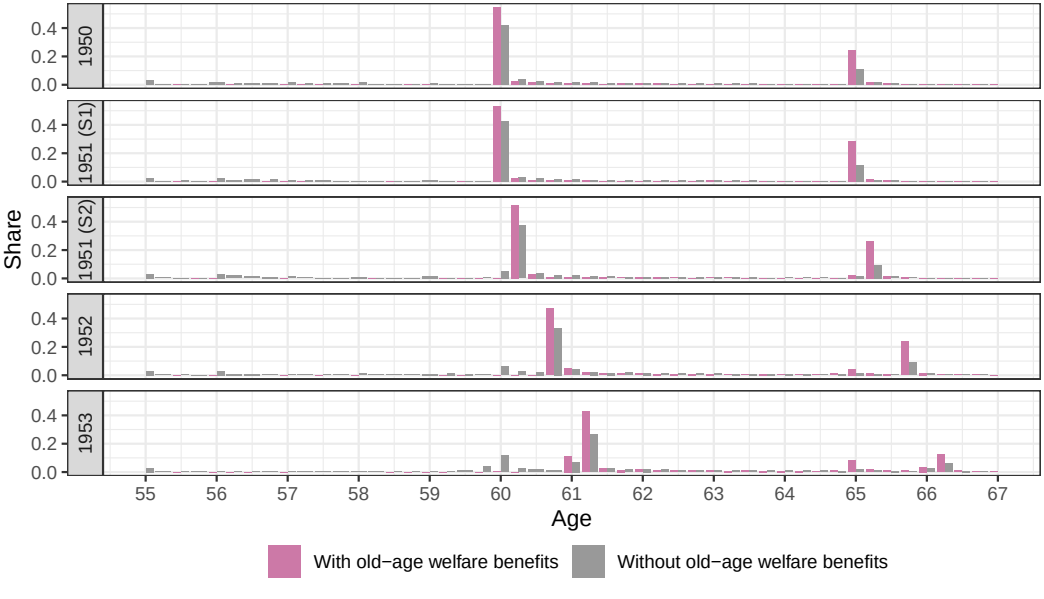
Heterogeneity of effects (depending on minimum contributory pension benefits)

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Heterogeneity of effects (depending on old-age welfare benefits)

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Effects of the reform for those without minimum contributory pension benefits: The role played by social norms?

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