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Does raising the retirement age make peole work longer?

Evidence from pension age reform in Estonia in the 2000s

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Background and motivation

- Demographic ageing is raising the pressure on the fiscal sustainability of public pension systems
- A widely used measure for relieving this pressure is to raise the age which pensions can be drawn
  - Nearly all EU member states have have raised their statutory pension age or are in the process of doing so; nine EU countries have linked further rises of in the pension age automatically to advances in life expectancy
- The purpose of the pension age reforms is twofold:
  - To reduce current and future pension expenditures
  - To increase the labour supply of older persons and generate additional tax revenue
- Although pension age reforms are common, there are only a few studies into their actual LM outcomes

Why should the change in pension age have an effect on labour market decisions?

- There is a variety of mechanisms at work:
  - Lifetime social security wealth is reduced
    - – work longer to make it up
  - Current incomes are reduced
    - – replacement income from work (if there are no large assets to draw down)
  - Anchoring of LM decisions
    - – change in statutory pension age may serve as a signal
  - Age-specific tax incentives change
- There are many other factors at work (economy, cohort flow, other social security schemes, etc.)
- Context matters (explanations for variation in LM outcomes)

Previous empirical studies

- The effect of policy change is usually estimated by means of difference-in-differences (DD) approach:
  - Focus on age bracket affected by pension age reform
  - Does the LM behaviour of individuals in that age bracket differ depending on whether they were below or above pension age?
  - Technically dummy treatment variable „below retirement“ age, essentially comparison of pre- and post-reform cohorts

Study	Change in pension age	Gender and age bracket Analysed	Crude change in empl rate	Policy-related DD change in empl rate	% change attributed to policy reform
Staubli & Zweimüller (2013): **Austria**	M 60>62 F 55>58.5	M 57-64 F 52-59	+19% +25.4%	+9,75% +11%	51% 43%
Cribb et al.(2016): **UK**	F 60>62	F 60	+10%	+6.3%	63%
Vestad (2013): **Norway**	MF64>62	MF63	-34.1%	-27,1%	79%
Rabaté & Rochut (2019): **France**	MF60>61	MF60-61	...	+21%	...

Our study: research questions

- How did persons, whose entitlement to an old-age pension was postponed because of pension age reform, responded to the change?

  To what extent did they stay in *employment* longer, claimed *unemployment* benefits, or withdraw from the labour market (became *economically inactive*)?

- How did the responses of individuals vary according to socio-demographic characteristics (education, immigrant status, urban-rural residence)?

  Did sub-groups with worse labour market performance show greater difficulties in staying longer in employment?

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Data and analytical approach

- Data sources:
  - Pension register => receipt of pensions (different schemes)
  - Tax register (social tax payments) => LM status of individuals (employed, unemployed(benefit recipient); inactive)
  - Population register => country of residence (Estonia), deaths
  - Census => socio-demographic characteristics (education, immigrant status, urban-rural residence, marital status)
- Time period: 2001–2011, LM status with monthly accuracy
- Study population: women born in 1943–1952 (men were not affected by the reform in the period of study)
- Method: difference-in-differences approach; effects of changes in both early and normal old-age pension, linear probability models (main effects and interactions).
- Caveat: LM statuses constructed from administrative data

Normal and early pension age, Estonia, women born from 1943 to 1952

Birth cohort	Age of normal retire-ment	Year of reaching normal retirement age	Age of early retire-ment	Year of reaching early retirement age
1943	58	2001	56	2000
1944	58.5	2002(II)-2003(I)	56	2000
1945	59	2004	56	2001
1946	59.5	2005(II)-2006(I)	56.5	2002(II)-2003(I)
1947	60	2007	57	2004
1948	60.5	2008(II)-2009(I)	57.5	2005(II)-2006(I)
1949	61	2010	58	2007
1950	61.5	2011(II)-2012(I)	58.5	2008(II)-2009(I)
1951	62	2013	59	2010
1952	62.5	2014(II)-2015(I)	59.5	2011(II)-2012(I)

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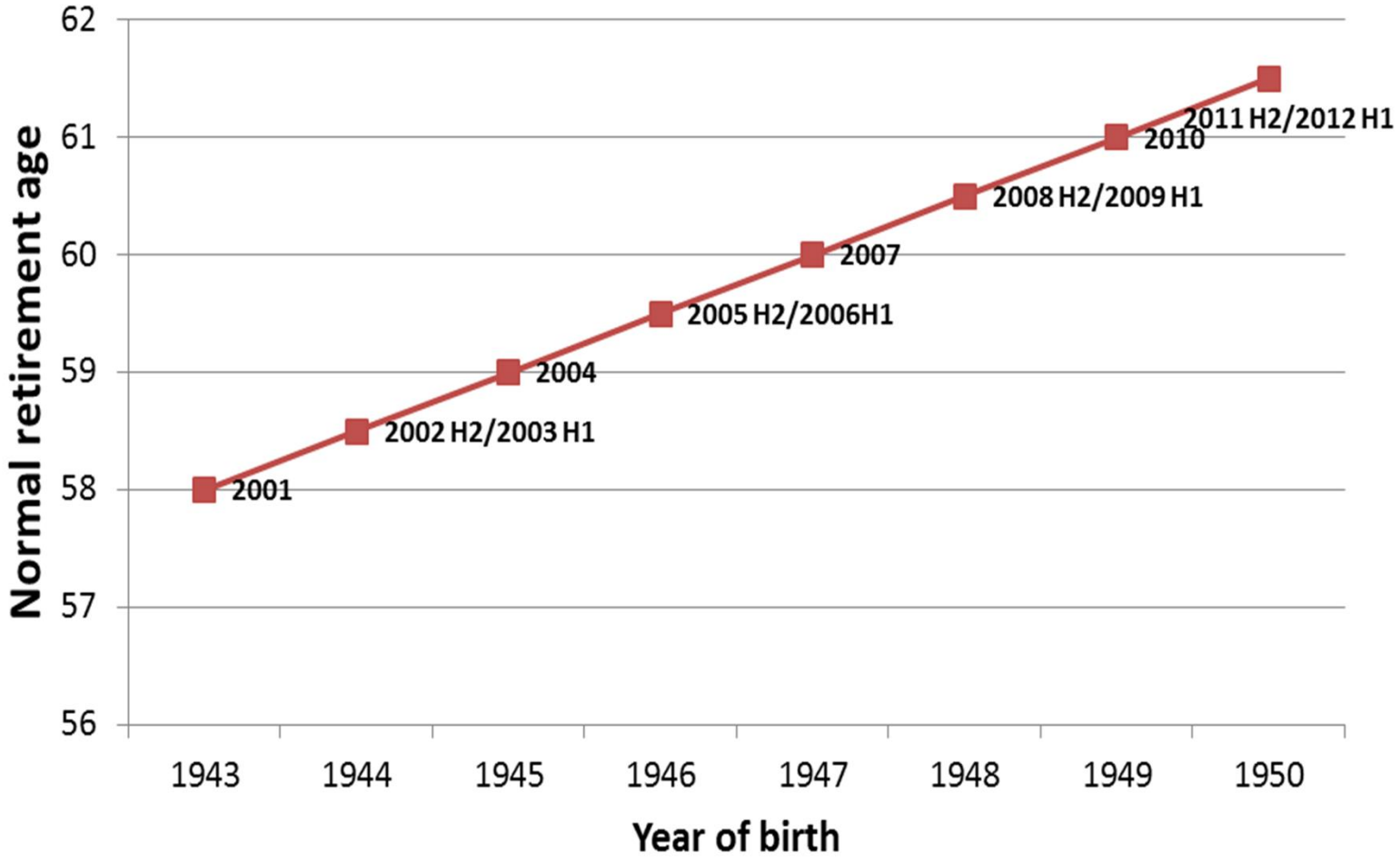
Normal pension age, Estonia, women born from 1943 to 1950



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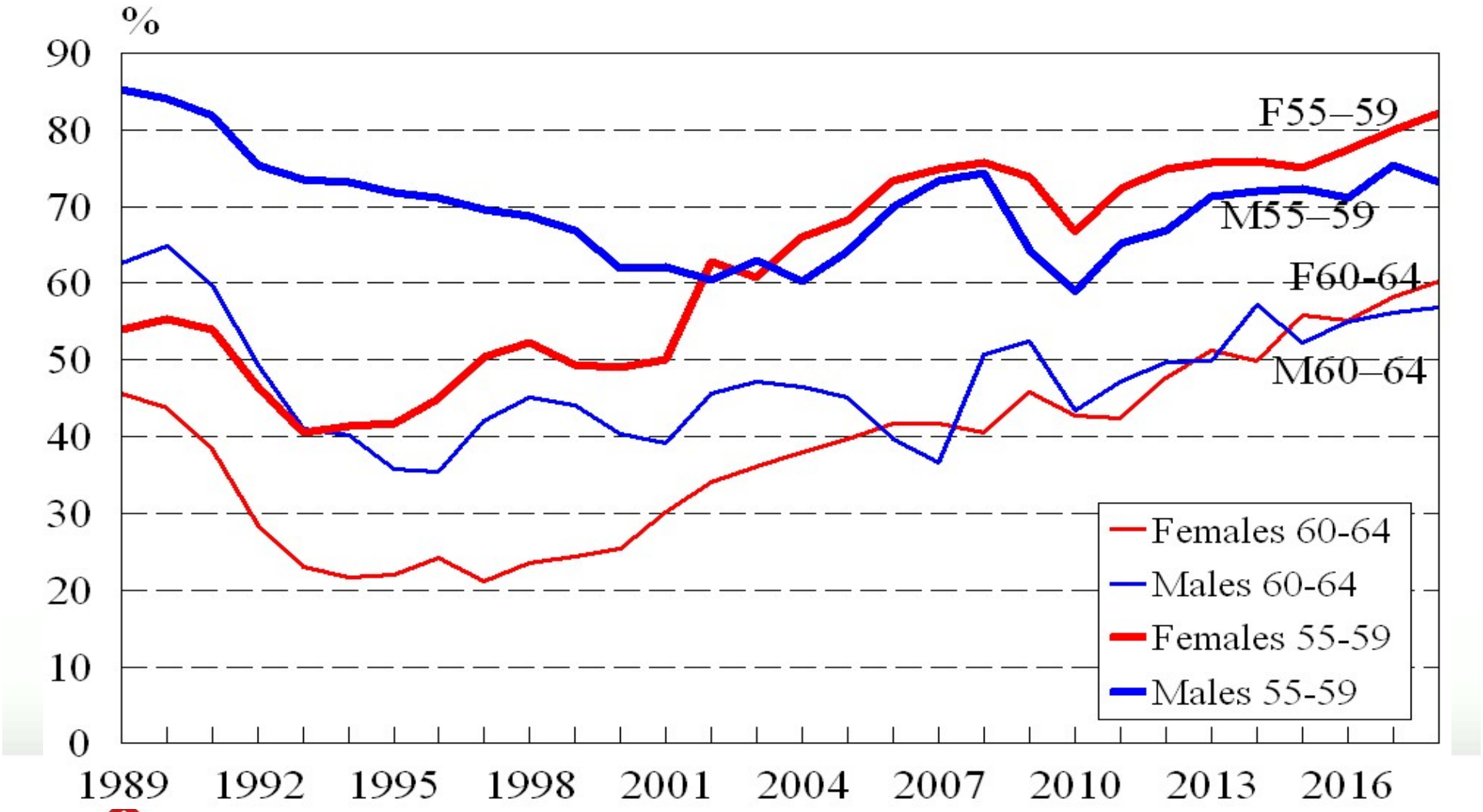
Employment rates: women and men aged 55–64
Estonia, 1989–2018



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Results

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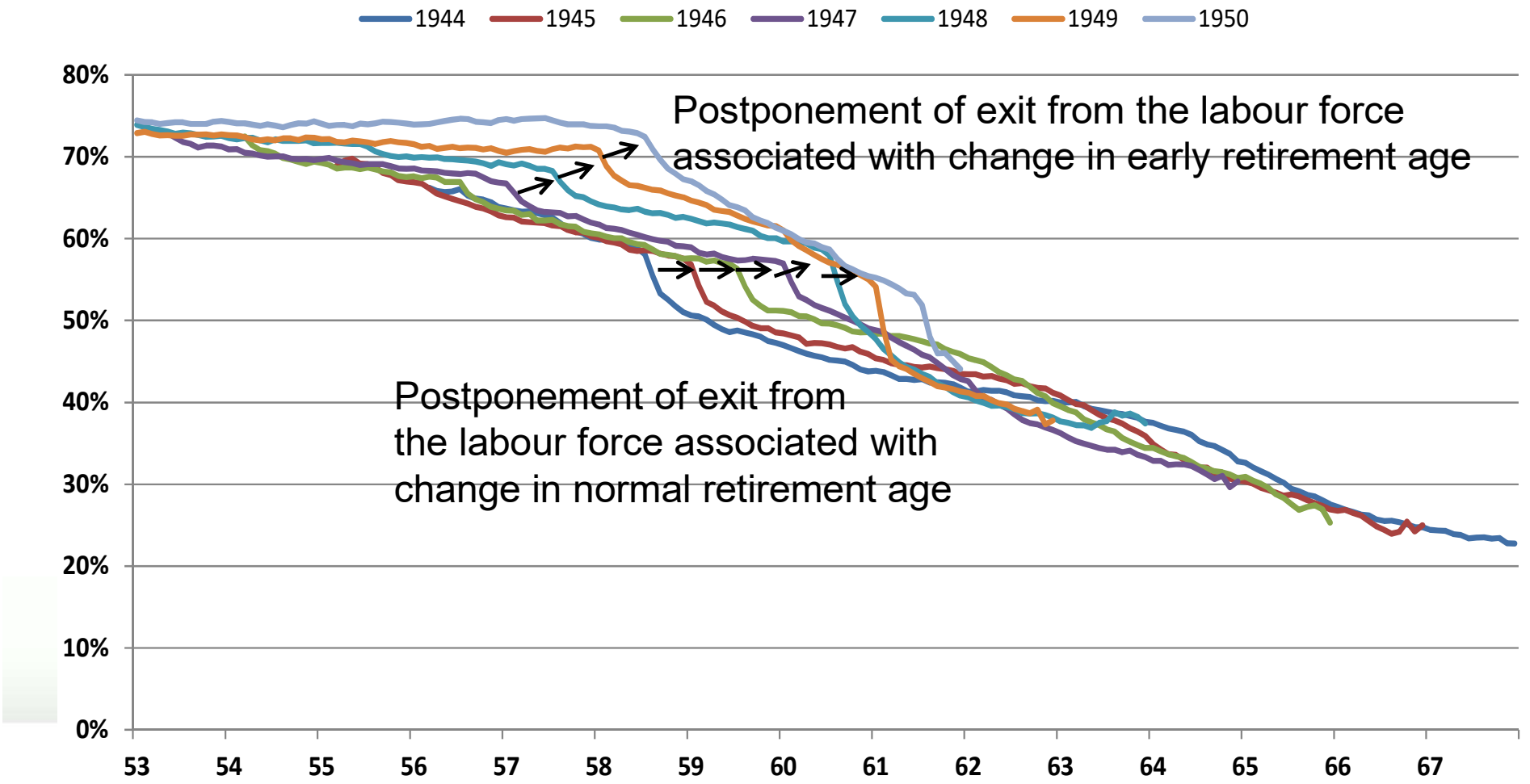
Descriptive results: age-specific activity rates Estonia, women born from 1944 to 1950



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Descriptive results: change in the LM status Estonia, women born from 1943 to 1952

Labour market status, %	Age 58-61: 2001	Age 58-61: 2011	Change 2001-2011	Age 56-59: 2001	Age 56-59: 2011	Change 2001-2011
In the labour force	44	64	**+20**	57	75	**+18**
Employed	44	59	**+15**	56	67	**+11**
Unemployed (registered)	0	5	**+5**	1	8	**+7**
Economically inactive	56	36	**-20**	43	25	**-18**

Note: These estimates aggregate the influence of all factors, not just the effect the pension age reform

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Model

$$y_{it} = \alpha BRA_{ict} + \sum_t \delta_t T_t + \sum_a \delta_a A_{\ a} + \sum_c \delta_c C_{\ c} + \beta X_i + \varepsilon_{ict}$$

- Random effects GLS linear probability model
- Dependent variable y_{it} -- being in the specified ML state (e.g. employed) in the month of observation
- Independent (treatment) variable BRA_{ict} -- being below normal [or early] retirement age in the month of observation
- Controls (added in a stepwise fashion):
  - Model M1: quarterly time dummies T_t for business cycle effects; quarterly age dummies A_a for age effects
  - Model M2: M1+ cohort dummies $C_{\ c}$ (two-year specification)

The effect of normal retirement age (NRA) increase on employment, unemployment and inactivity Estonia, women born from 1943 to 1950

	M1	M2	M3	M4	M5
Effect of being below NRA on employment	0.042*** (0.002)	0.041*** (0.002)	0.042*** (0.002)	0.041*** (0.002)	0.041*** (0.002)
Effect of being below NRA on unemployment	0.027*** (0.001)	0.027*** (0.001)	0.027*** (0.001)	0.027*** (0.001)	0.027*** (0.001)
Effect of being below NRA on inactivity	-0.069*** (0.002)	-0.068*** (0.002)	-0.069*** (0.002)	-0.068*** (0.002)	-0.068*** (0.002)
Random effects	yes	yes	yes	yes	no
Fixed effects	no	no	no	no	yes
Individual controls	no	no	yes	yes	no
Monthly observations	2,669,120	2,669,120	2,574,068	2,574,068	2,647,351
Individuals	57,512	57,512	55,428	55,428	57,033

Note: The working data cover women born between 1943 and 1950, aged 58–61 at the time of observation.

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The effect of early retirement age (ERA) increase on employment, unemployment and inactivity Estonia, women born from 1945 to 1952

	M1	M2	M3	M4	M5
Effect of being below ERA on employment	0.025*** (0.001)	0.023*** (0.001)	0.024*** (0.001)	0.024*** (0.001)	0.023*** (0.001)
Effect of being below ERA on unemployment	0.015*** (0.001)	0.015*** (0.001)	0.015*** (0.001)	0.015*** (0.001)	0.015*** (0.001)
Effect of being below ERA on inactivity	-0.040*** (0.001)	-0.038*** (0.001)	-0.039*** (0.001)	-0.038*** (0.001)	-0.038*** (0.001)
Random effects	yes	yes	yes	yes	no
Fixed effects	no	no	no	no	yes
Individual controls	no	no	yes	yes	no
Monthly observations	2,994,975	2,994,975	2,834,231	2,574,068	2,647,351
Individuals	63,156	63,156	60,747	60,747	62,626

Note: The working data cover women born between 1945 and 1952, aged 55–59 at the time of observation.

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The effect of normal retirement age (NRA) increase on employment, interacted with education Estonia, women born from 1943 to 1950

	M5
Effect of being below NRA on employment	0.041*** (0.002)
Interaction of being below NRA and education (relative to the treatment effect of primary/basic educ.)	
Secondary*below NRA	0.004 (0.005)
Post-secondary non-tertiary*below NRA	-0.004 (0.005)
Tertiary*below NRA	-0.000 (0.005)
Random effects	yes
Fixed effects	no
Individual controls	yes
Monthly observations	2,574,068
Individuals	55,428

Note: The working data cover women born between 1943 and 1950, aged 58–61 at the time of observation.

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The effect of normal retirement age (NRA) increase on employment, interacted with area of residence Estonia, women born from 1943 to 1950

	M6
Effect of being below NRA on employment	0.042*** (0.002)
Interaction of being below NRA and area of residence (relative to the treatment effect of urban areas) Rural*below NRA	-0.003 (0.003)
Random effects	yes
Fixed effects	no
Individual controls	yes
Monthly observations	2,574,068
Individuals	55,428

Note: The working data cover women born between 1943 and 1950, aged 58–61 at the time of observation.

The effect of normal retirement age (NRA) increase on employment, interacted with nativity Estonia, women born from 1943 to 1950

	M7
Effect of being below NRA on employment	0.044*** (0.002)
Interaction of being below NRA and nativity (relative to the treatment effect of natives)	
First generation immigrants*below NRA	-0.005 (0.004)
Second generation immigrants*below NRA	-0.017***(0.006)
Random effects	Yes
Fixed effects	no
Individual controls	yes
Monthly observations	2,574,068
Individuals	55,428

Note: The working data cover women born between 1943 and 1950, aged 58–61 at the time of observation.

Summary of the findings

- Increasing the pension age does make people to stay longer in the labour force but the reform accounts for a relatively small part of the overall increase in activity rates in Estonia
  - 35% of the change in the age groups affected by NRA increase
  - 22% of the change in the age groups affected by ERA increase
- The relative contribution of the reform to the overall increase in activity rates appears smaller than in Western European settings (43%...79%).
  - We ascribe it to contextual features (low pension expenditures, lack of disincentives to working while drawing the pensions, high risks of poverty among older persons, etc.).
- Quite sizeable spill-over effects can be observed
  - For both NRA and ERA, two fifths (39%) of reform-related increase in activity is driven by increase unemployment in unemployment
- The effect of pension age reform do not vary much across sub-groups of the population

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Aitäh kuulamast!

Käsikiri retsenseerimisel ajakirjas Journal of Pension Economics and Finance

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