

WEB APPENDIX
to
The impact of negatively reciprocal inclinations on
worker behavior: Evidence from a retrenchment of
pension rights

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Appendix A

Table A1
Sample selection

| | Number of individuals | | Percentage of population | |
|--|---------------------------|-----------------------------|---------------------------|-----------------------------|
| | Affected by the reform | Unaffected by the reform | Affected by the reform | Unaffected by the reform |
| Population | | | | |
| 2007 | 14,251 | 13,468 | | |
| 2008 | 14,247 | 13,467 | | |
| Sample before selection | | | | |
| 2007 | 4,341 | 4,175 | 30 | 31 |
| 2008 | 3,079 | 2,991 | 22 | 22 |
| Sample after selection employed in the public sector | | | | |
| 2007 | 3,950 | 3,780 | 28 | 28 |
| 2008 | 3,041 | 2,907 | 21 | 22 |
| Sample after selection employed in the public sector and individuals not employed in burdensome jobs | | | | |
| 2007 | 3,753 | 3,591 | 26 | 27 |
| 2008 | 2,910 | 2,781 | 20 | 21 |
| Sample after selection employed in the public sector, individuals not employed in burdensome jobs, and without career breaks since 1997 | | | | |
| 2007 | 3,686 | 3,326 | 26 | 25 |
| 2008 | 2,862 | 2,589 | 20 | 19 |
| Sample after selection employed in the public sector, individuals not employed in burdensome jobs, without career breaks since 1997 and reciprocity is not missing | | | | |
| 2007 | NA | NA | NA | NA |
| 2008 | 2,742 | 2,486 | 19 | 18 |

Source: Own calculations on administrative and survey data.

Table A2**Treatment and job motivation: OLS estimates**

| | (1) | (2) | (3) |
|---|---------------------|---------------------|----------------------|
| Treatment | -0.160** (0.063) | -0.152* (0.084) | -0.151** (0.067) |
| Age | 0.112 (0.079) | 0.128 (0.137) | 0.133** (0.058) |
| Age x Treatment | 0.072 (0.108) | | |
| Age ² | | -0.087 (0.186) | |
| Age ³ | | 0.025 (0.138) | |
| Number of years contributed to the pension fund | | | -0.003 (0.003) |
| Log yearly wage | | | 0.284*** (0.089) |
| Organization size | | | 0.006 (0.015) |
| Married | | | 0.147** (0.061) |
| Negative reciprocity | | | -0.189*** (0.022) |
| Positive reciprocity | | | -0.003 (0.033) |
| Constant | 3.399*** (0.047) | 3.411*** (0.055) | 0.729 (0.985) |
| Observations | 5,287 | 5,287 | 4,524 |

The measures of negative and positive reciprocity used as explanatory variables in the regression reported in Column (3) are constructed by taking the average of the three underlying items. Additional control variables in the regression reported in Column (3) are: educational levels; sector fixed effects. Standard errors are in parentheses. *** < 0.01, ** < 0.05, * < 0.10.

Table A3
Negative reciprocity, treatment and job motivation: Ordered Probit estimates

| | (1) | (2) | (3) | (4) | (5) |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|
| Negative reciprocity x treatment | -0.165** (0.075) | -0.165** (0.075) | -0.166** (0.075) | -0.229** (0.099) | -0.182** (0.080) |
| Positive reciprocity x treatment | -0.066 (0.118) | -0.067 (0.118) | -0.059 (0.119) | 0.025 (0.136) | -0.066 (0.126) |
| Negative reciprocity | -0.107** (0.043) | -0.106** (0.043) | -0.104** (0.049) | -0.071 (0.059) | -0.088* (0.047) |
| Positive reciprocity | 0.043 (0.068) | 0.044 (0.069) | 0.007 (0.078) | -0.037 (0.085) | 0.045 (0.073) |
| Treatment | 0.568 (0.496) | 0.572 (0.497) | 0.538 (0.498) | 0.408 (0.549) | 0.630 (0.530) |
| Age | -0.090 (0.426) | -0.102 (0.432) | -0.075 (0.427) | 0.212 (0.671) | -0.183 (0.458) |
| Age x negative reciprocity | 0.055 (0.065) | 0.055 (0.065) | 0.062 (0.093) | 0.038 (0.097) | 0.057 (0.070) |
| Age x positive reciprocity | 0.021 (0.101) | 0.022 (0.101) | -0.080 (0.143) | -0.054 (0.145) | 0.036 (0.108) |
| Age x Treatment | | 0.017 (0.101) | | | |
| Age ² | | | -0.342 (0.387) | -0.364 (0.388) | |
| Age ² x negative reciprocity | | | 0.001 (0.005) | -0.026 (0.029) | |
| Age ² x positive reciprocity | | | -0.008 (0.008) | 0.027 (0.029) | |
| Age ³ | | | | -0.307 (0.582) | |
| Age ³ x negative reciprocity | | | | -0.001 (0.001) | |
| Age ³ x positive reciprocity | | | | 0.001 (0.001) | |
| Number of years contributed to the pension fund | | | | | -0.003 (0.003) |
| Log yearly wage | | | | | 0.299*** (0.084) |
| Organization size | | | | | 0.003 (0.014) |
| Married | | | | | 0.135** (0.057) |
| Observations | 5,182 | 5,182 | 5,182 | 5,182 | 4,524 |

The measures of negative and positive reciprocity used as explanatory variables in the regressions are constructed by taking the average of the three underlying items. Additional control variables in the regression reported in Column (5) are: educational levels; sector fixed effects. Standard errors are in parentheses. * * * < 0.01, ** < 0.05, * < 0.10.

Table A4**Separate negative reciprocity items, treatment and job motivation: OLS estimates**

| | (1) | (2) | (3) |
|--|---------------------|----------------------|----------------------|
| Interaction treatment and negative reciprocity component | -0.120** (0.061) | -0.203*** (0.074) | -0.051 (0.068) |
| Positive reciprocity x treatment | -0.061 (0.126) | -0.071 (0.124) | -0.058 (0.126) |
| Negative reciprocity item 1 | -0.030 (0.035) | | |
| Negative reciprocity item 2 | | -0.094** (0.043) | |
| Negative reciprocity item 3 | | | -0.118*** (0.039) |
| Positive reciprocity | 0.005 (0.073) | 0.024 (0.072) | 0.012 (0.073) |
| Treatment | 0.458 (0.520) | 0.637 (0.521) | 0.198 (0.524) |
| Age | -0.066 (0.447) | -0.190 (0.445) | 0.162 (0.448) |
| Age x negative reciprocity item 1 | 0.047 (0.052) | | |
| Age x negative reciprocity item 2 | | 0.097 (0.064) | |
| Age x negative reciprocity item 3 | | | -0.016 (0.060) |
| Positive reciprocity x age | 0.017 (0.107) | 0.025 (0.106) | 0.010 (0.107) |
| Constant | 3.488*** (0.302) | 3.566*** (0.301) | 3.683*** (0.303) |
| Observations | 5,202 | 5,208 | 5,200 |

Each regression uses a single item of the 3-item negative reciprocity scale. Column (1) shows the regression results for the statement ‘If I suffer a serious wrong, I will take revenge as soon as possible, no matter what the costs’, Column (2) shows the regression results for ‘If somebody puts me in a difficult position, I will do the same to him/her’ and Column (3) for ‘If somebody offends me, I will offend him/her back’. Standard errors are in parentheses. *** < 0.01, ** < 0.05, * < 0.10.

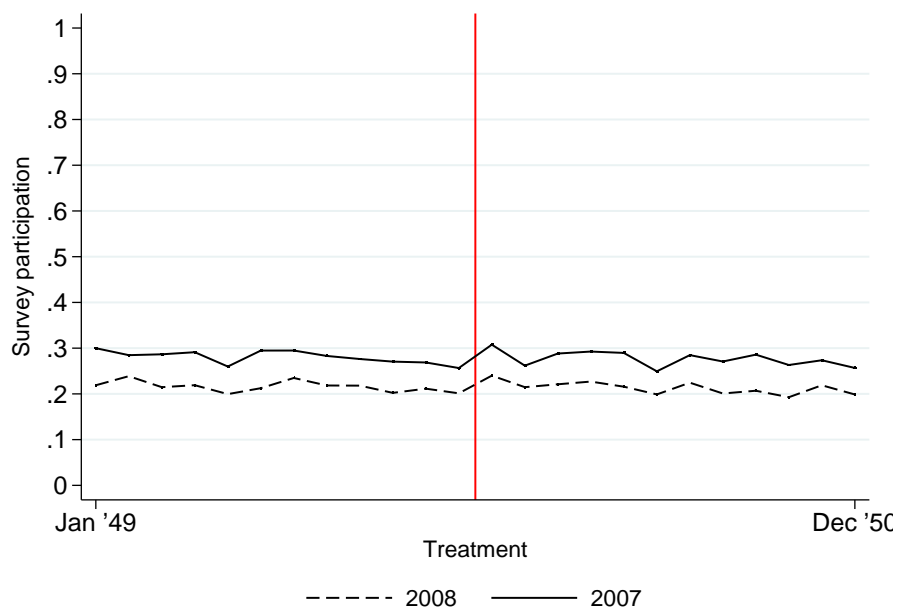
Table A5

Treatment effect on job motivation: Workers with career breaks

| Dependent variable: Job motivation | (1) 1949 | (2) 1949 and 1950 | (3) 1949 | (4) 1949 and 1950 |
|---|----------------------|----------------------|----------------------|----------------------|
| Treatment 1949 x negative reciprocity | -0.104 (0.099) | -0.105 (0.100) | -0.212** (0.108) | -0.197* (0.109) |
| Treatment 1949 x positive reciprocity | -0.042 (0.144) | -0.035 (0.146) | 0.009 (0.153) | 0.005 (0.155) |
| Treatment 1950 x negative reciprocity | | -0.185** (0.076) | | -0.191** (0.081) |
| Treatment 1950 x positive reciprocity | | -0.002 (0.121) | | -0.001 (0.128) |
| Negative reciprocity | -0.146*** (0.028) | -0.101** (0.044) | -0.115*** (0.031) | -0.088* (0.048) |
| Positive reciprocity | 0.016 (0.045) | -0.001 (0.071) | 0.007 (0.048) | 0.001 (0.075) |
| Treatment dummy 1949 | 0.567 (0.617) | 0.543 (0.625) | 0.648 (0.663) | 0.582 (0.669) |
| Treatment dummy 1950 | | 0.379 (0.510) | | 0.414 (0.542) |
| Negative reciprocity x age | | 0.086 (0.066) | | 0.078 (0.071) |
| Positive reciprocity x age | | -0.033 (0.103) | | -0.019 (0.110) |
| Age (in days divided by 365) | 0.138* (0.074) | 0.028 (0.436) | 0.080 (0.079) | -0.036 (0.466) |
| Number of years contributed to the pension fund | | | -0.003 (0.004) | -0.004* (0.002) |
| Log yearly wage | | | 0.359*** (0.118) | 0.274*** (0.083) |
| Log size of organization | | | -0.017 (0.021) | 0.005 (0.014) |
| Marital status | | | 0.092 (0.085) | 0.142** (0.058) |
| Constant | 3.743*** (0.192) | 3.687*** (0.298) | 0.199 (1.279) | 0.559 (0.965) |
| Observations | 2,759 | 5,646 | 2,422 | 4,958 |

OLS estimates. Columns (1) and (3) present estimation results for workers born in 1949. The treatment dummy equals one for workers who are not entitled to the old pension rights since they did not work in the public sector continuously since April 1997, and zero for workers who remain entitled to the old pension rights. Columns (2) and (4) contains estimation results for the 1949 cohort, as well as the 1950 cohort. The model includes two treatment dummy variables. The first treatment dummy equals one for workers born in 1949 and who are not entitled to the old pension rights and zero otherwise. The second treatment dummy equals one if workers were born in 1950 and zero for those born in 1949. Additional control variables in the estimations presented in Columns 3 and 4 are: educational levels; sector fixed effects. Standard errors are in parentheses. *** < 0.01, ** < 0.05, * < 0.10.

Figure A1 Survey participation



This figure presents the survey participation for each birth month. Our sample consists of two birth years where workers born in 1949 are entitled to the old pension rules and workers born in 1950 are subject to the new pension rules. The vertical line in the figure marks the threshold which divides the control from the treatment group.

Figure A2 Distribution average negative reciprocity: Treatment

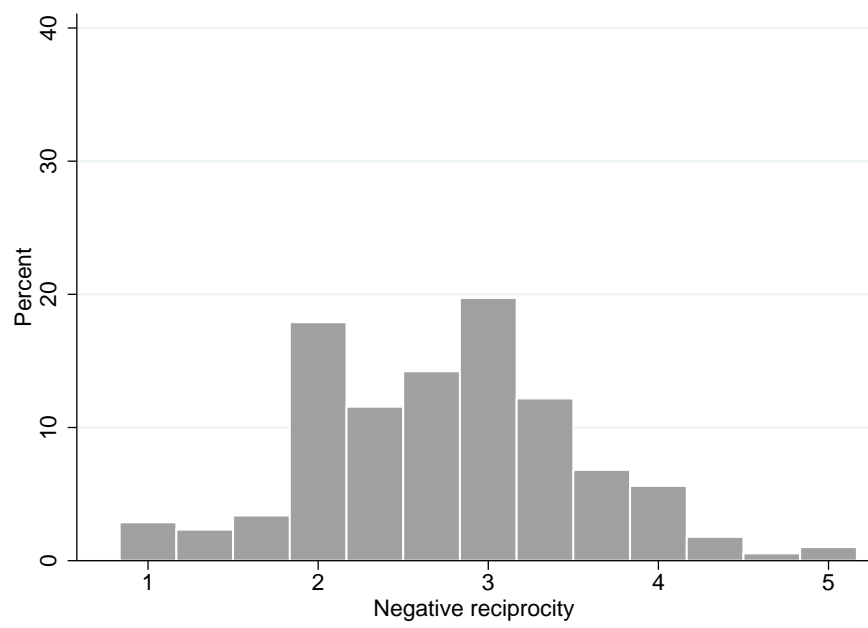


Figure A3 Distribution average negative reciprocity: Control

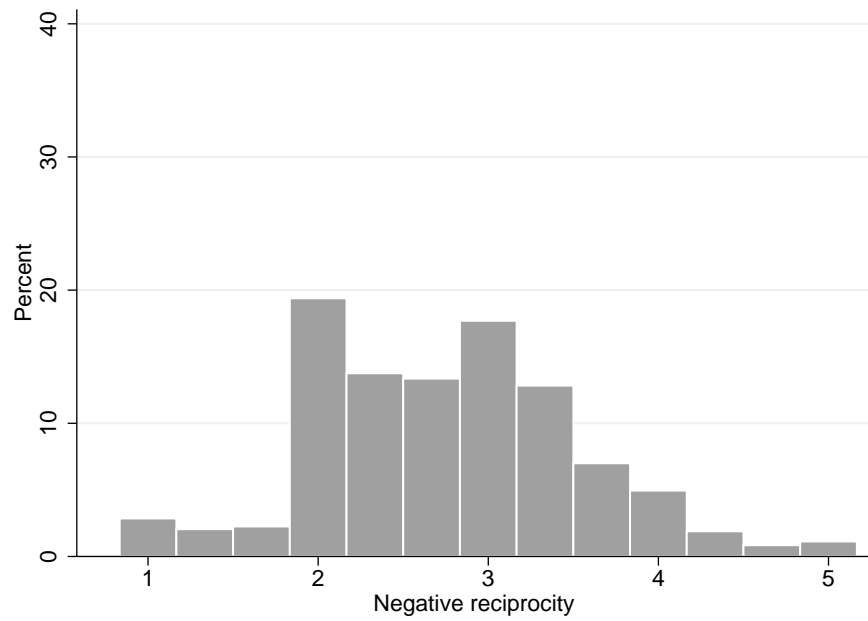


Figure A4 Distribution average positive reciprocity: Treatment

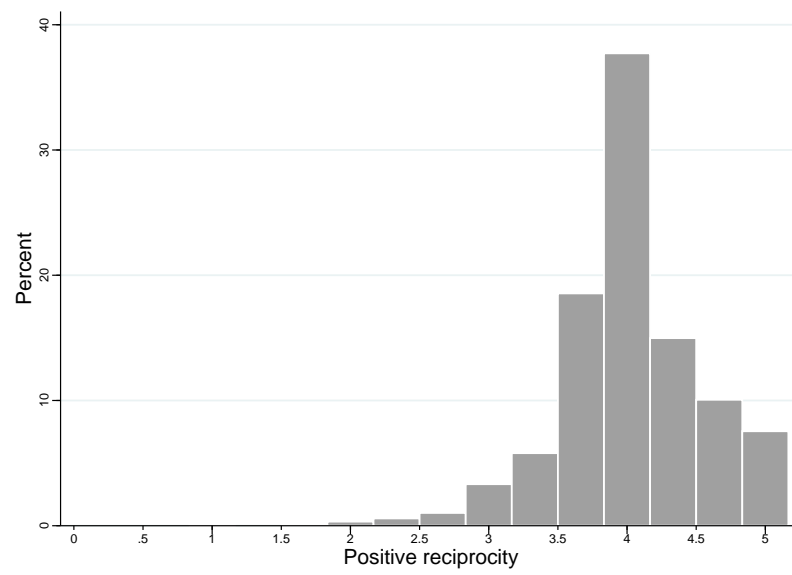


Figure A5 Distribution average positive reciprocity: Control

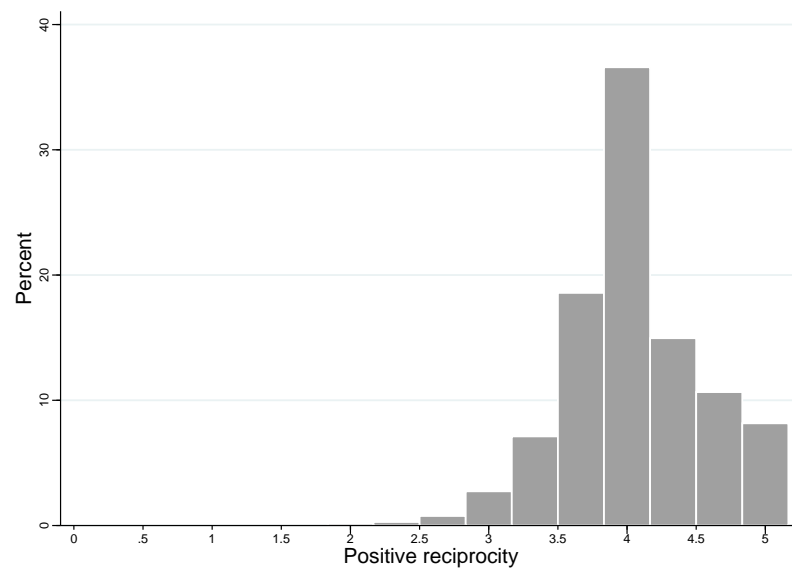
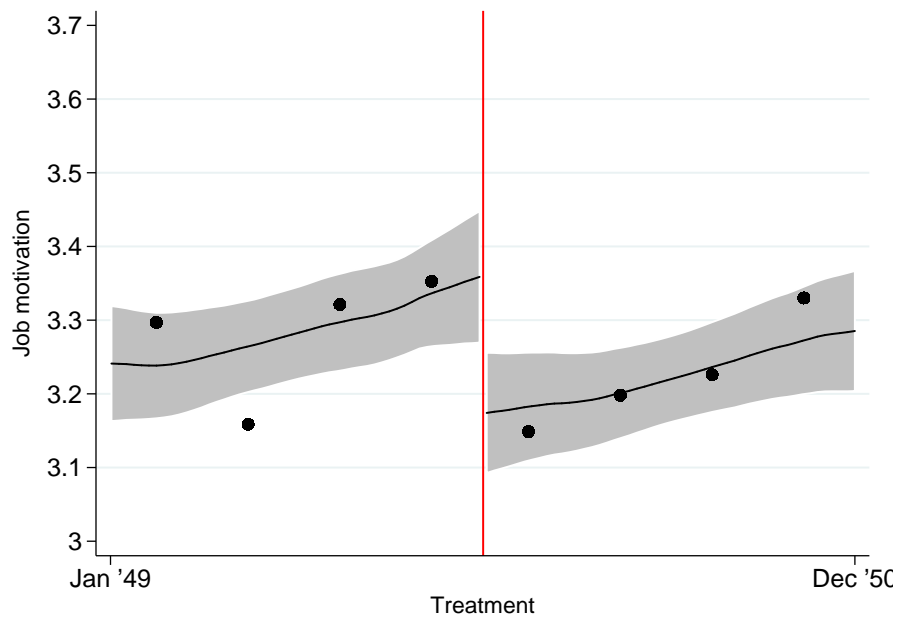
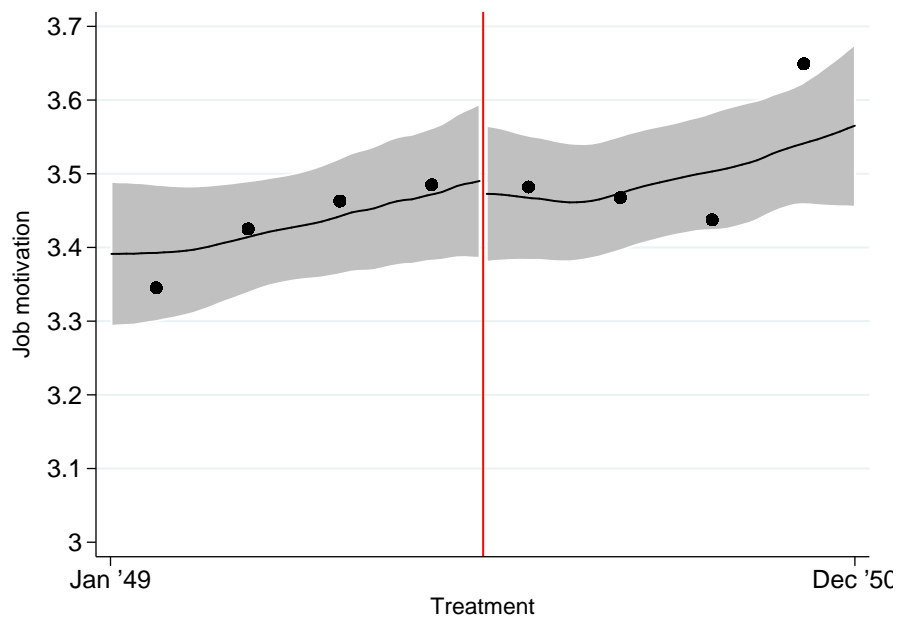


Figure A6 Job motivation for employees with strong (i.e. above median) negatively reciprocal inclinations



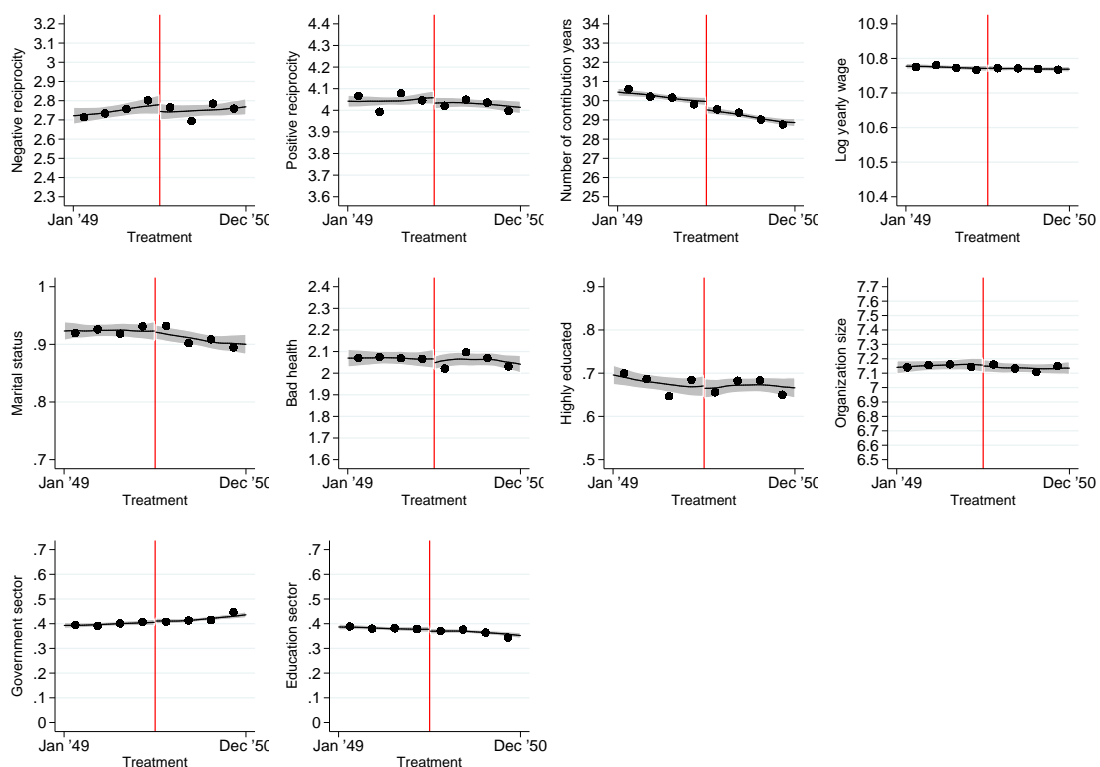
This figure presents birth quarter averages of job motivation and a local polynomial smooth of job motivation on birth date with a 95% confidence interval, using a Epanechnikov kernel function.

Figure A7 Job motivation for employees with weak (i.e. below median) negatively reciprocal inclinations



This figure presents birth quarter averages of job motivation and a local polynomial smooth of job motivation on birth date with a 95% confidence interval, using a Epanechnikov kernel function.

Figure A8 RD-plots for all control variables



This figure presents birth quarter averages of all control variables and a local polynomial smooth of these variables on birth date with a 95% confidence interval, using a Epanechnikov kernel function. The bandwidth used for the kernel function corresponds to the optimal bandwidth derived from the Imbens and Kalyanaraman procedure (Imbens and Kalyanaraman, 2012).

Appendix B

This Appendix explains some key features of the Dutch pension system. The Dutch pension system consists of three pillars: 1) a public old age pension that is paid to all inhabitants aged 65 and older, 2) a supplementary sectoral (or firm) pension, and 3) voluntary private pension plans. The public old age pension is essentially a pay-as-you-go system in which current payments are financed by income taxes. Supplementary sectoral (or firm) pensions are of the defined benefit type and very wide spread, since participation in these schemes is generally mandatory. Most sectoral pension schemes are negotiated between unions and employer organizations at the sector or firm level and are officially laid down in collective agreements. In the public sector, both employers and employees contribute to the pension fund. Additional voluntary pension plans are offered by private insurance companies. These pension plans typically take the form of savings plans that yield annuity payments at retirement age and are less prevalent in the Netherlands.

Early retirement before the age of 65 is primarily made possible through the sectoral pension system (i.e., the second pillar). Until 2006, contributions to the sectoral early retirement schemes were tax deductible, which substantially boosted their financial attractiveness. This tax advantage amounted to about 25% of the net early retirement allowance (Kooiman et al., 2004), which is partly a result of the progressive tax system (Euwals et al., 2006). Typically, contributions to the sectoral pension schemes were such that a public sector employee who had served for 40 years in the public sector could retire at the age of 62 and three months at a replacement rate of 70%.¹ As a result, early retirement became the social norm in the Netherlands. Approximately 80% of all workers retired at the age of 62 or younger before 2006, and only 6% retired at the age of 65.²

In response to the abolishment of the favorable tax treatment of early retirement schemes, the employer representatives and the trade-unions in the public sector negotiated

¹Until 2006, workers traditionally retired in the Netherlands when they achieved a replacement rate of 70%.

²See Statistics Netherlands (2009).

a new pension scheme that became effective on January 1, 2006, for workers born in 1950 or later and those who had not worked continuously in the public sector since April 1, 1997. This new scheme is called ‘ABP Flexible Pension Scheme’ and is carried out by the public sector’s pension fund Algemeen Burgelijk Pensioenfonds (ABP).³ The new flexible pension system is characterized by i) a drop in pension benefits, ii) an increase in pension contribution payments to partly account for the drop in pension wealth, iii) larger penalties on pension income when retiring before commencement of the state pension at age 65, and iv) by larger supplements for later retirement.⁴ As a result, a typical employee born in 1950 or later with 40 years of tenure now only attains a replacement rate of 64% when retiring early at the age of 62 years and three months, which is substantially lower than the replacement rate of 70% that applied to them before the reform and still applies to workers born before 1950. To attain a replacement rate of 70%, workers who are affected by the reform have to postpone retirement by one year and three months.

The government also introduced a new scheme in the third pillar of the pension system, the so called Life Course Savings Program. This program allows workers born in 1950 to build up tax-free savings of approximately 14% of their annual earnings for seven years to finance early retirement at age 62 and three months. It is likely that only a very small fraction of these workers are able to save such a high proportion of their earnings each year before retirement.

References

Euwals, R.W., D.J. van Vuuren, and R.P. Wolthoff (2006). ‘Early retirement behaviour in the Netherlands: Evidence from a policy reform.’ Tinbergen Institute Discussion Paper 2006-021/3

³Note that the details of the pension scheme have been negotiated by the government and unions, and that ABP only acts as a subcontractor.

⁴Furthermore, the eligibility age for pension benefits was increased to 60 years, and workers can now decide to continue working until their 70th birthday.

- Imbens, G., and K. Kalyanaraman (2012). ‘Optimal bandwidth choice for the regression discontinuity estimator.’ *Review of Economic Studies* 79, 933–959
- Kooiman, P., Rob W. Euwals, M. van de Ven, and Daniël J. van Vuuren (2004). ‘Price and income incentives in early retirement: A preliminary analysis of a Dutch pension reform.’ *paper presented at the NERO 2004 meeting*
- Statistics Netherlands (2009). ‘Labour force survey.’ *Statline*