

# **The effects of pension rights and retirement age on training participation**

## **Evidence of a natural experiment**

Raymond Montizaan, Frank Cörvers and Andries de  
Grip

Maastricht University



# Structure presentation

- **Literature overview**
- **Reform pension system**
- **The data**
- **Results**
- **Conclusion**

# Literature

- **HC theory predicts that early retirement systems have a negative effect on HC investments (Becker, 1975, Ben-Porath, 1967, Lau and Poutvara, 2001)**
- **Only a few empirical studies on the relationship between early retirement and training**
  - Focus on pension coverage and training
  - Focus on mortality rates and investments

# Contribution of this paper

- **Contribution of this paper:**
  - Directly measuring the relationship between early retirement and training investments
  - Natural experiment (causality)

# The Dutch pension system (background experiment)

- **Dutch pension system consists of three pillars**
  - State old age pension when 65
  - Supplementary occupational (early) retirement schemes of the defined benefit type
  - Individual savings
- **Early retirement schemes mandatory and paid by both employers and employees**
- **Until 2006 preferential tax treatment**

# Change in pension system for public workers

- **In 2006 the government abolished favorable tax treatment for workers born after 1949**
- **New pension scheme launched for public workers at January 1, 2006:**
  - Workers born before 1950 and who worked continuously since April 1, 1997 remain entitled to old generous pre-pension rights
  - Workers born after 1949 and workers who did not work continuously are subject to less generous system

# Change in pension system for public workers

- **New system characterized by:**
  - Drop in pension wealth
  - Stronger incentives to continue working
  - For an average worker born before 1950: replacement rate of 70% at age of 62.3
  - Worker born after 1949: replacement rate of 64% at age of 62.3 (replacement rate of 70% when 63.5)

# The Data

- **Use of matched survey and administrative data for male employees in the public sector**
- **Final sample:**
  - 3,692 men born in 1950 (treatment group)
  - 3,327 men born in 1949 (control group)
- **Main dependent variables**
  - Participation in 2006 in course of training which was useful for present job
  - Number of hours spent on training course in which employees invested the most time

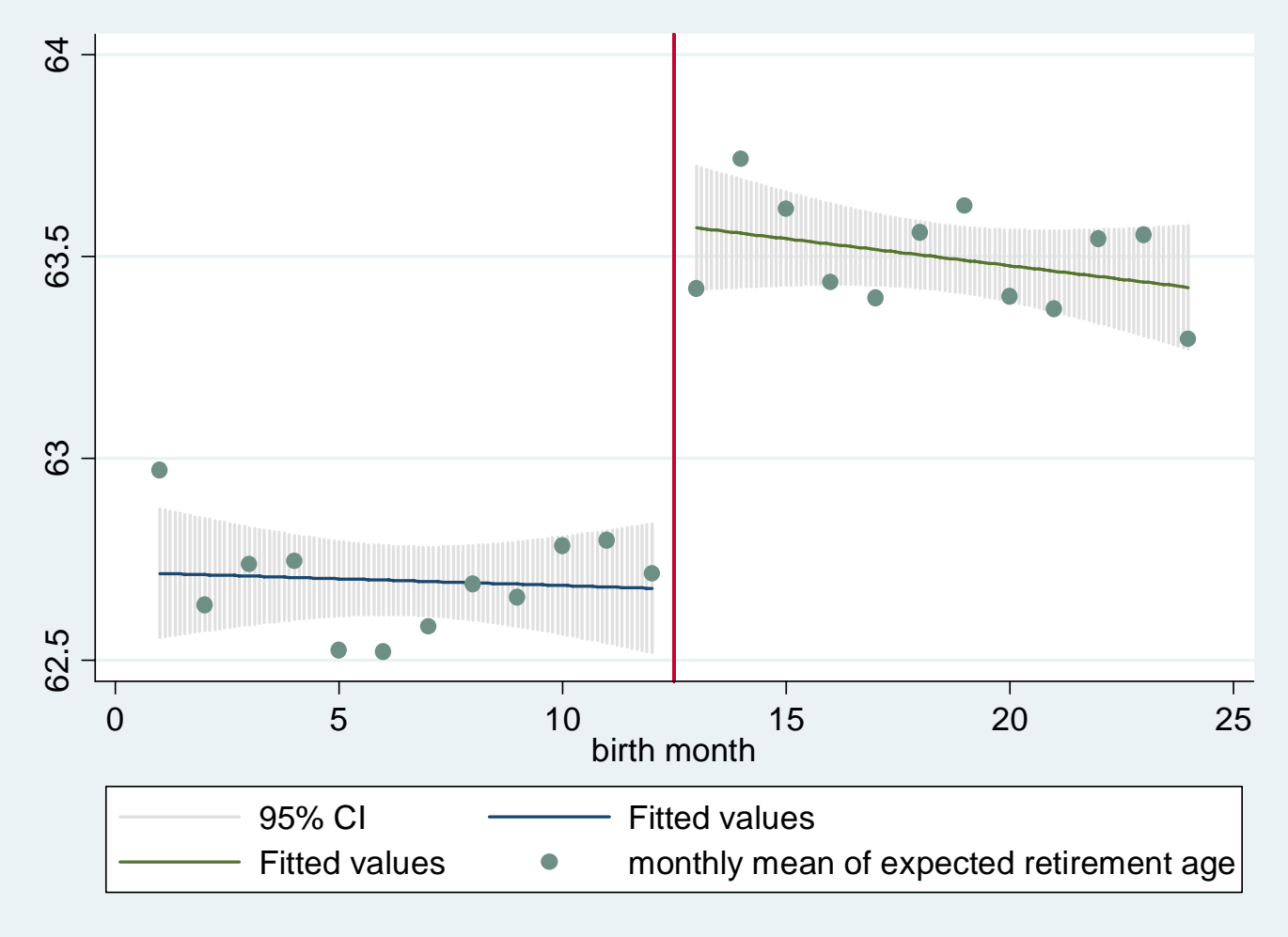


# Experiment

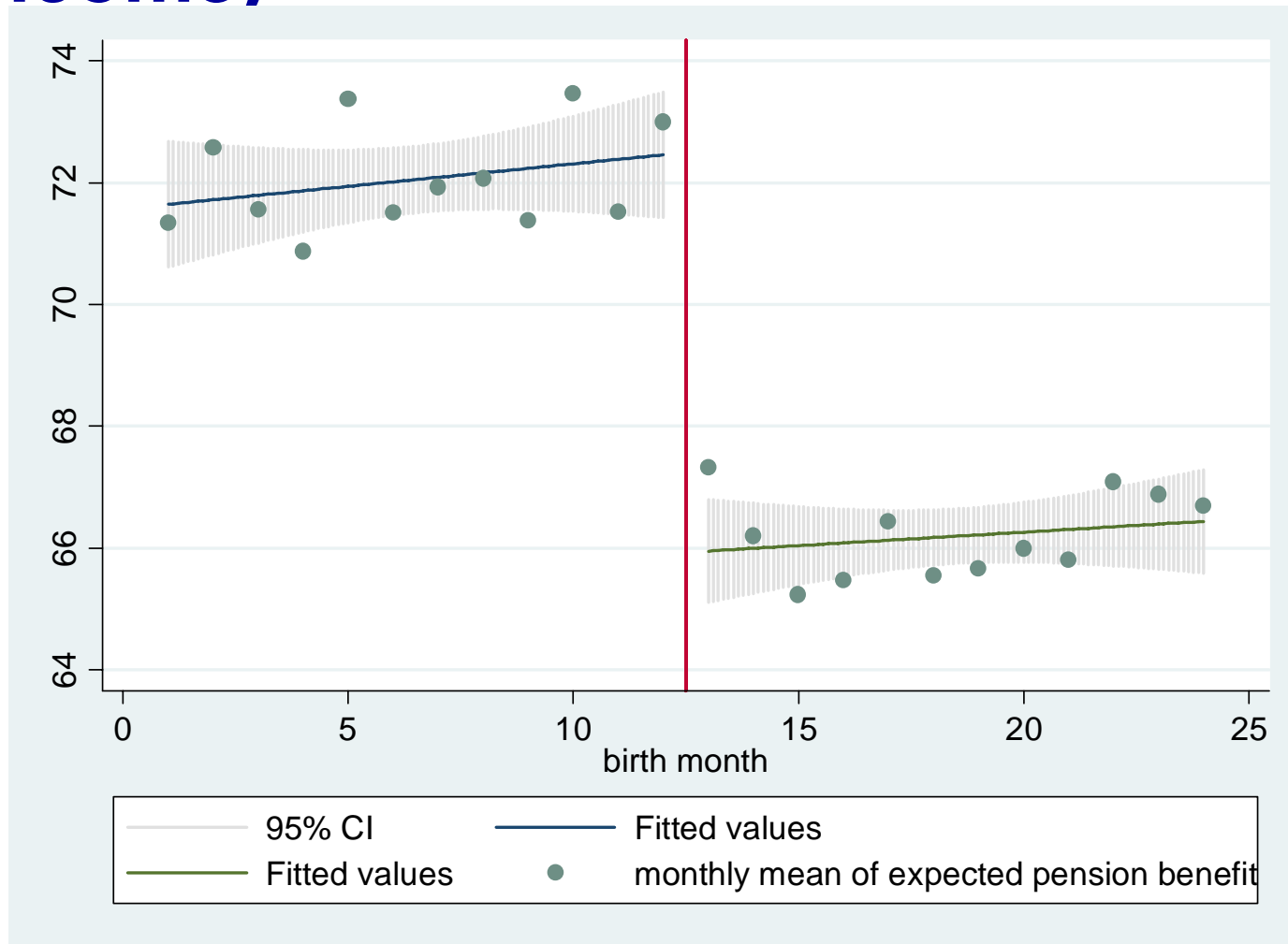
**Comparing training investments of workers  
born just before or after January 1, 1950**



# Validity: Expected retirement age



# Validity: Expected pension benefit at age of 62 (in % of present net wage income)



# The effects of the exogenous shock in the pension system on training participation

# Descriptives

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<b>Dependent variable:</b>	<b>Entire sample</b>	<b>Born in 1949</b>	<b>Born in 1950</b>
Training in 2006	0.56 (0.50)	0.54 (0.54)	0.57 (0.50)
Number of training hours	53.0 (70.2)	51.6 (67.1)	54.1 (72.8)
Number of Observations	7,019	3,327	3,692

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Standard deviations in parentheses



# Exogenous change in pension rights and training participation

Dependent variable:	LPM	LPM	Probit	LPM	LPM
Training participation in 2006	Complete sample	Complete sample	Complete sample	6 months	9 months
<b>Treatment effect</b>	<b>0.032</b>	<b>0.032</b>	<b>0.033</b>	<b>0.026</b>	<b>0.029</b>
	<b>(0.012)</b>	<b>(0.015)</b>	<b>(0.016)</b>	<b>(0.021)</b>	<b>(0.017)</b>
Yearly wage income		0.004	0.005	-0.002	0.001
		(0.006)	(0.007)	(0.009)	(0.007)
Extra pension savings		0.012	0.012	0.043	0.004
		(0.020)	(0.021)	(0.029)	(0.023)
Marital status		0.064	0.065	0.076	0.055
		(0.027)	(0.028)	(0.038)	(0.031)
Constant	0.538	-0.186	-1.809	-0.050	-0.014
	(0.009)	(0.240)	(0.636)	(0.341)	(0.277)
Number of Observations	6,972	4,422	4,422	2,194	3,328

# Exogenous change in pension rights and training hours

	LPM	LPM	Tobit	Tobit
	Large	Large		
<b>Treatment effect</b>	<b>0.019</b>	<b>0.027</b>	<b>4.241</b>	<b>4.873</b>
	<b>(0.009)</b>	<b>(0.012)</b>	<b>(1.514)</b>	<b>(1.880)</b>
Yearly wage income		0.012		0.013
		(0.005)		(0.008)
Extra pension savings		0.016		2.348
		(0.019)		(2.496)
Marital status		0.018		8.825
		(0.021)		(3.456)
Constant	0.190	-0.428		-112.283
	(0.007)	(0.195)		(30.682)
Number of Observations	6,972	4,422	4,422	2,194

# Conclusion

- **Consistent with human capital theory, the shock in the pension system does increase training investments and training hours**
- **Accounting for extra pension savings does not change our results**
- **Is treatment effect persistent over time?**