

Supplemental Online Appendix
for
**Where Women Make a Difference: Gender Quotas and Firm' Performance in Three
European Countries**
(Effect of Gender Quota Legislation on Board Composition)

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The relationship between gender quota legislation and women's representation can be analyzed using the following regression based on the European Commission country-year panel:

$$(1) \quad P_{j,t} = \alpha + \beta TREATED_{j,t} + \sum_{t \in T} \gamma_t YEAR_t + \sum_{j \in J} \delta_j COUNTRY_j + e_{j,t}$$

where $P_{j,t}$ is the share of women on boards in country j and year t , $TREATED_{j,t}$ is a dummy for country/period observations with a gender quota legislation, $YEAR_t$ are year dummies intended to control for shocks that are common to all countries, $COUNTRY_j$ are country dummies controlling for time invariant differences between countries, and $e_{j,t}$ is the error term. We estimate Equation (1) with controls for country-specific time trends as well in order to consider the possibility of nonparallel evolution in the proportion of women on boards in the absence of a gender quota. Both specifications are estimated also with weighted least squares, using countries' populations as weights. Standard errors are adjusted for heteroscedasticity.

The estimates of β reported in Table A.1 suggest that gender quotas caused a statistically significant increase, ranging between 5.9 and 10.9 percentage points, in the share of women on boards.¹

¹ Note that the data provided by the European Commission are biased toward the largest firms, and large firms may react to gender quotas differently from how small firms react. Nonetheless, in the section containing further evidence on Italy, we show a qualitatively similar result for Italy for which we have data on boards' composition for all treated firms before and after the introduction of mandatory gender quotas.

Table A.1. Regression Estimates of Gender Quotas Law on the Proportion of Women
on Boards of Directors

	(1)	(2)	(3)	(4)
Treated	10.335*** (1.242)	10.923*** (1.300)	6.395*** (1.609)	5.928*** (1.516)
Constant	22.866*** (2.059)	18.469*** (3.899)	−1,055.091*** (366.877)	−641.981 (1,585.043)
State trends	No	No	Yes	Yes
Weights	No	Yes	No	Yes
Observations	444	444	444	444
R-squared	0.778	0.835	0.913	0.932

Notes: Robust standard errors in parentheses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table A.2. Average Characteristics for Treatment and Control Groups

Panel A: France									
	(1)			(2)			(3)		
	DD Whole sample			Local DD sample: very narrow bandwidth			Local DD sample: narrow bandwidth		
	Treated (T)	Control (C)	Diff. C-T (SE)	Treated	Control	Diff. C-T (SE)	Treated	Control	Diff. C-T (SE)
Log of sales	12.24 (1.28)	11.50 (1.08)	-0.73* (0.043)	11.37 (0.31)	11.13 (0.36)	-0.24*** (0.054)	11.49 (0.34)	11.17 (0.34)	-0.32*** (0.04)
Log of number of employees	6.80 (1.17)	5.93 (0.92)	-0.87*** (0.04)	6.34 (0.20)	6.34 (0.20)	-0.027 (0.02)	6.39 (0.20)	6.03 (0.209)	-0.36*** (0.02)
Log of labor productivity	4.20 (0.55)	4.22 (0.50)	0.015 (0.019)	3.94 (0.34)	3.95 (0.34)	0.016 (0.05)	3.96 (0.36)	3.99 (0.35)	0.02 (0.04)
Log of TFP	3.98 (0.86)	3.93 (1.16)	0.044 (0.035)	3.80 (0.10)	3.70 (1.62)	-0.099 (0.22)	3.84 (0.74)	3.79 (1.50)	-0.05 (0.16)
ROA	4.71 (10.14)	5.05 (8.76)	0.33 (0.34)	2.85 (11.9)	3.72 (12.4)	0.87 (1.90)	2.53 (10.5)	4.32 (11.5)	1.79 (1.37)
Log of leverage	3.79 (1.27)	3.47 (1.42)	-0.32*** (0.05)	3.94 (1.40)	3.59 (1.27)	-0.34 (0.21)	3.86 (1.36)	3.59 (1.28)	-0.28 (0.17)
% manufacturing firms	0.367 (0.48)	0.367 (0.48)	0 (0.018)	0.389 (0.49)	0.465 (0.50)	0.075 (0.077)	0.47 (0.50)	0.47 (0.50)	-0.021 (0.06)
Number of firms in 2011	4,040	808	—	54	170	—	92	249	—
Panel B: Italy									
	DD Whole sample								
	Treated (T)	Control (C)	Diff. C-T (SE)						
Log of sales	12.47 (1.85)	12.10 (1.59)	-0.36*** (0.13)						
Log of number of employees	6.77 (1.96)	6.41 (1.71)	-0.36** (0.14)						
Log of labor productivity	4.52 (0.73)	4.47 (0.65)	-0.053 (0.055)						
Log of TFP	5.30 (2.88)	5.17 (2.66)	-0.13 (0.22)						
ROA	1.98 (8.54)	3.30 (6.83)	1.31** (0.60)						
Log of leverage	4.46	4.48	0.024						

	(1.14)	(1.24)	(0.10)
% manufacturing firms	0.3815	0.3815	0
	(0.48)	(0.48)	(0.04)
Number of firms in 2011	173	865	—

Panel C: Spain

	DD Whole sample			Local DD sample: bandwidth 25 employees			Local DD sample: bandwidth 50 employees		
	Treated (T)	Control (C)	Diff. C-T (SE)	Treated	Control	Diff. C-T (SE)	Treated	Control	Diff. C-T (SE)
Log of sales	11.54 (1.15)	10.69 (0.89)	-0.85*** (0.02)	10.74 (0.78)	10.88 (0.79)	0.13 (0.10)	10.81 (0.84)	10.73 (0.86)	-0.07 (0.07)
Log of number of employees	6.35 (0.68)	5.15 (0.37)	-1.20*** (0.013)	5.56 (0.002)	5.47 (0.002)	-0.092*** (0.003)	5.60 (0.06)	5.41 (0.05)	-0.19*** (0.005)
Log of labor productivity	4.06 (0.68)	4.18 (0.57)	0.12*** (0.018)	4.02 (0.50)	4.06 (0.49)	0.035 (0.06)	4.05 (0.55)	4.08 (0.56)	0.032 (0.05)
Log of TFP	3.87 (1.14)	3.94 (0.89)	0.076*** (0.02)	3.91 (0.088)	3.84 (0.078)	-0.069 (0.12)	3.95 (0.91)	3.91 (1.00)	-0.04 (0.08)
ROA	7.46 (11.23)	7.68 (8.54)	0.22 (0.27)	8.36 (10.01)	5.36 (9.37)	-3.00* (1.18)	7.85 (11.3)	6.98 (10.1)	-0.86 (0.94)
Log of leverage	3.67 (1.75)	3.46 (1.84)	-0.20*** (0.057)	3.75 (1.56)	4.00 (1.47)	0.24 (0.19)	3.74 (1.53)	3.83 (1.58)	0.08 (0.14)
% manufacturing firms	0.347 (0.476)	0.347 (0.476)	0 (0.014)	0.33 (0.47)	0.48 (0.50)	0.15** (0.06)	0.37 (0.48)	0.45 (0.50)	0.077 (0.044)
Number of firms in 2007	1,268	6,340		112	164	—	195	339	—

Notes: Standard deviations (SE) in parentheses if not otherwise specified. Treated: firms to which gender quotas would have been applied in 2011 (2007 for Spain). Control: non-treated firms of the same country matched to the treated ones. DD, difference-in-difference; ROA, an indicator of profitability; TFP, total factor productivity.

Table A.3. Tests for Parallel Trends for DD Estimates, France (2004–2011)

	(1)	(2)	(3)	(4)	(5)
	Labor productivity	TFP	Number of employees	ROA	Leverage
Panel A: DD parallel trend test					
Treated \times trend	−0.004** [0.002]	−0.008*** [0.002]	−0.023*** [0.004]	−0.048 [0.062]	0.006 [0.008]
Trend	0.016*** [0.001]	0.018*** [0.001]	0.047*** [0.002]	−0.452*** [0.031]	−0.019*** [0.005]
Observations	27,526	27,526	27,526	27,518	26,213
Number of firms	0.057	0.030	0.101	0.059	0.015
R-squared	4,955	4,955	4,955	4,954	4,899
Panel B: “Local” DD parallel trend test: bandwidth 30 employees					
Treated \times trend	−0.006 [0.006]	−0.008 [0.006]	−0.003 [0.010]	−0.203 [0.248]	0.040 [0.039]
Trend	0.013*** [0.003]	0.014*** [0.003]	0.022*** [0.006]	−0.642*** [0.162]	0.017 [0.019]
Observations	1,546	1,546	1,546	1,546	1,453
Number of firms	0.082	0.033	0.060	0.086	0.033
R-squared	224	224	224	224	222
Panel C: Local” DD parallel trend test: bandwidth 50 employees					
Treated \times trend	−0.007 [0.004]	−0.010** [0.005]	0.000 [0.008]	−0.149 [0.179]	0.016 [0.028]
Trend	0.013*** [0.003]	0.015*** [0.003]	0.017*** [0.004]	−0.663*** [0.125]	0.014 [0.014]
Observations	2,351	2,351	2,351	2,350	2,214
Number of firms	0.072	0.032	0.042	0.095	0.023
R-squared	341	341	341	341	339

Notes: Standard errors in brackets. DD, difference-in-difference; ROA, an indicator of profitability; TFP, total factor productivity.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table A.4. Tests for Parallel Trends for DD Estimates, Italy (2004–2011)

	(1)	(2)	(3)	(4)	(5)
	Labor productivity	TFP	Number of employees	ROA	Leverage
Treated \times trend	–0.002 [0.007]	0.007 [0.007]	0.000 [0.010]	–0.185 [0.114]	0.042*** [0.013]
Trend	–0.013*** [0.003]	–0.004* [0.003]	0.038*** [0.004]	–0.371*** [0.040]	–0.020*** [0.006]
Constant	3.105*** [0.120]	5.208*** [0.012]	6.234*** [0.017]	6.279*** [0.187]	4.530*** [0.027]
Observations	6,798	6,798	6,798	6,798	6,572
Number of firms	0.172	0.001	0.071	0.044	0.008
<i>R</i> -squared	1,103	1,103	1,103	1,103	1,091

Notes: Standard errors in brackets. DD, difference-in-difference; ROA, an indicator of profitability; TFP, total factor productivity.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table A.5. Tests for Parallel Trends for DD Estimates, Spain (2004–2007)

	(1)	(2)	(3)	(4)	(5)
	Labor productivity	TFP	Number of employees	ROA	Leverage
Panel A: DD parallel trend test					
Treated \times trend	−0.024*** [0.004]	−0.023*** [0.004]	0.020*** [0.004]	−0.245*** [0.087]	0.023 [0.014]
Trend	0.045*** [0.002]	0.048*** [0.002]	0.026*** [0.002]	−0.500*** [0.052]	−0.037*** [0.008]
Observations	26,254	26,254	26,254	26,249	25,708
Number of firms	0.101	0.069	0.122	0.040	0.006
R-squared	7,608	7,608	7,608	7,607	7,505
Panel B: “Local” DD parallel trend test: bandwidth 25 employees					
Treated \times trend	−0.011 [0.014]	−0.014 [0.014]	0.011 [0.016]	−0.208 [0.390]	−0.097** [0.046]
Trend	0.033*** [0.010]	0.036*** [0.010]	0.040*** [0.008]	−0.351 [0.356]	0.048 [0.037]
Observations	948	948	948	948	859
Number of firms	0.043	0.036	0.102	0.016	0.016
R-squared	276	276	276	276	264
Panel C: “Local” DD parallel trend test: bandwidth 50 employees					
Treated \times trend	−0.025** [0.012]	−0.026** [0.012]	0.002 [0.011]	−0.362 [0.279]	−0.075** [0.035]
Trend	0.042*** [0.007]	0.045*** [0.008]	0.051*** [0.006]	0.007 [0.263]	0.012 [0.029]
Observations	1,854	1,854	1,854	1,854	1,683
Number of firms	0.043	0.043	0.132	0.021	0.017
R-squared	534	534	534	534	510

Notes: Standard errors in brackets. DD, difference-in-difference; ROA, an indicator of profitability; TFP, total factor productivity.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.