

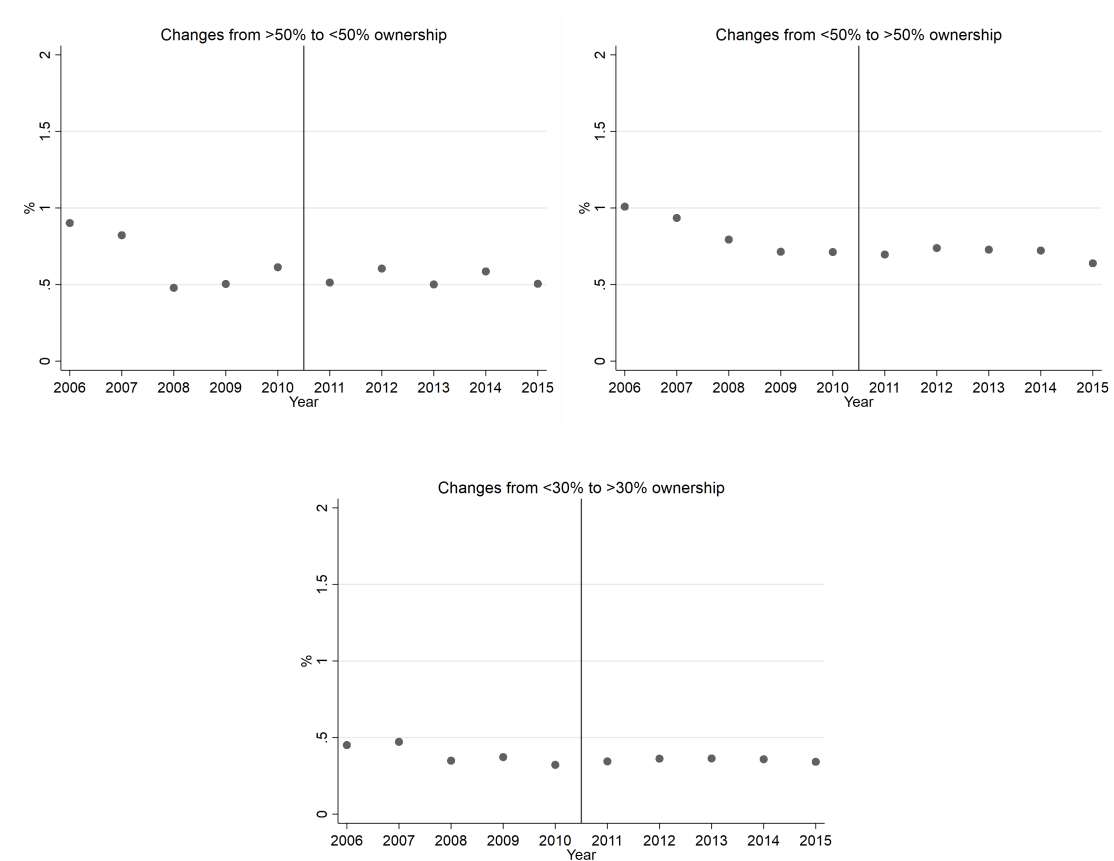
# Does Mandating Social Insurance Affect Entrepreneurial Activity?

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Online Appendix

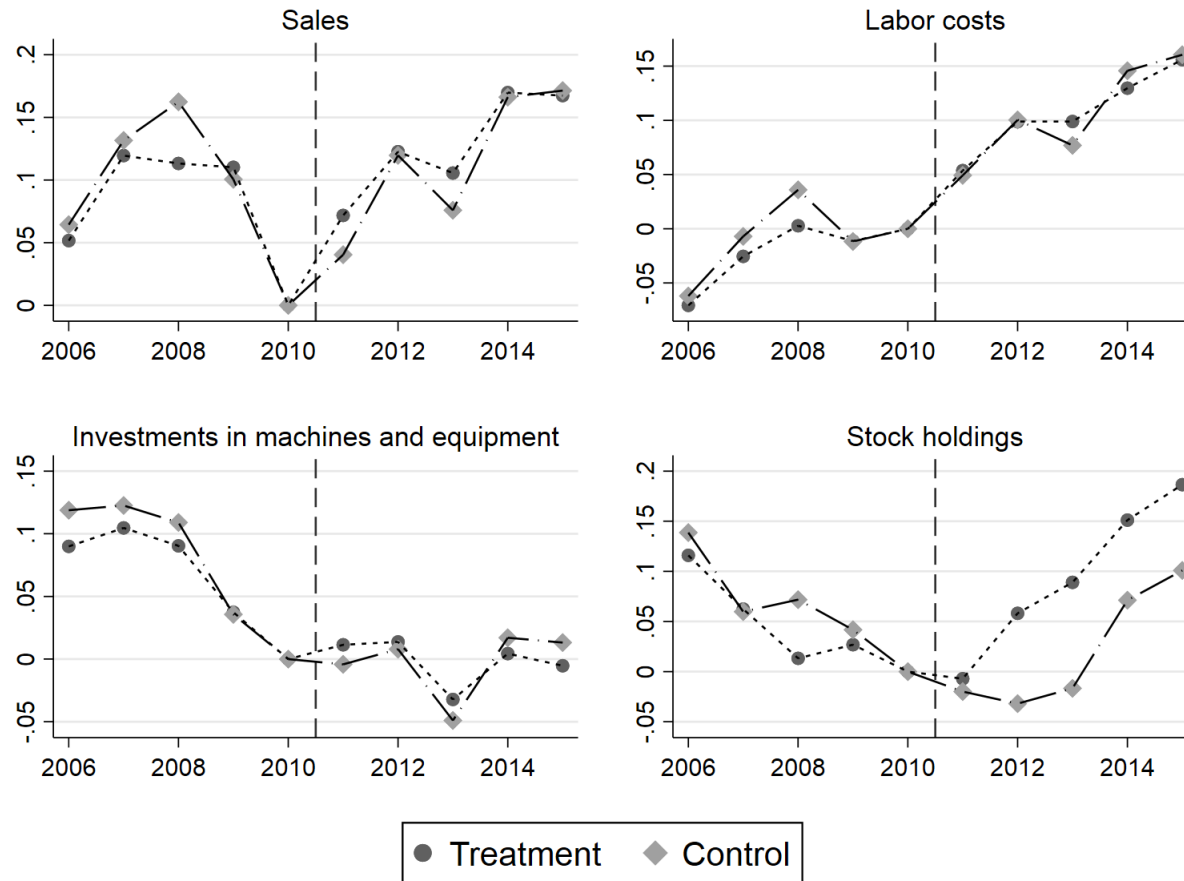
## A Appendix Figures and Tables

Figure A.1: Changes in ownership shares over time



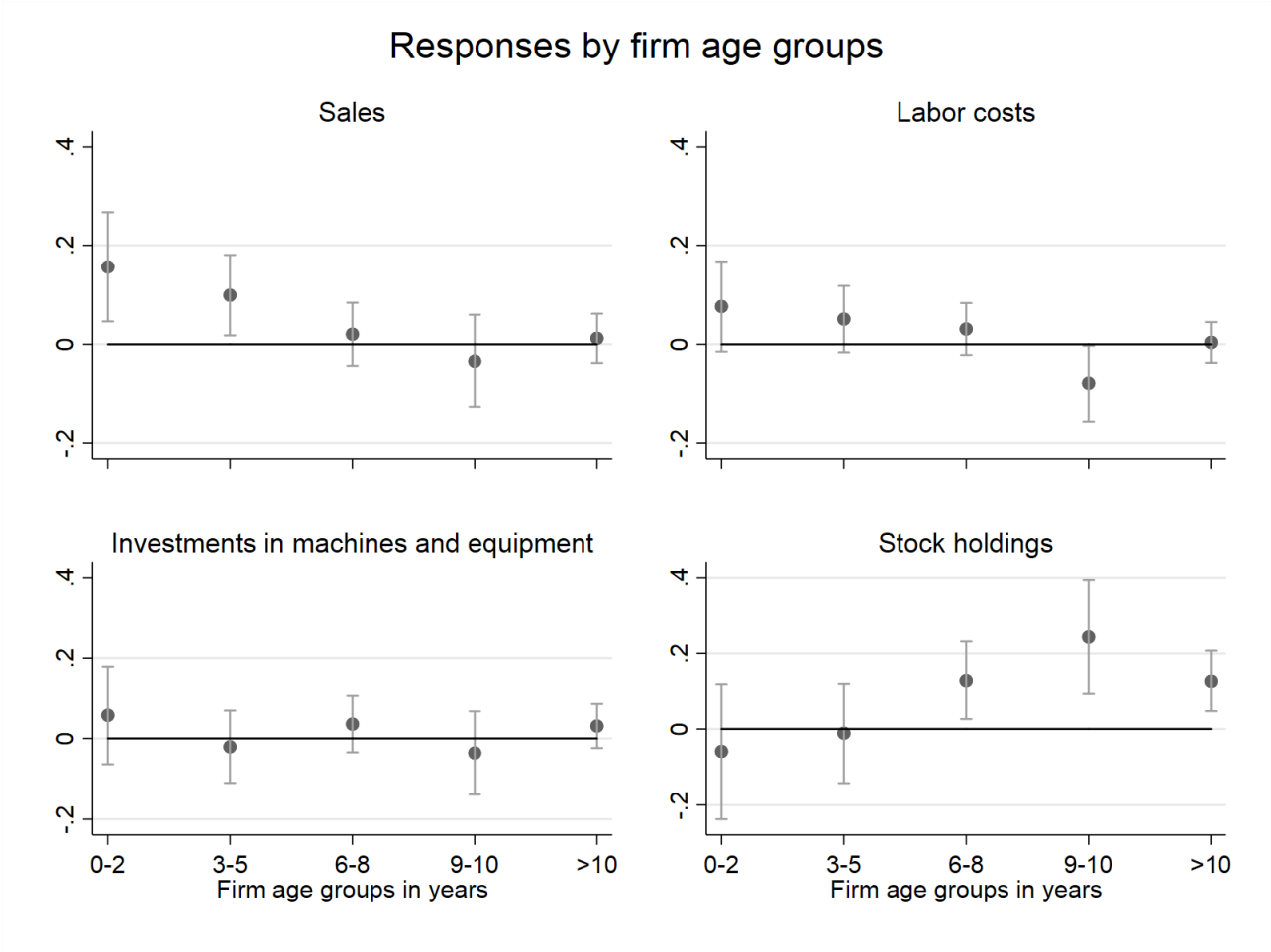
*Notes:* This figure plots changes in ownership shares over time in 2006-2016. The first panel shows the changes in ownership shares for owners with more than 50% ownership shares to less than 50%. The second panel shows the changes in ownership shares for owners with less than 50% ownership shares to more than 50%. The third panel shows the changes in ownership shares for owners with less than 30% ownership shares to more than 30%. Overall, there are no significant changes across these thresholds over time or around the 2011 reform.

Figure A.2: Effects on firm-level outcomes for all firms



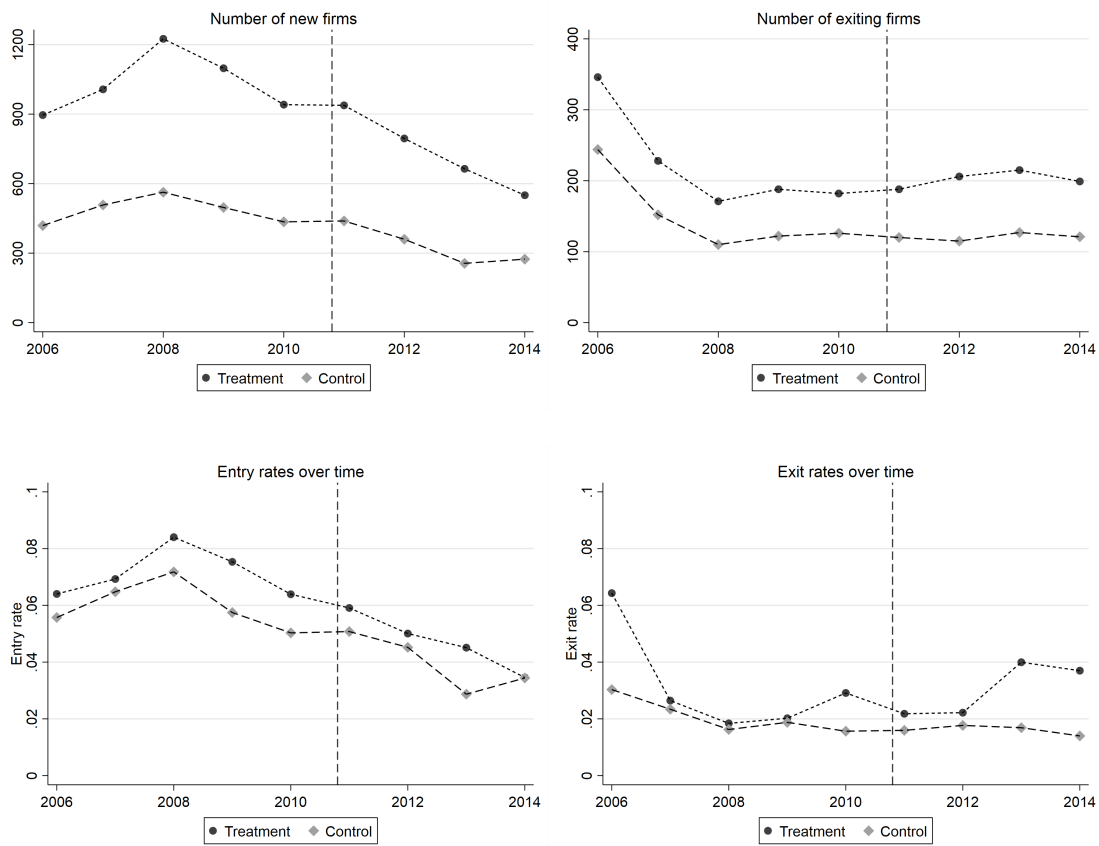
Notes: This figure plots the response of firm-level outcomes to the 2011 reform for the treatment (30-50% ownership) and control (51-70% ownership) groups for all firms. Sales, labor costs, investments in machines and equipment and stock holdings (in logs) relative to 2010 are plotted in the first, second, third and fourth panels, respectively.

Figure A.3: Estimates by firm age groups



Notes: This figure plots the estimates for five firm-age groups. To obtain the estimates, we add five age-group dummies interacted with the *Treat\*Post* term in equation (1). The graphs denote the coefficients for these interaction terms. In addition, the estimable equation includes interaction terms for the age-group dummies with both *Treat* and *Post*. The graph includes heteroskedasticity-consistent 95% confidence intervals for the estimates.

Figure A.4: Entry and Exit



*Notes:* This figure plots the number of new firms and the number of exiting firms, and the relative entry and exit rates for the treatment (30-50% ownership) and control (51-70% ownership) groups in 2006-2014. Entry is defined based on the year the firm filed its first tax return. Similarly, exit is defined by the year the firm filed its last tax return in our data.

Table A.1: Definitions of the variables used in the analysis

Variables	Definitions
Social insurance contributions	The annual euro amount of social insurance contributions paid by the entrepreneur. The social insurance regulation in Finland is described in Section 2 in the main text.
Sales	Gross annual sales of the firm from its primary operating activity minus any discounts given, valued-added taxes, and other taxes based on sales volumes.
Labor costs	Wages and other wage-related compensations paid by the firm to employees excluding all social insurance contributions and taxes. This variable is in euros and at the annual level.
Number of employees	The sum of the number of employees who worked in the firm during the tax year.
Variable costs	Annual euro value of the costs used as intermediate inputs in production.
Investments in machines and equipment	Annual euro value of the gross investments in machines and equipment.
Stock holdings	Annual euro value of stock holdings in listed companies owned by the firm.
Ownership share	The company shares owned by the entrepreneur divided by the total number of shares.
Age of the firm	We define the year in which the firm reported its first tax filing as the year the firm was created, and use this variable to define the age of the firm.
Industry	Industry of the firm using one-digit industry classification.
Municipality	Municipality in which the firm is located. There were 336 municipalities in Finland in 2011.

Table A.2: Differences-in-differences results: Including owners of multiple firms

Young firms							
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.047 (0.035)	-0.179 (0.044)	-0.031 (0.036)	-0.000 (0.045)	-0.042 (0.055)	-0.057 (0.055)	-0.071 (0.032)
Treatment	0.324 (0.021)	-0.003 (0.027)	0.074 (0.023)	-0.049 (0.028)	-0.017 (0.033)	0.003 (0.035)	0.001 (0.020)
<b>DD estimate</b>	-0.202 (0.029)	0.104 (0.033)	0.052 (0.028)	0.001 (0.035)	-0.035 (0.044)	0.105 (0.044)	0.036 (0.025)
Constant	8.351 (0.025)	12.34 (0.035)	11.16 (0.030)	9.542 (0.035)	0.462 (0.042)	10.99 (0.044)	1.188 (0.025)
N	31,646	47,834	47,834	47,834	47,834	47,834	47,834
R2	0.011	0.832	0.927	0.848	0.001	0.817	0.005
Old firms							
VARIABLES	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.175 (0.020)	0.139 (0.023)	0.247 (0.019)	-0.134 (0.026)	-0.049 (0.040)	0.104 (0.031)	-0.138 (0.017)
Treatment	0.275 (0.010)	0.108 (0.013)	0.104 (0.011)	-0.030 (0.014)	-0.067 (0.021)	0.092 (0.017)	0.032 (0.009)
<b>DD estimate</b>	-0.136 (0.016)	0.008 (0.018)	-0.013 (0.015)	0.021 (0.020)	0.145 (0.030)	-0.015 (0.024)	-0.016 (0.013)
Constant	8.339 (0.013)	12.68 (0.016)	11.30 (0.014)	9.913 (0.018)	0.874 (0.028)	11.43 (0.022)	1.458 (0.012)
N	104,434	155,576	155,576	155,576	155,576	155,576	155,576
R2	0.011	0.818	0.921	0.778	0.001	0.813	0.002
All firms							
VARIABLES	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.172 (0.017)	0.095 (0.020)	0.217 (0.017)	-0.100 (0.022)	-0.019 (0.034)	-0.000 (0.027)	-0.057 (0.010)
Treatment	0.284 (0.009)	0.082 (0.011)	0.096 (0.010)	-0.036 (0.012)	-0.061 (0.018)	0.071 (0.015)	0.013 (0.006)
<b>DD estimate</b>	-0.152 (0.014)	0.022 (0.016)	-0.000 (0.013)	0.014 (0.017)	0.096 (0.026)	0.005 (0.021)	-0.001 (0.008)
Constant	8.327 (0.012)	12.64 (0.015)	11.29 (0.013)	9.859 (0.016)	0.815 (0.024)	11.40 (0.020)	2.039 (0.008)
N	136,080	203,410	203,410	203,410	203,410	203,410	203,410
R2	0.009	0.820	0.922	0.798	0.000	0.814	0.563

Notes: This table shows the results of estimating equation (1) when including owners of multiple firms in the sample. The time period in these specifications is 2006-2015, except in Column (1), where we have data until 2014. Heteroskedasticity-consistent standard errors in parentheses. Young firms are defined as firms equal to or younger than 5 years of age, and old firms older than 5 years of age. The variable "investments" includes investments in machines and equipment.  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$ .

Table A.3: Differences-in-differences results: Alternative control group using owners with 51–80% ownership shares

Young firms							
VARIABLES	(1) Pension contrib.	(2) Sales	(3) Labor costs	(4) Investments	(5) Stock holdings	(6) Variable costs	(7) No. of empl.
Post-2010	0.258 (0.048)	-0.108 (0.039)	-0.001 (0.033)	-0.053 (0.040)	0.003 (0.052)	-0.167 (0.052)	-0.139 (0.029)
Treatment	0.328 (0.019)	0.036 (0.025)	0.116 (0.021)	-0.011 (0.026)	-0.043 (0.031)	0.052 (0.032)	0.037 (0.018)
<b>DD estimate</b>	-0.219 (0.026)	0.099 (0.031)	0.040 (0.026)	0.011 (0.032)	-0.058 (0.041)	0.106 (0.041)	0.053 (0.023)
Constant	8.335 (0.025)	12.37 (0.032)	11.19 (0.028)	9.590 (0.033)	0.405 (0.040)	11.09 (0.042)	1.269 (0.023)
N	33,784	51,587	51,587	51,587	51,587	51,587	51,587
R2	0.011	0.830	0.925	0.846	0.009	0.815	0.006
Old firms							
VARIABLES	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	-0.163 (0.033)	0.141 (0.022)	0.243 (0.018)	-0.133 (0.024)	-0.027 (0.038)	0.113 (0.030)	-0.131 (0.016)
Treatment	0.286 (0.010)	0.108 (0.012)	0.152 (0.010)	-0.003 (0.013)	-0.070 (0.020)	0.166 (0.016)	0.086 (0.009)
<b>DD estimate</b>	-0.146 (0.015)	0.020 (0.017)	0.005 (0.014)	0.015 (0.019)	0.106 (0.029)	-0.010 (0.023)	-0.013 (0.013)
Constant	8.343 (0.012)	12.60 (0.015)	11.25 (0.013)	9.897 (0.017)	0.784 (0.026)	11.34 (0.021)	1.429 (0.011)
N	105,852	159,073	159,073	159,073	159,073	159,073	159,073
R2	0.013	0.820	0.915	0.767	0.005	0.804	0.003
All firms							
VARIABLES	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.174 (0.016)	0.090 (0.019)	0.221 (0.016)	-0.108 (0.021)	-0.001 (0.032)	0.020 (0.025)	-0.049 (0.009)
Treatment	0.293 (0.009)	0.085 (0.011)	0.141 (0.009)	-0.010 (0.012)	-0.071 (0.017)	0.137 (0.014)	0.029 (0.005)
<b>DD estimate</b>	-0.165 (0.013)	0.029 (0.015)	0.006 (0.012)	0.013 (0.016)	0.055 (0.024)	0.001 (0.020)	-0.008 (0.007)
Constant	8.332 (0.011)	12.56 (0.014)	11.24 (0.012)	9.836 (0.015)	0.724 (0.022)	11.32 (0.019)	2.009 (0.007)
N	139,636	210,660	210,660	210,660	210,660	210,660	210,660
R2	0.011	0.821	0.918	0.791	0.005	0.806	0.559

Notes: This table shows the results of estimating equation (1) when using an alternative control group including owners with 51–80% ownership shares. The time period in these specifications is 2006–2015, except in Column (1), where we have data until 2014. Heteroskedasticity-consistent standard errors in parentheses. Young firms are defined as firms equal to or younger than 5 years of age, and old firms older than 5 years of age. The variable “investments” includes investments in machines and equipment.  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$ .

Table A.4: Differences-in-differences results with controls included

Young firms							
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.338 (0.045)	-0.154 (0.042)	-0.020 (0.036)	-0.006 (0.042)	-0.032 (0.056)	-0.013 (0.052)	-0.087 (0.030)
Treatment	0.220 (0.023)	-0.322 (0.030)	-0.197 (0.026)	-0.259 (0.030)	-0.049 (0.039)	-0.323 (0.038)	-0.238 (0.022)
<b>DD estimate</b>	-0.238 (0.027)	0.095 (0.032)	0.054 (0.028)	0.019 (0.033)	-0.015 (0.045)	0.123 (0.042)	0.034 (0.024)
Constant	4.592 (0.179)	10.92 (0.429)	10.77 (0.261)	9.361 (0.349)	-0.183 (0.187)	10.97 (0.284)	0.848 (0.181)
N	30,988	46,926	46,926	46,926	46,926	46,926	46,926
R2	0.169	0.855	0.931	0.868	0.030	0.843	0.133
Old firms							
VARIABLES	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.244 (0.029)	0.139 (0.019)	0.235 (0.015)	-0.085 (0.024)	-0.017 (0.031)	0.096 (0.023)	-0.019 (0.017)
Treatment	0.149 (0.037)	-0.239 (0.135)	-0.159 (0.104)	-0.270 (0.102)	-0.107 (0.073)	-0.236 (0.162)	-0.150 (0.078)
<b>DD estimate</b>	-0.175 (0.021)	-0.002 (0.020)	-0.007 (0.015)	0.027 (0.026)	0.138 (0.030)	-0.012 (0.030)	-0.006 (0.016)
Constant	3.581 (0.213)	12.01 (0.364)	10.86 (0.257)	10.86 (0.315)	0.789 (0.406)	12.28 (0.284)	1.746 (0.192)
N	95,363	141,646	141,646	141,646	141,646	141,646	141,646
R2	0.192	0.848	0.924	0.803	0.022	0.840	0.269
All firms							
VARIABLES	Pension contrib.	Sales	Labor costs	Investments	Stock holdings	Variable costs	No. of empl.
Post-2010	0.209 (0.016)	0.068 (0.019)	0.181 (0.017)	-0.089 (0.021)	-0.023 (0.033)	-0.000 (0.025)	-0.052 (0.010)
Treatment	0.163 (0.011)	-0.262 (0.013)	-0.169 (0.012)	-0.269 (0.014)	-0.088 (0.022)	-0.258 (0.018)	-0.159 (0.007)
<b>DD estimate</b>	-0.192 (0.013)	0.017 (0.015)	0.005 (0.013)	0.022 (0.017)	0.095 (0.026)	0.012 (0.020)	-0.001 (0.008)
Constant	3.665 (0.100)	11.61 (0.126)	10.65 (0.105)	10.53 (0.122)	0.521 (0.171)	11.78 (0.122)	2.519 (0.051)
N	126,351	188,572	188,572	188,572	188,572	188,572	188,572
R2	0.177	0.847	0.925	0.822	0.017	0.839	0.578

Notes: This table shows the results of estimating equation (1) with control variables included. The time period in these specifications is 2006-2015, except in Column (1), where we have data only until 2014. The owner-level controls are age, age squared, gender and ownership share of the firm. The firm-level controls include municipality dummies for the location of the firm and one-digit industry dummies. Heteroskedasticity-consistent standard errors in parentheses. Young firms are defined as firms equal to or younger than 5 years of age, and old firms older than 5 years of age. The variable “investments” includes investments in machines and equipment.  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$ .