Earnings test for pension benefits and labor supply of the elderly in Korea

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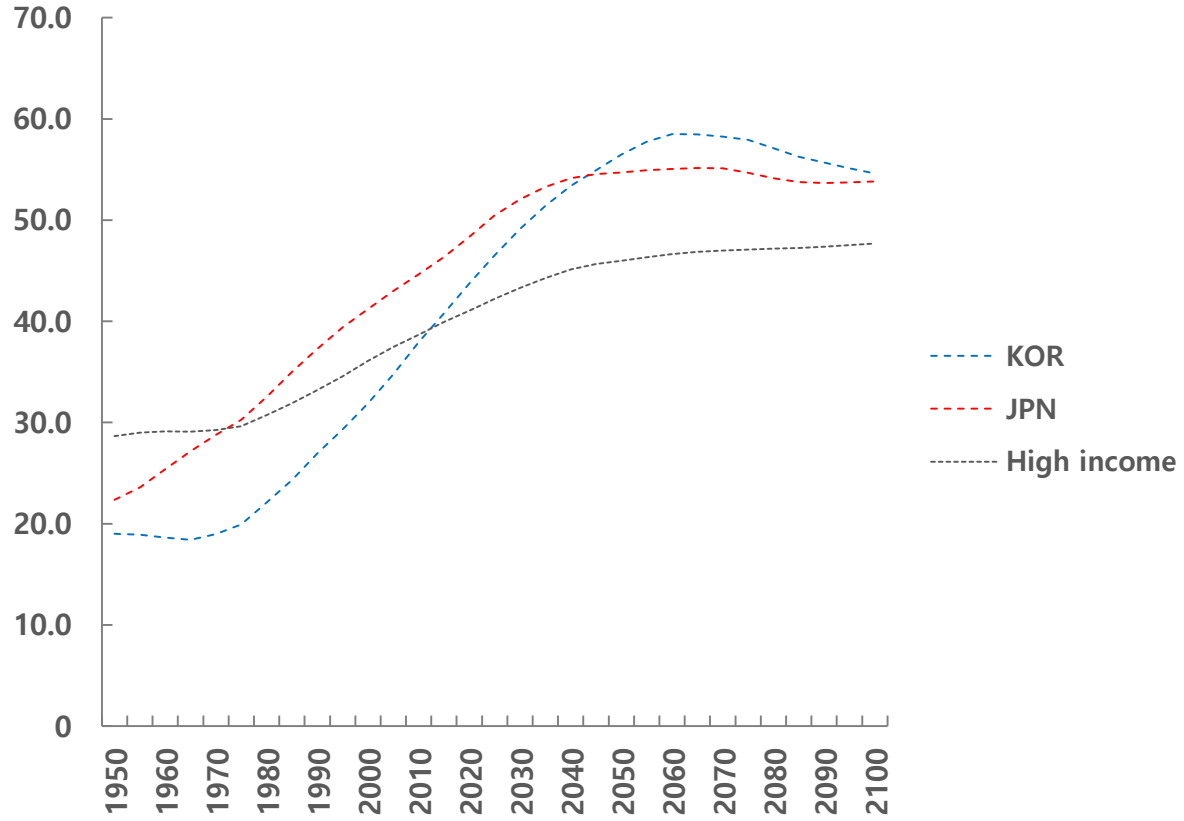
Korean population ageing rapidly

- Changes in the median age: 1950-2100



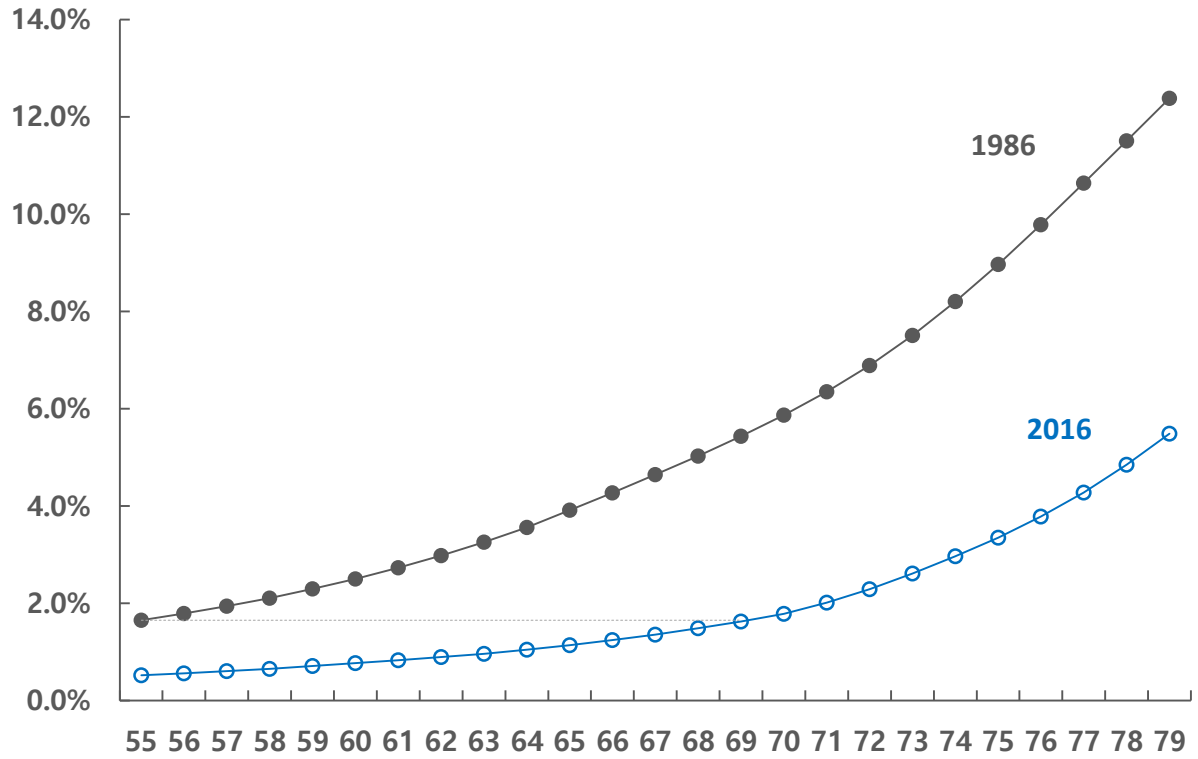
Source: UN (2019)

Policy responses to higher longevity

- “Working Longer”
  - Increase pensionable age
  - Strengthen work incentive among the elderly
- Older people in Korea are
  - Healthier than before
    - Lower mortality risk
    - 86% of people aged 65+ in 2017 think that “age 70 or older” defines “the elderly”
  - Willing to work longer
    - 74% of men aged 55-59 in 2018 hope to retire after 70
    - 68% of men aged 65-69 in 2018 hope to retire after 75

Older people are healthier

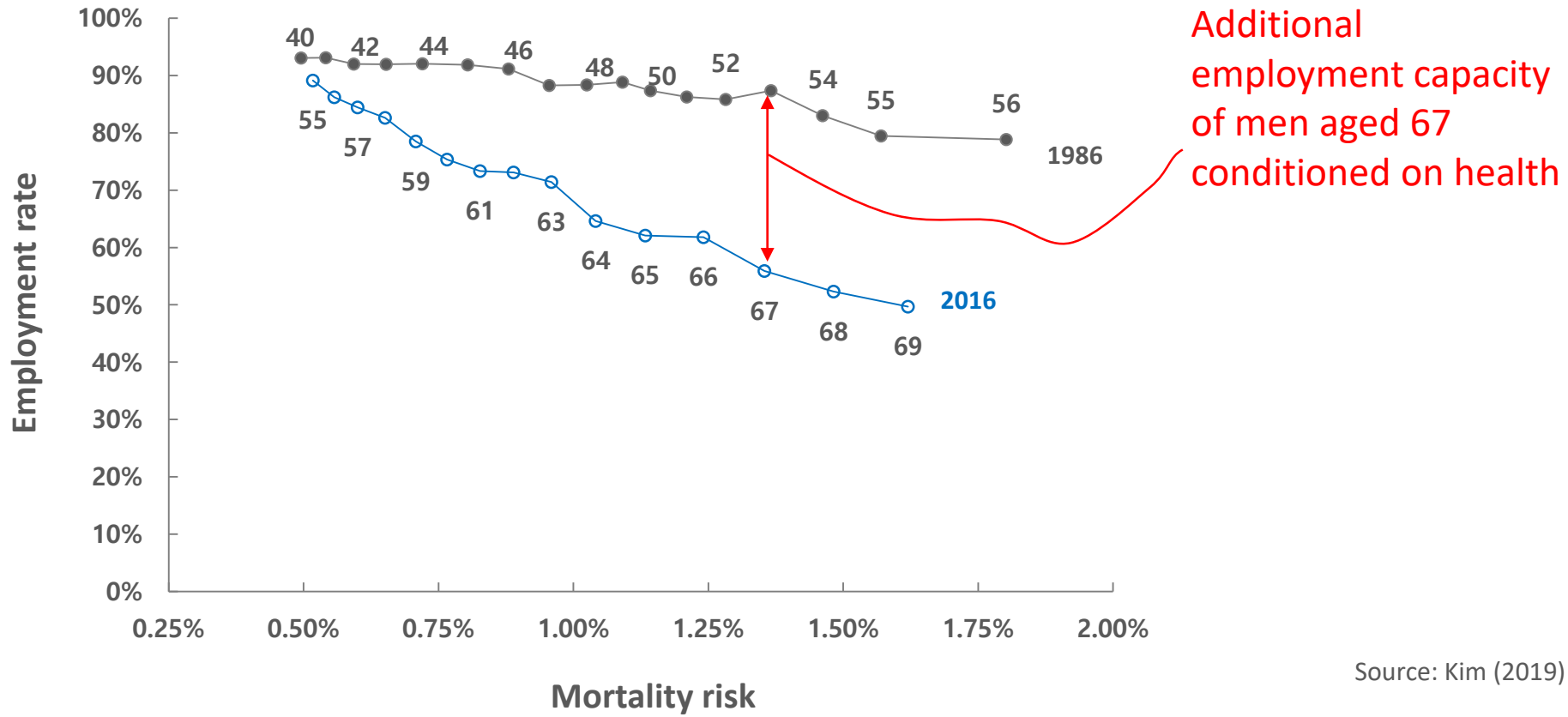
- Men’s chance of dying within one year (mortality risk)



Source: Statistics Korea (2018)

Health capacity to work among older men

- Men's employment–health relationship



Source: Kim (2019)

“Working Longer” pension policy in Korea

- Pensionable age
  - The 2007 legislation: **Rise in pensionable age**
    - 60 before 2013 (those born before 1953)
    - 61 in 2013 (1953-56 cohorts)
    - …
    - 65 on and after 2033 (those born after 1968)
- Earnings test
  - Pension reduction for earnings above a threshold
  - For the first five years from the pensionable age
  - The 2015 legislation: **Mitigate the labor disincentive of earnings test**

What we do

- Evaluate the employment effects of the 2015 reform of the National Pension (NP)
  - Affected those born on and after July 29, 1954
- Employ regression discontinuity (RD) design
  - Control group: Those born just before July 29, 1954
- Use registry from the Unemployment Insurance (UI)
  - Exact date of birth
  - Employment history
  - Covers workers aged 60-65 (unlike the NP registry)

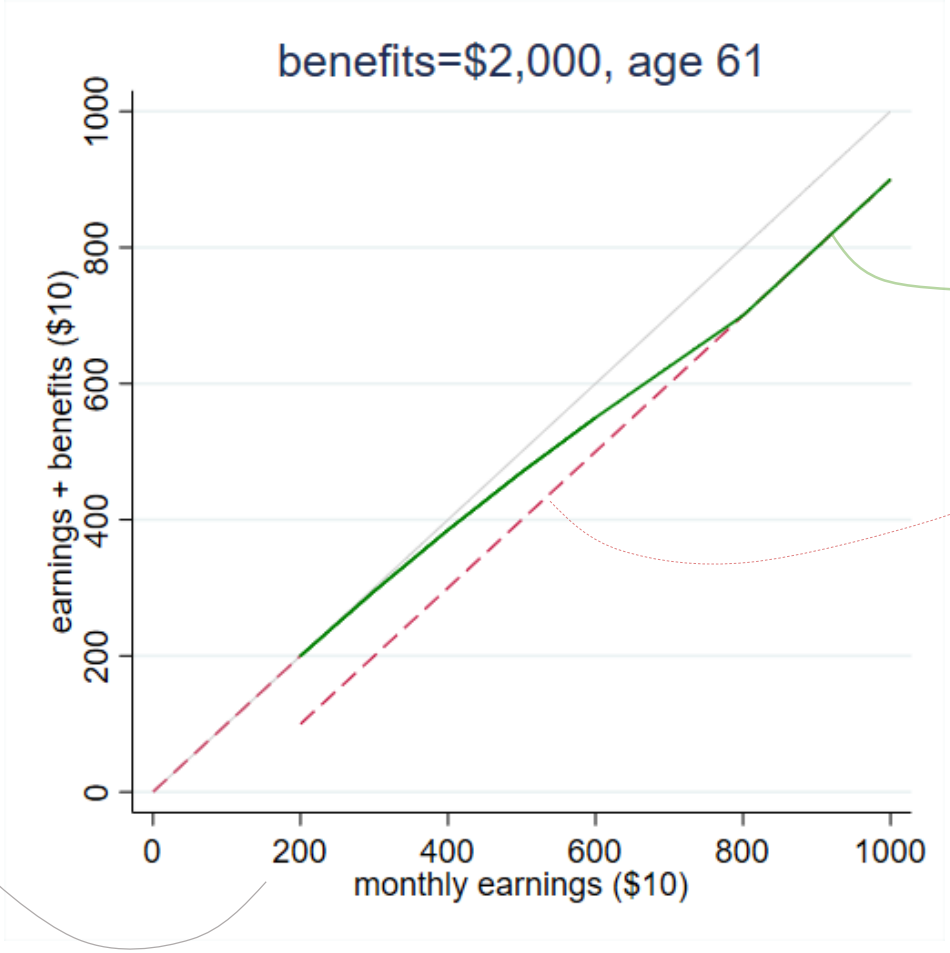
Old penalty scheme

- Penalty depending on age
  - ↓50% benefits for 60-year-olds having earnings above threshold
  - ↓40% for 61-year olds having excess earnings
  - …
  - ↓10% for 64-year olds having excess earnings
- Concern for work disincentive from the penalty
  - The 2015 legislation: Enhance work incentive

New penalty scheme

- Penalty depending on excess earnings
- Marginal tax rate schedule
  - 5% for the first $1,000 above the threshold
  - 10% for the next $1,000
  - 15% for the next $1,000
  - 20% for the next $1,000
  - 25% for earnings above (threshold + $4,000)
- The total amount of cut cannot exceed 50% of the benefits

Changes in the penalty scheme



New scheme

Old scheme

Threshold for earnings test

What can be expected

- The new scheme can be seen as an EITC program
  - For those who are willing to work for earnings above the threshold
- Employment may increase among those who are subject to the new scheme than otherwise
- The new scheme affects
  - Those who are **born on and after July 29, 1954**
  - Those who are **entitled to the benefits**
    - Having contributed for ten or more years to the NP
    - Reach pensionable age of 61

RD setup

- Dependent variable
  - Binary indicators for
    - Being employed at age 62
    - Being employed at age 63
- Running variable
  - Number of days before and after 29th July 1954
    - =0 if born on 29th July 1954
- Nonparametric estimation
  - Local linear
  - Optimal bandwidth

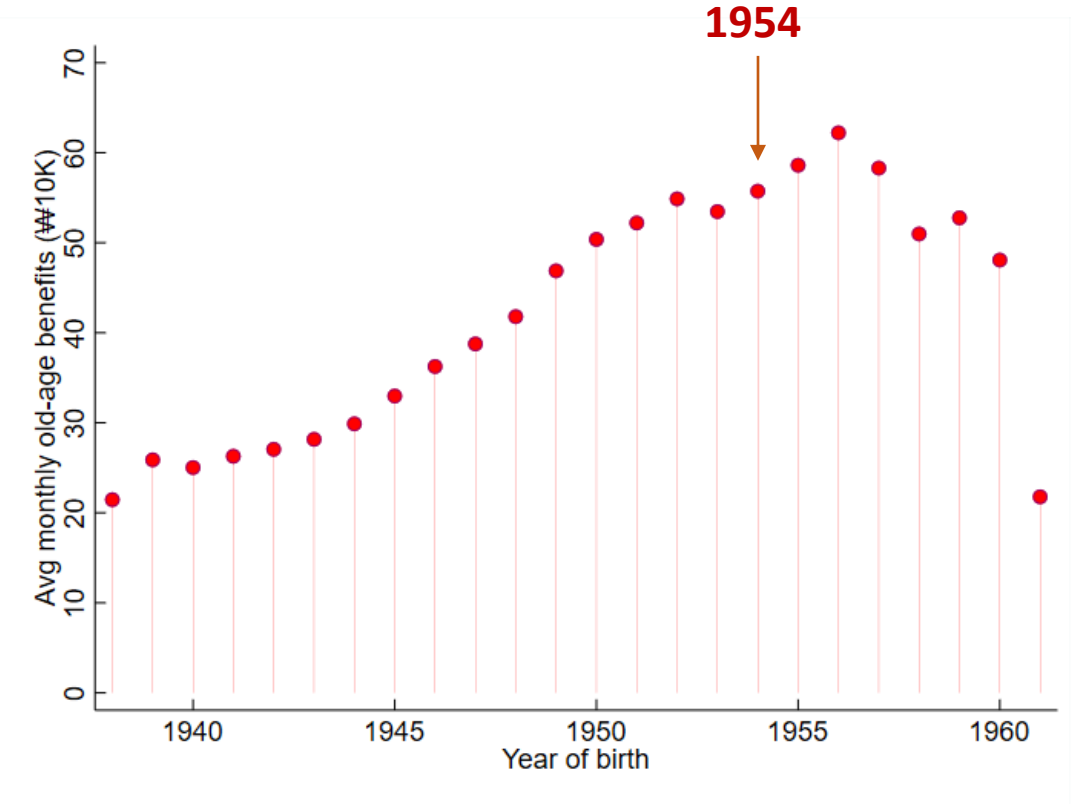
Registry

- Contains information for those who have ever been covered by the unemployment insurance on
  - Exact date of birth
  - Sex
  - Employment history since 1995 (*cf*. The NP introduced in 1988)
  - Wage history (incomplete) until 2018
- Excellent environment for RD design

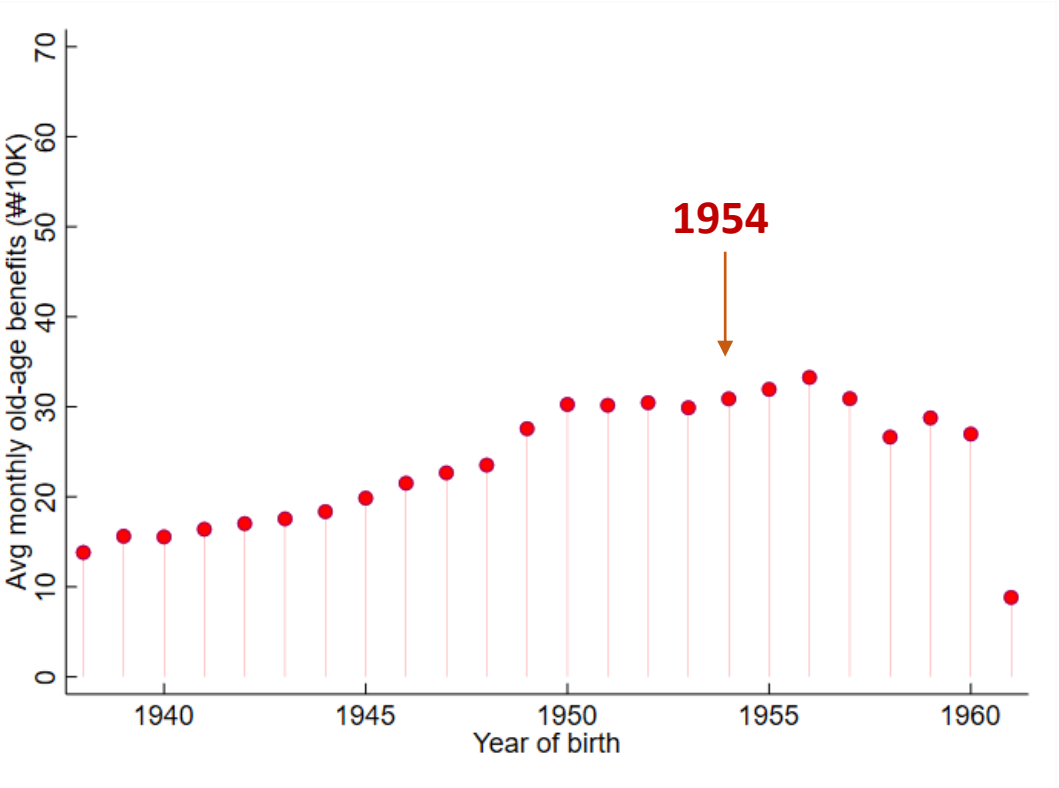
UI Registry

- Exact official date of birth
  - The KLoSA collects all the required information
  - But 85% report birth year and month in terms of lunar calendar
  - The converted Gregorian-calendar date may not be identical to administrative records
- Teachers who are subject to a different pension system are excluded automatically
- More useful than NP registry
  - The NPS does not collect information on working status of pensioners

Average amount of old-age benefits in 2018



Male



Female

Source: NPS

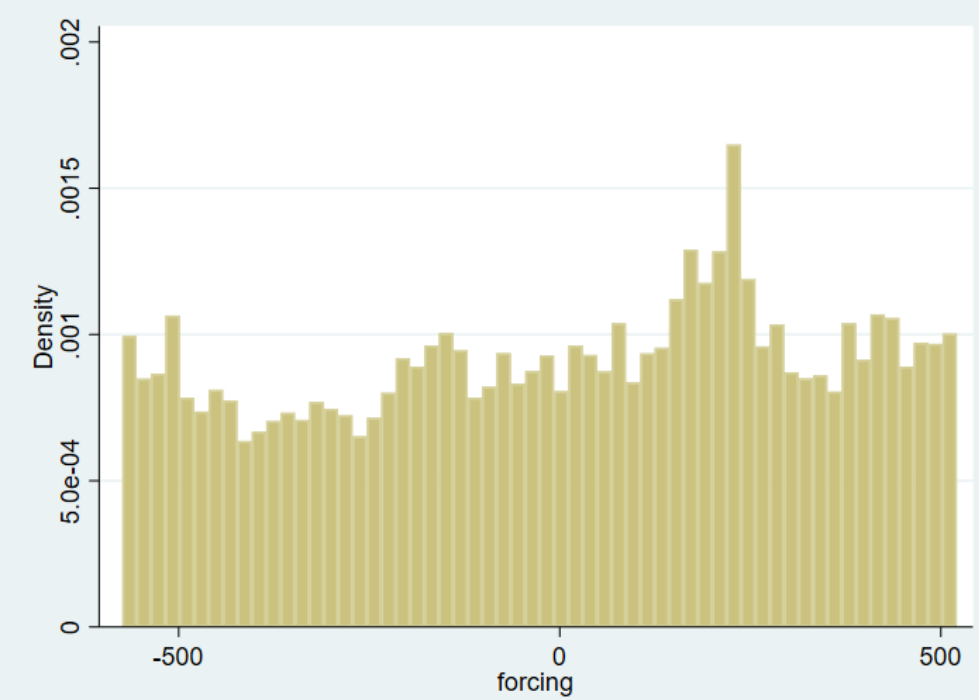
Limitations of data

- No information on
  - hours of work
  - employment outside the formal sector
- Limited information on
  - benefit entitlement (← years of the UI coverage)
  - amount of benefits (←career average of earnings)

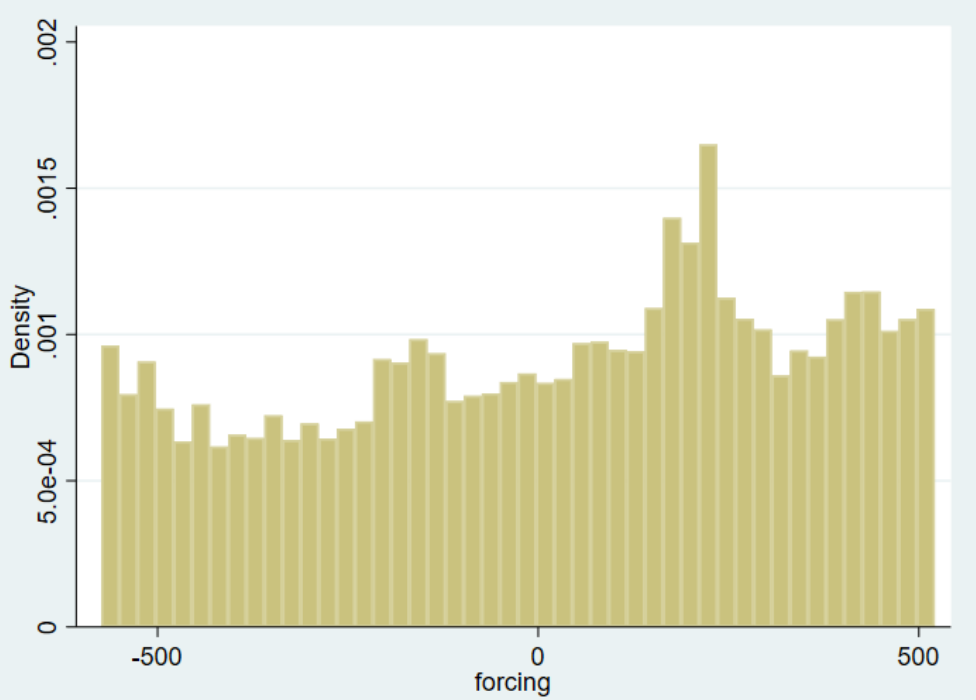
Sample restriction

- Cohorts born between 1953 and 1955
    - Common pensionable age of 61
    - Employment status observable at age 63
- Worked just before their 61st birthday
- UI-covered for at least 10 years before age 59
- Career average earnings above the threshold
    - Construct 2015-constant lifetime earnings before age 59

Distribution of running variable, Male

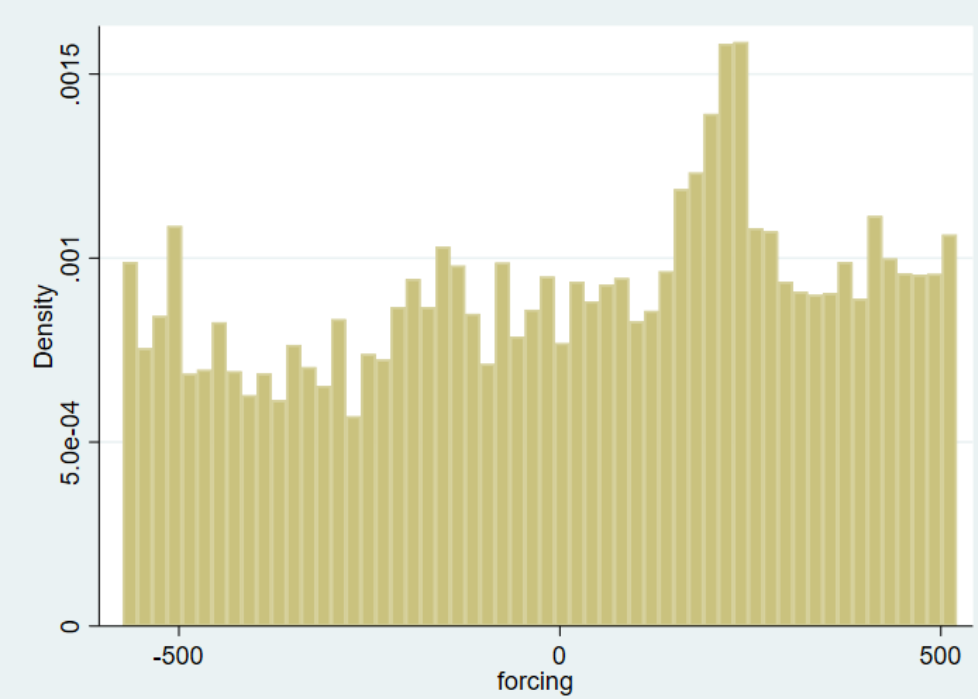


Full male sample
(N=660,632)

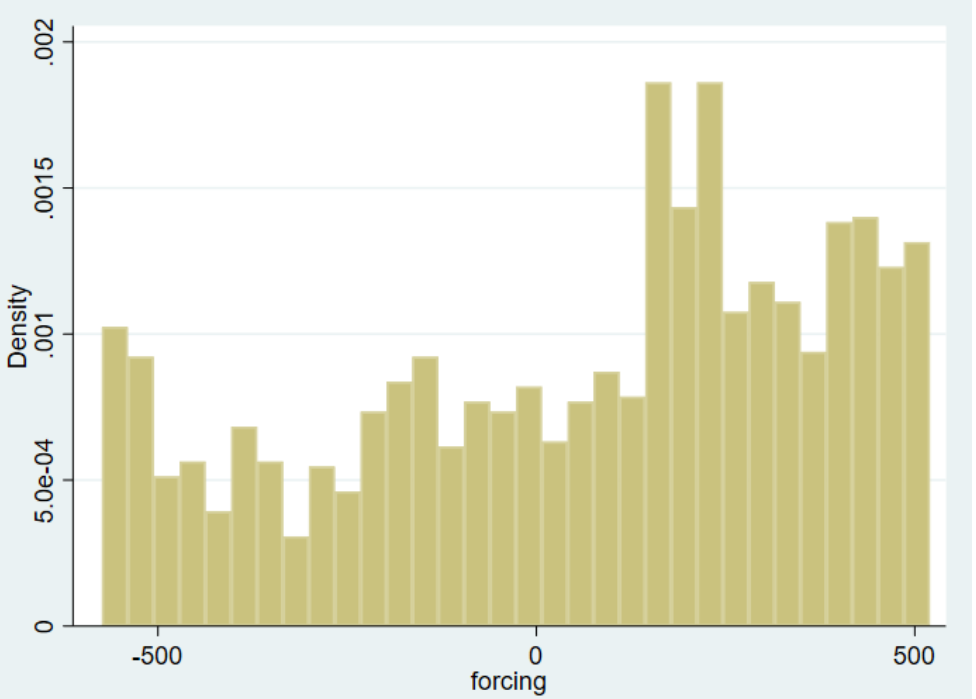


Restricted male sample
(N=48,897)

Distribution of running variable, Female

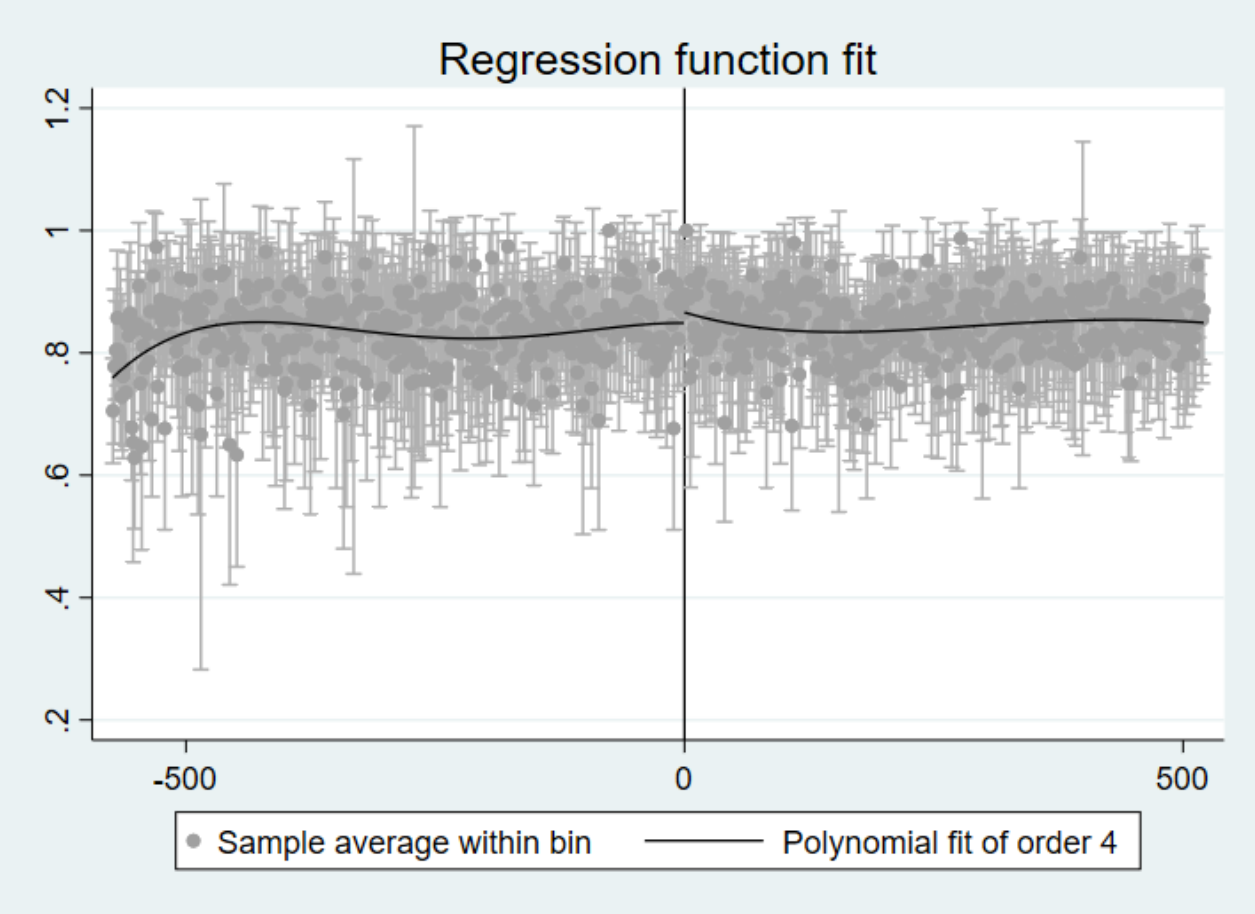


Full female sample
(N=451,501)

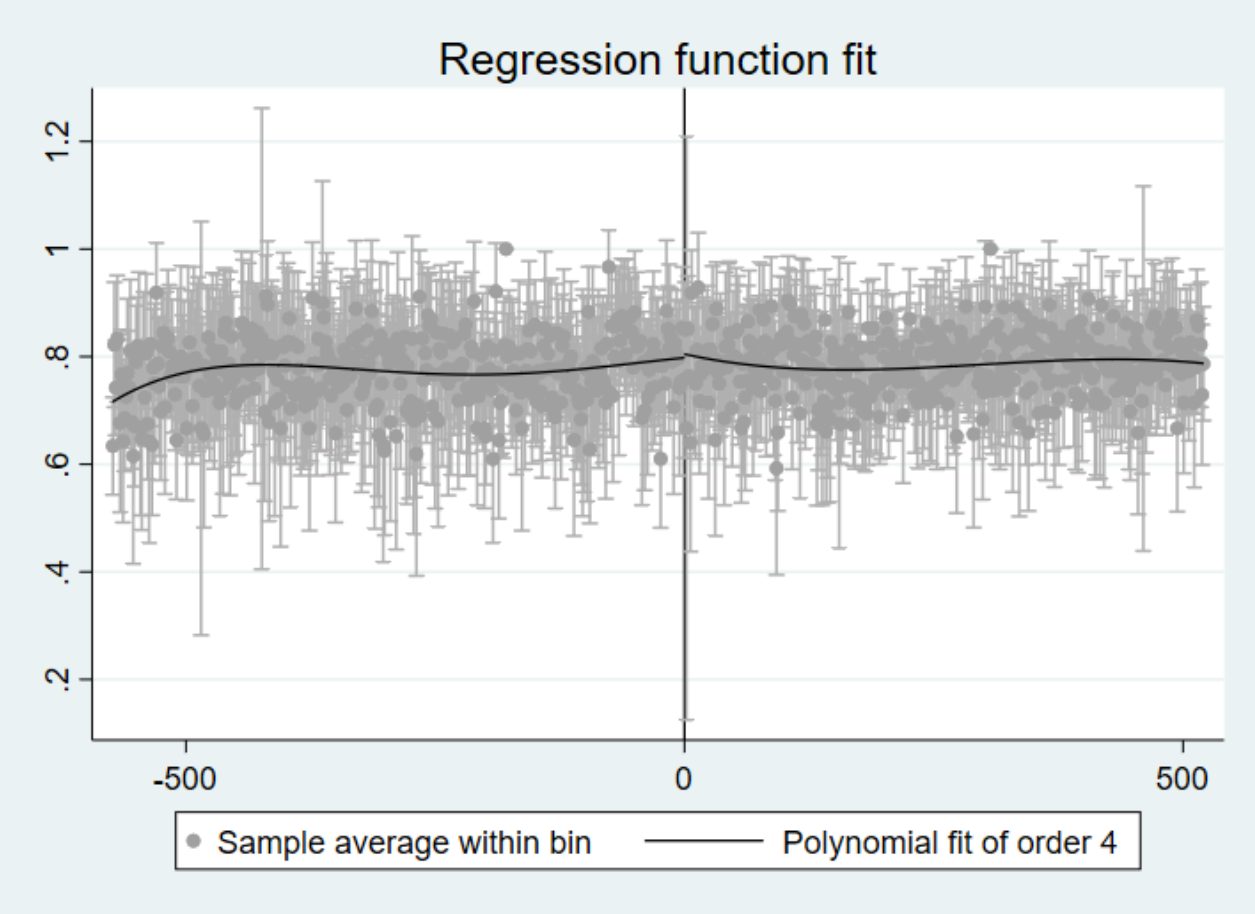


Restricted female sample
(N=1,713)

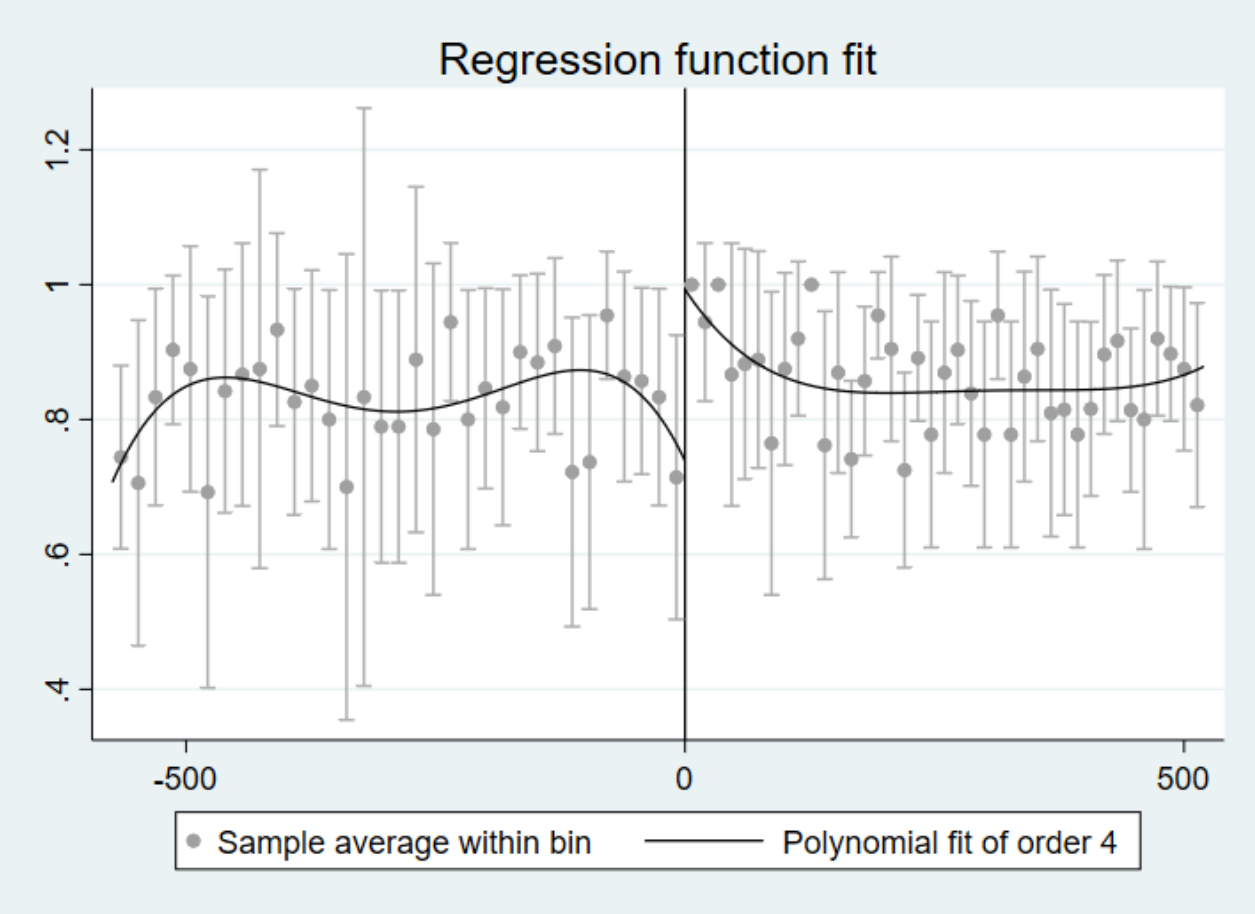
RD Plots: Employed at age 62, Male



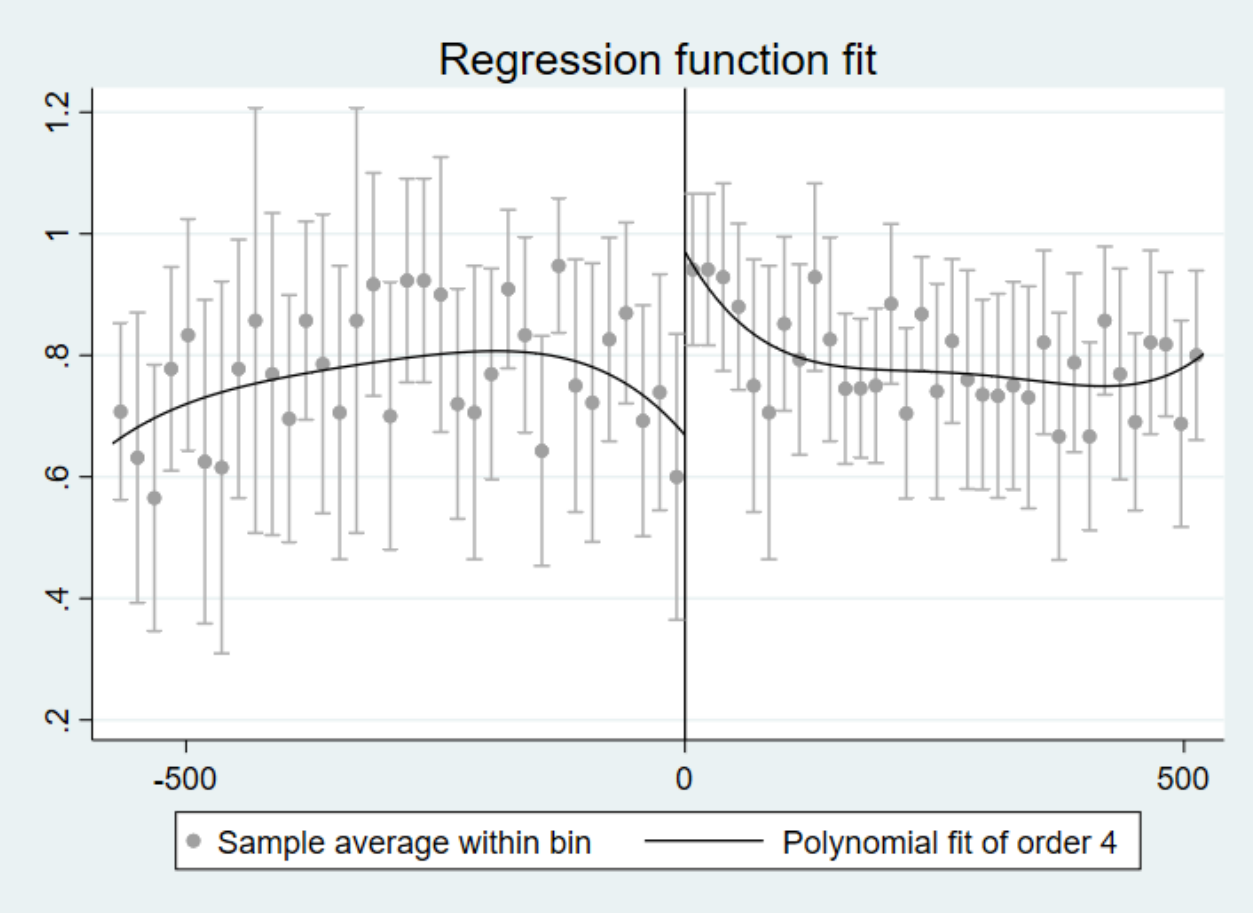
RD Plots: Employed at age 63, Male



RD Plots: Employed at age 62, Female



RD Plots: Employed at age 63, Female



Nonparametric estimates for male pensioners

	y	Coefficient	S.E.	p	bandwidth	N
(1)	Employed at 62	**.0119**	.0182	**0.512**	113	35,014
(2)	Employed at 62	**.0125**	.0210	**0.551**	80 (L) / 95 (R)	35,014
(3)	Employed at 63	**-.0083**	.0190	**0.661**	130	35,014
(4)	Employed at 63	**-.0017**	.0200	**0.932**	92 (L) / 163 (R)	35,014

Note: One-common MSE-optimal bandwidth is used for rows (1) and (3),
and two-different MSE-optimal bandwidth was used for rows (2) and (4).

Nonparametric estimates for female pensioners

	y	Coefficient	S.E.	p	bandwidth	N
(1)	Employed at 62	**.1757**	.0663	**0.008**	172	1,713
(2)	Employed at 62	**.2031**	.0745	**0.006**	146 (L) / 117 (R)	1,713
(3)	Employed at 63	**.2597**	.0802	**0.001**	164	1,713
(4)	Employed at 63	**.3051**	.0888	**0.001**	147 (L) / 117 (R)	1,713

Note: One-common MSE-optimal bandwidth is used for rows (1) and (3),
and two-different MSE-optimal bandwidth was used for rows (2) and (4).

Findings

- Pension reform has large positive effects on the employment of female pensioners
  - Increases employment rate at 62 by 17-20%p
  - Increases employment rate at 63 by 26-30%p
    - Conditional on being employed just before the pensionable age
  - Can be a movement from informal to formal sector
- Small, insignificant effects on male pensioners
  - Increases employment rate at 62/63 by 1%p
    - Conditional on being employed just before the pensionable age
    - Statistically insignificant
  - Effects may have occurred along intensive margins
  - May have deferred claiming a pension when the earnings test bound

Policy implications

- Labor supply of older people is sensitive to incentive scheme
- The existing penalty scheme may affect increasing number of pensioners
  - The number of pensioners is increasing
  - The amount of benefits (hence the penalty) is increasing too

Case for complete removal

- Equity
  - Age discrimination
  - Excessive retirement income?
    - Adequacy of retirement income cannot be judged by gov’t
  - Redistribution vs. Penalty
    - Redistribution mechanism already embedded in NP
    - Penalty scheme does not provide the benefit of insurance
  - Equity locally achieved, at best
    - Capital income is not considered
    - Within society vs. Within pension system
- Consistency in policies
  - Work longer, but do not earn too much?

References

Kim, Dohyung (2019), Health Capacity to Work at Older Ages in South Korea: Estimates and Implications for Public Pension Policies, **KDI Journal of Economic Policy 41**(2): 41-58.

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