# The Effect of Relabeling and Incentives on Retirement: Evidence from a Pension Reform

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# Finnish Pension Reform

- Relabeled earlier age as "normal" retirement age
- Relative small corresponding changes in financial incentives
  - But huge impact on retirement – within one year
  - Share retiring at old normal age fell from 74% to 17% in the first year
- Share retiring at new normal age rose from 9% to 20%, 30% and 38% in the following three years
- Relabeling effect is comparable to huge change in financial incentives
- Effects largest for those with less education and in best health
- Potential evidence of "mistakes" – larger impact on return to work

# The Finnish pension system in 2004–2005

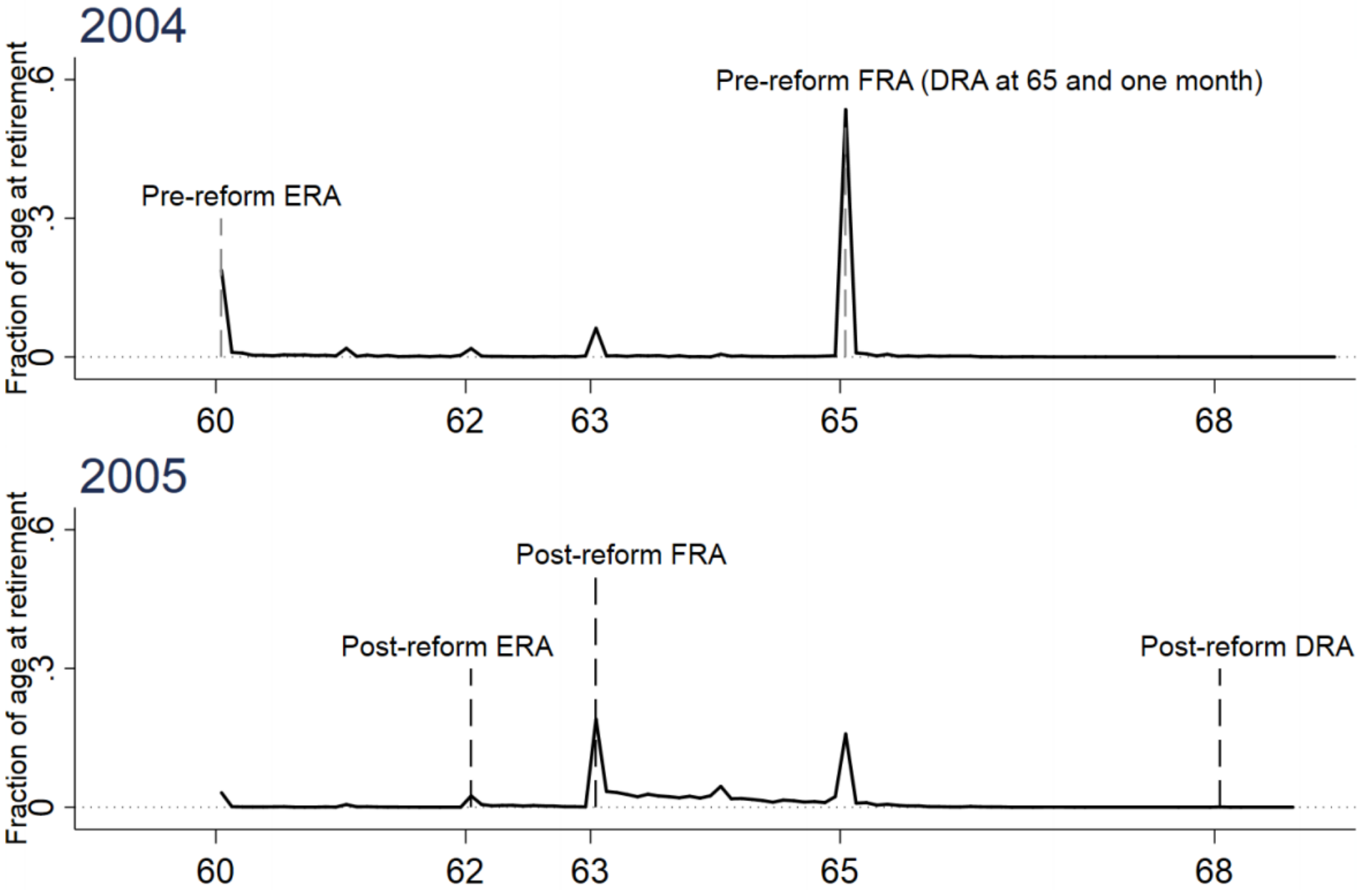
- Defined benefits system
- Compulsory contribution from earnings ($\sim$25%)
- Replacement rate $\sim$60%

Old-age pension system, three parts:

1. National pension
2. Earnings-related pension
3. (Private pensions)

Other programs

1. Disability insurance
2. Unemployment pension
3. Pre-reform: Individual early age retirement


2004
Fraction of age at retirement
0
.3
.6
Pre-reform ERA
Pre-reform FRA (DRA at 65 and one month)
60
62
63
65
68
2005
Fraction of age at retirement
0
.3
.6
Post-reform ERA
Post-reform FRA
Post-reform DRA
60
62
63
65
68

# Pension reform 2005

No change in labels in National Pension system.

Incentives:

| | Before | After |
|---|---|---|
| Accrual %: | Ages 23-59 1.5% | Ages 18-52 1.5% |
| | Ages 60-65 2.5% | Ages 53-62 1.9% |
| | | Ages 63-68 4.5% |
| Early claiming: | -0.4% for each month | -0.6% for each month |
| Delayed claiming: | 0.6% for each month | 0.4% for each month |
| Reference age: | 65 | 63 (early); 68 (delayed) |

# Data

Dataset

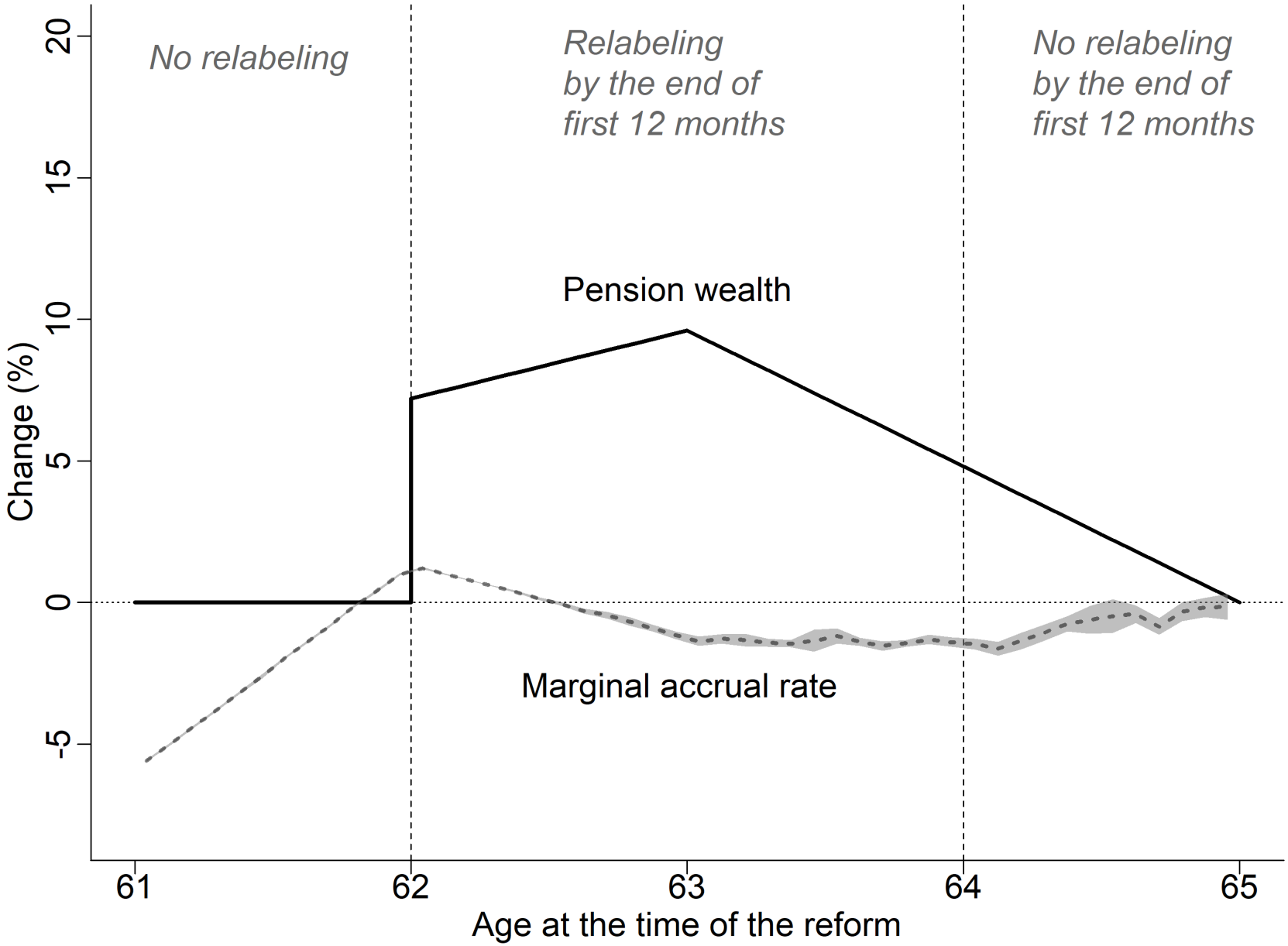
- Centre for Pensions retirement data
- Years 2000 to 2014

Main sample

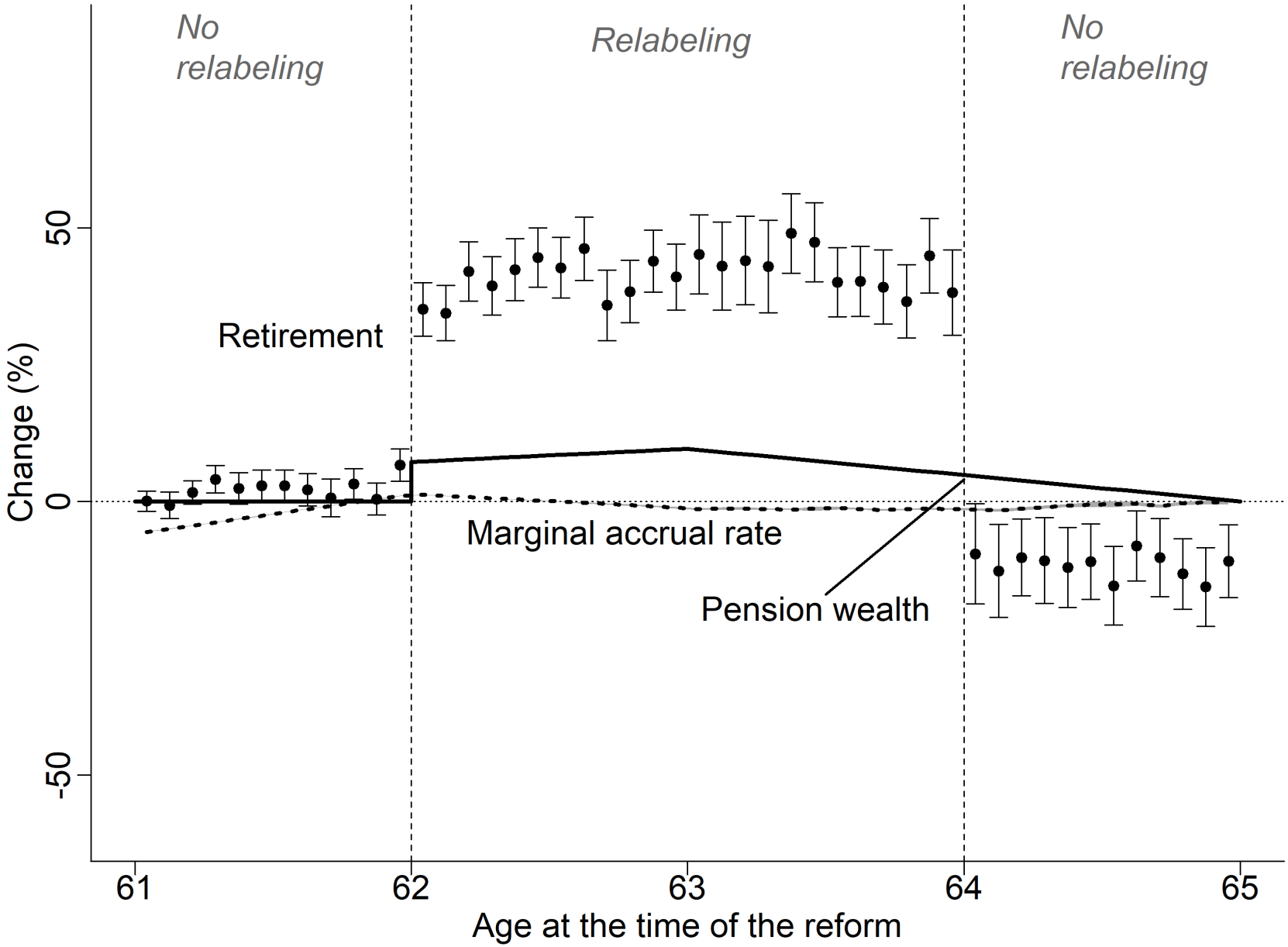
- Exclude those with a professional retirement age of below 65
- Exclude public sector
- Main sample: only earnings-related pension (accrual $>$ $\sim$11,000 euros per month, N$\sim$30,000)

Descriptive statistics

# The treatment



# The treatment and effect, main sample



# Regression framework

Cox proportional hazard

$$\lambda(t|X_{ip}) = \lambda_0(t)exp(\beta_0 X_{i0} + ... + \beta_p X_{ip}),$$

Continuous treatments in 2005:

- Immediate increase in pension wealth, % (income effect)
- Increase in marginal accrual rate, relative to accrued pension (substitution effect)

Binary treatment in 2005:

- Reach full retirement age in 12 months (relabeling effect)

Controls: Non-pension wealth decile, having been on sick leave at in 2000 to 2002, having a spouse, tertiary education, female, pension wealth at the beginning of the year in logs and marginal accrual rate assuming no reform in logs.

Sample: Those aged 62 to 65 at the start of the year in 2003–2005.

# Table: Cox proportional hazard model regressions.

| Sample | Earnings-related pension (1) |
|---|---|
| **Effect of the reform (in 2005):** | |
| Immediate increase in pension wealth, % | 0.107*** |
| | (0.0194) |
| Increase in marginal accrual rate, % of pension | -0.0600*** |
| | (0.0107) |
| Reach full retirement age in 12 months | 2.034*** |
| | (0.122) |
| On sick leave at 62 | 0.0902*** |
| | (0.0329) |
| Has spouse | 0.0740*** |
| | (0.0262) |
| Tertiary education | -0.0344 |
| | (0.0261) |
| Female | 0.124*** |
| | (0.0269) |
| Pension wealth at the beginning of the year (logs) | 0.549*** |
| | (0.0969) |
| Marg accrual rate, no reform (logs) | -0.392*** |
| | (0.0905) |
| Monthly age controls | Yes |
| Year controls | Yes |
| Individual controls | Yes |
| N | 25,172 |

# Main result

Compared to a baseline hazard of $\sim$5%

- A 1% increase in pension wealth increases retirement by 11%
- A 1% decline in accrual increases retirement by 6%
- Relabeling increases retirement by 664% – equivalent to a 20% increase in pension wealth or a 30% decrease in accrual!

Table: Cox proportional hazard model regressions, different samples.

| Sample | Earnings-related pension (1) | 0 to 0.5 threshold (2) |
|---|---|---|
| **Effect of the reform (in 2005):** | | |
| Immediate increase in pension wealth, % | 0.107*** | 0.150*** |
| | (0.0194) | (0.0208) |
| Increase in marginal accrual rate, % of pension | -0.0600*** | -0.0472*** |
| | (0.0107) | (0.0038) |
| Reach full retirement age in 12 months | 2.034*** | 0.4352*** |
| | (0.122) | (0.1009) |
| On sick leave in 2000–2002 | 0.0877*** | 0.1331*** |
| | (0.0247) | (0.0412) |
| Has spouse | 0.0740*** | 0.0895*** |
| | (0.0262) | (0.0395) |
| Tertiary education | -0.0344 | -0.1089*** |
| | (0.0261) | (0.0426) |
| Female | 0.124*** | -0.255*** |
| | (0.0269) | (0.0400) |
| Pension wealth at the beginning of the year (logs) | 0.549*** | -1.046*** |
| | (0.0969) | (0.1030) |
| Marg accrual rate, no reform (logs) | -0.392*** | 0.4090*** |
| | (0.0905) | (0.0466) |
| Monthly age controls | Yes | Yes |
| Year controls | Yes | Yes |
| Individual controls | Yes | Yes |
| N | 25,172 | 10,793 |

| VARIABLES | (1)<br>Main specification | (2)<br>Interaction: tertiary education |
|---|---|---|
| Immediate increase in pension wealth, % | 0.0605*** | 0.0746*** |
| | (0.0170) | (0.0211) |
| Increase in marginal accrual rate, % of pension | -0.0459*** | -0.0411*** |
| | (0.00900) | (0.0111) |
| Reach full retirement age in 12 months | 2.183*** | 2.441*** |
| | (0.114) | (0.142) |
| Immediate increase in pension wealth, tertiary, % | | -0.0285 |
| | | (0.0365) |
| Increase in marginal accrual rate, tertiary, % of pension | | -0.0140 |
| | | (0.0190) |
| Reach full retirement age in 12 months, tertiary | | -0.641*** |
| | | (0.245) |
| Pension wealth at the beginning of the year (logs) | 0.744*** | 0.780*** |
| | (0.0858) | (0.118) |
| Marg accrual rate, no reform (logs) | -0.439*** | -0.454*** |
| | (0.0791) | (0.110) |
| Monthly age controls | Yes | Yes |
| Year controls | Yes | Yes |
| Individual controls | Yes | Yes |
| Observations | 25,172 | 25,172 |

| | Main specification | Interaction: Sickness in 2000–2002 | Interaction: Death before age 74 |
|---|---|---|---|
| **Effect of the reform (in 2005):** | | | |
| Immediate increase in pension wealth, % | 0.107*** | 0.102*** | 0.104*** |
| | (0.0194) | (0.0226) | (0.0205) |
| Increase in marginal accrual rate, % of pension | -0.0600*** | -0.0812*** | -0.0585*** |
| | (0.0107) | (0.0141) | (0.0112) |
| Reach full retirement age in 12 months | 2.034*** | 2.086*** | 2.025*** |
| | (0.122) | (0.141) | (0.128) |
| Immediate increase in pension wealth, sick pop., % | | 0.0173 | |
| | | (0.0443) | |
| Increase in marginal accrual rate, % of pension, sick pop. | | 0.0729*** | |
| | | (0.0229) | |
| Reach full retirement age in 12 months, sick pop. | | -0.174 | |
| | | (0.278) | |
| Immediate increase in pension wealth, early death, % | | | 0.0558 |
| | | | (0.0659) |
| Increase in marginal accrual rate, early death, % of pension | | | -0.0205 |
| | | | (0.0427) |
| Reach full retirement age in 12 months, early death | | | -0.0380 |
| | | | (0.404) |
| On sick leave in 2000–2002 | 0.0877*** | 0.144 | 0.0823*** |
| | (0.0247) | (1.365) | (0.0262) |
| Died before age 74 | | | 1.725 |
| | | | (1.494) |
| Monthly age controls | Yes | Yes | Yes |
| Year controls | Yes | Yes | Yes |
| Individual controls | Yes | Yes | Yes |
| Observations | 25,172 | 25,172 | 25,172 |

| | Main specification (1) | Interaction: wealth by tercile (2) |
|---|---|---|
| **Effect of the reform (in 2005):** | | |
| Immediate increase in pension wealth, % | 0.108*** | 0.101*** |
| | (0.0194) | (0.0342) |
| Increase in marginal accrual rate, % of pension | -0.0594*** | -0.0548*** |
| | (0.0107) | (0.0208) |
| Reach full retirement age in 12 months | 2.031*** | 2.229*** |
| | (0.121) | (0.217) |
| Immediate increase in pension wealth, 2nd tercile, % | | -0.000714 |
| | | (0.0242) |
| Increase in marginal accrual rate, 2nd tercile, % of pension | | 0.00829 |
| | | (0.0133) |
| Reach full retirement age in 12 months, 2nd tercile | | -0.0996 |
| | | (0.153) |
| Immediate increase in pension wealth, 3rd tercile, % | | 0.00425 |
| | | (0.0158) |
| Increase in marginal accrual rate, 3rd tercile, % of pension | | -0.0113 |
| | | (0.00914) |
| Reach full retirement age in 12 months, 3nd tercile | | -0.105 |
| | | (0.0987) |
| Pension wealth at the beginning of the year (logs) | 0.742*** | 1.052*** |
| | (0.0858) | (0.155) |
| Marg accrual rate, no reform (logs) | -0.440*** | -0.691*** |
| | (0.0791) | (0.142) |
| Monthly age controls | Yes | Yes |
| Year controls | Yes | Yes |
| Individual controls | Yes | Yes |
| Observations | 25,172 | 25,172 |

# Return to labor market in 3 years vs retiring

| **Dependent variable: Retiring** | | | | |
|---|---|---|---|---|
| Sample | Full sample | Sick in 2000–2002 | Wealth 1st tercile | Below tertiary education |
| **Effect of the reform (in 2005):** | | | | |
| Immediate increase in pension wealth, % | 0.107*** | 0.1260*** | 0.0996*** | 0.1362*** |
| | (0.0194) | (0.0382) | (0.0343) | (0.0248) |
| Increase in marginal accrual rate, % of pension | -0.0600*** | -0.0087 | -0.0569*** | -0.0467*** |
| | (0.0107) | (0.00195) | (0.021) | (0.0129) |
| Reach full retirement age in 12 months | 2.034*** | 1.894*** | 2.240*** | 2.232*** |
| | (0.122) | (0.2399) | (0.2173) | (0.1498) |
| N | 25,172 | 6,308 | 8,391 | 17,108 |

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

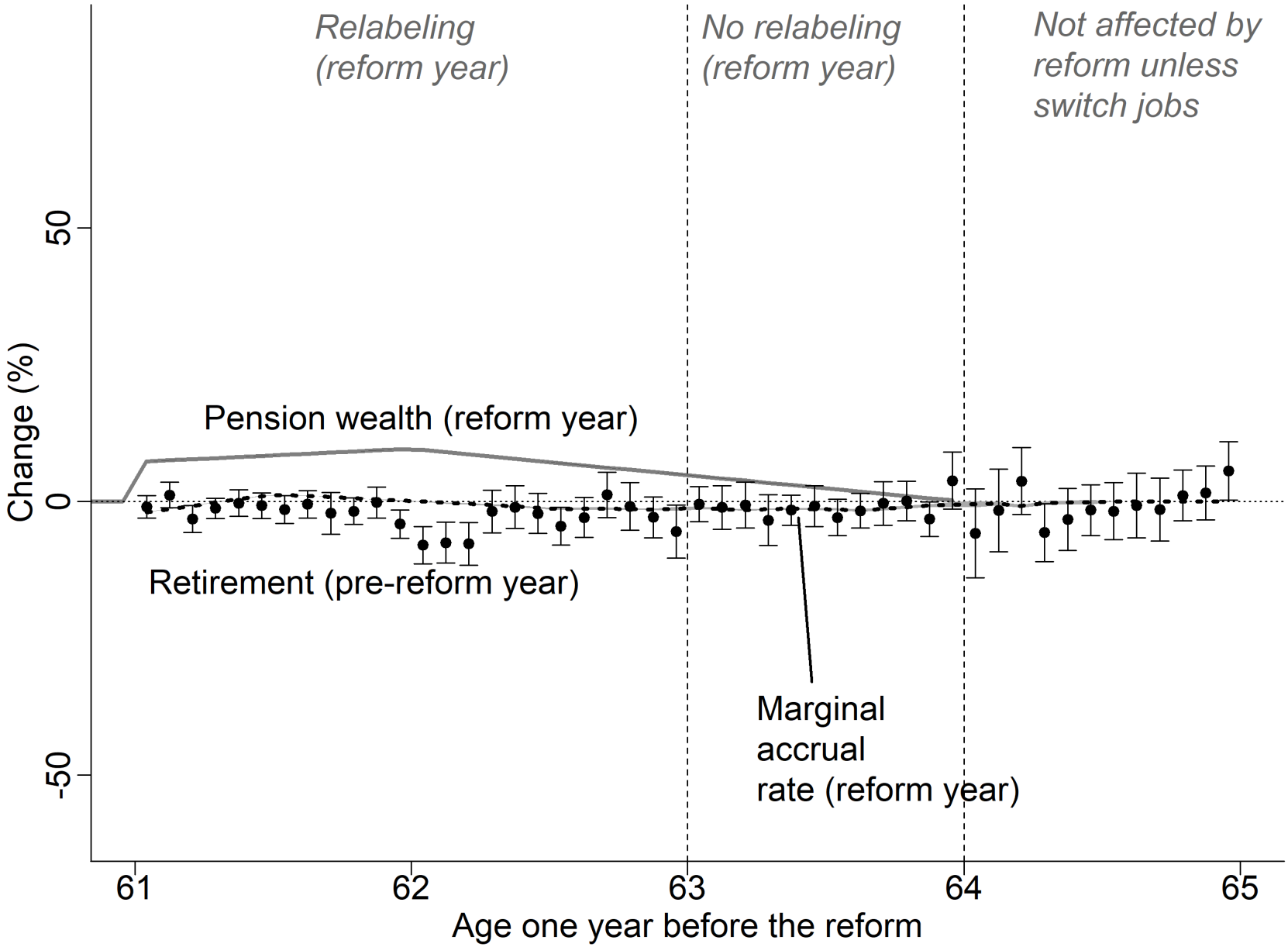
| **Dependent variable: Returning to labor market in three years (25% of previous income)** | | | | |
|---|---|---|---|---|
| Sample | Full sample | Sick in 2000–2002 | Wealth 1st tercile | Below tertiary education |
| **Effect of the reform (in 2005):** | | | | |
| Immediate increase in pension wealth, % | -0.0049 | -0.0093 | -0.0463 | -0.0501 |
| | (0.0477) | (0.1021) | (0.081) | (0.0621) |
| Increase in marginal accrual rate, % of pension | -0.0429* | -0.04457 | 0.0353 | -0.0405 |
| | (0.0257) | (0.0639) | (0.044) | (0.0350) |
| Reach full retirement age in 12 months | 2.505*** | 2.257*** | 3.003*** | 3.166*** |
| | (0.302) | (0.646) | (0.525) | (0.405) |
| N | 25,172 | 6,308 | 8,391 | 17,108 |

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

# Anticipation effect

- Reform law passed August 2004
- Information letters already in beginning of 2004, discussions earlier
- Anticipation might have caused retirement before reform was enacted
- We also control expected incentive effects of the reform in 2004

# The treatment and effect, anticipation



# Conclusion

Labels and incentives matter

- Relabeling effect equal to income effect of 20 percentage point change in income level
- Relabeling effect equal to substitution effect of 30 percentage point change in marginal accrual rate

Mechanisms

- Reference-dependent utility
  - Brown et al. (2013), Merkle et al. (2016), Seibold (2017), Behaghel & Blau (2012)
- Social norms
- Mistakes
- Symmetry/generalizability?

# Extensions

- Optimality/mistakes/return to work
- Effects at particular professions/firms
- Spouse effects?

| | **Relabeling, aged 62 to 64** at start of year (Relabeling) | | | | **No relabeling, aged 64 to 65** at start of year (No relabeling) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Min | Max | Mean | SD | Min | Max |
| **2003** (Control year) | | | | | | | | |
| Female | 0.29 | 0.45 | 0.00 | 1.00 | 0.26 | 0.44 | 0.00 | 1.00 |
| Tertiary education | 0.23 | 0.42 | 0.00 | 1.00 | 0.22 | 0.42 | 0.00 | 1.00 |
| Died before age 74 | 0.15 | 0.36 | 0.00 | 1.00 | 0.13 | 0.33 | 0.00 | 1.00 |
| On sick leave at 62 | 0.01 | 0.08 | 0.00 | 1.00 | 0.00 | 0.03 | 0.00 | 1.00 |
| Annual earnings (thousand euros) | 25.95 | 24.87 | 0.00 | 307.15 | 26.00 | 27.04 | 0.00 | 272.29 |
| Pension wealth (thousand euros) | 582.69 | 293.63 | 314.08 | 4497.85 | 556.87 | 277.56 | 38.44 | 3409.08 |
| Marg accrual rate, no reform (thousand euros) | 51.27 | 32.75 | 15.61 | 397.76 | 45.79 | 23.84 | 18.50 | |
| **2004** (Control year) | | | | | | | | |
| Female | 0.29 | 0.45 | 0.00 | 1.00 | 0.29 | 0.45 | 0.00 | 1.00 |
| Tertiary education | 0.25 | 0.43 | 0.00 | 1.00 | 0.22 | 0.42 | 0.00 | 1.00 |
| Died before age 74 | 0.15 | 0.36 | 0.00 | 1.00 | 0.15 | 0.36 | 0.00 | 1.00 |
| On sick leave at 62 | 0.01 | 0.10 | 0.00 | 1.00 | 0.00 | 0.06 | 0.00 | 1.00 |
| Annual earnings (thousand euros) | 27.20 | 23.97 | 0.00 | 282.67 | 27.68 | 26.12 | 0.00 | 184.05 |
| Pension wealth (thousand euros) | 602.44 | 324.96 | 318.33 | 5638.94 | 561.61 | 269.17 | 308.24 | 3855.00 |
| Marg accrual rate, no reform (thousand euros) | 53.11 | 31.84 | 15.76 | 433.59 | 46.75 | 27.99 | 18.05 | |
| **2005** (Reform year) | | | | | | | | |
| female | 0.29 | 0.45 | 0.00 | 1.00 | 0.29 | 0.45 | 0.00 | 1.00 |
| Tertiary education | 0.28 | 0.45 | 0.00 | 1.00 | 0.24 | 0.43 | 0.00 | 1.00 |
| Died before age 74 | 0.15 | 0.36 | 0.00 | 1.00 | 0.15 | 0.36 | 0.00 | 1.00 |
| On sick leave at 62 | 0.01 | 0.12 | 0.00 | 1.00 | 0.01 | 0.08 | 0.00 | 1.00 |
| Annual earnings (thousand euros) | 31.21 | 32.52 | 0.04 | 587.53 | 27.52 | 23.11 | 0.03 | 156.94 |
| Pension wealth (thousand euros) | 617.95 | 345.75 | 10.24 | 5492.06 | 581.62 | 312.74 | 313.60 | 4280.10 |
| Marg accrual rate, no reform (thousand euros) | 55.30 | 33.50 | 17.66 | 387.70 | 48.20 | 25.23 | 20.95 | 228.43 |
| Immediate increase in pension wealth, % | 7.68 | 1.29 | 4.81 | 9.60 | 2.11 | 1.34 | 0.01 | 4.79 |
| Increase in marginal accrual rate, % of pension | -1.15 | 2.14 | -4.80 | 39.73 | -1.95 | 2.76 | -7.07 | 14.82 |

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