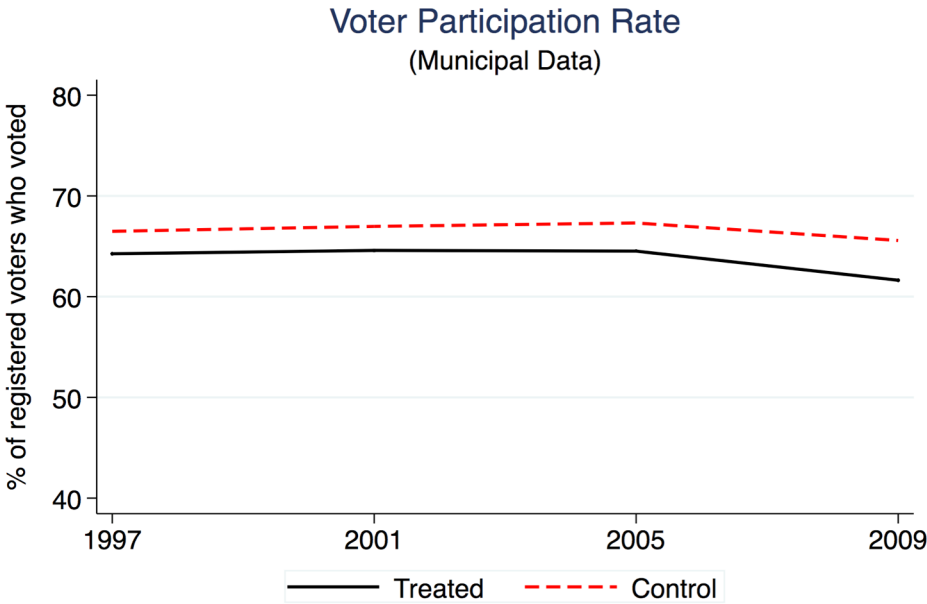
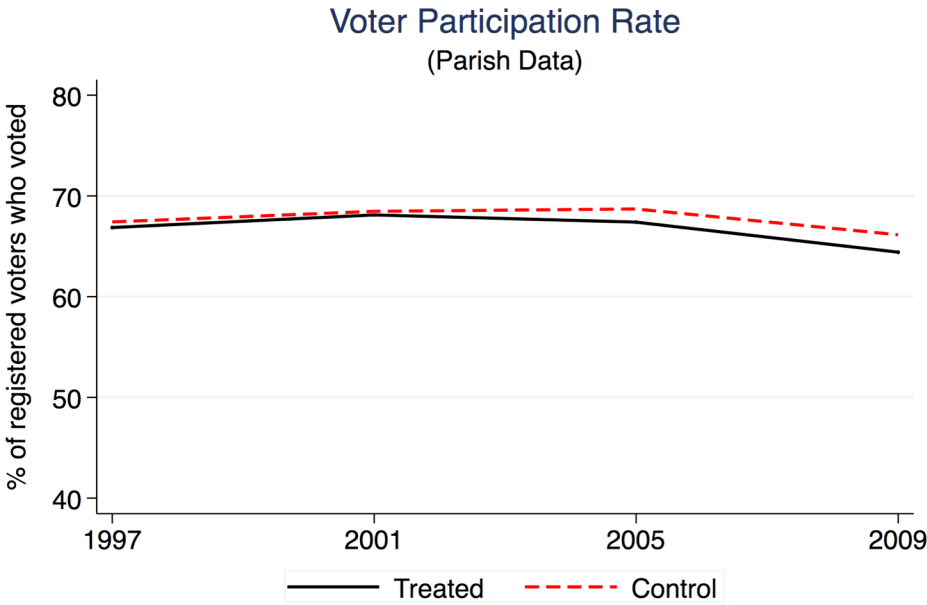


# Online Appendices

## Appendix A. Common Trends Assumption and Plausibility of as-if Random Assignment



Note: Each line represents the average for each group of municipalities.  
Source: Own calculations using data from the Ministry of Internal Affairs.



Note: Each line represents the average participation rate for each group of parishes.  
Source: Own calculations using data from the Ministry of Internal Affairs.

Figure A.1: Voter Participation Rates in the Treated and Control Groups

**Table A.1: Difference of Means Tests Between Treatment and Control Groups (1997-2009)**

	Control group		Treated group		Difference	
	Mean	Obs.	Mean	Obs.	Mean	p-value
Turnout (participation rate of registered voters)	66.629	548	63.675	618	2.955	0.000***
Unemployment rate	5.964	548	6.141	618	-0.177	0.229
Log(Average real wage)	6.705	548	6.722	618	-0.017	0.095*
Log(Own revenues - real per capita)	5.428	548	5.519	618	-0.090	0.004***
Log(Population)	9.641	548	9.906	618	-0.265	0.000***
Population growth (absolute value)	3.499	548	3.947	618	-0.448	0.013**
Share of population over 65 years old	21.038	548	20.804	618	0.234	0.523
Share of pop. with less than primary education	14.752	548	14.613	618	0.139	0.639
Effective number of parties (Municipal Council)	2.079	548	1.985	618	0.095	0.000***
Mayor's margin of victory (previous election)	16.479	548	20.858	618	-4.379	0.000***
Party similarity (mayor and prime minister)	0.367	548	0.427	618	-0.060	0.036**
Presence of independent lists	0.328	548	0.311	618	0.018	0.516
Average past vote share of left-wing parties	50.188	548	51.522	618	-1.334	0.255
Average past turnout	67.055	548	64.993	618	2.062	0.000***

**Table A.2: Regressions of Treatment on all Covariates (averages 1997-2009)**

VARIABLES	(1) OLS	(2) Probit
Unemployment rate	0.0235 (1.46)	0.0647 (1.48)
Log(Average real wage)	-0.121 (-0.49)	-0.371 (-0.59)
Log(Own revenues - real per capita)	0.0788 (1.05)	0.193 (0.96)
Log(Population)	0.0765* (1.90)	0.208* (1.86)
Population growth (absolute value)	0.00503 (0.45)	0.0155 (0.51)
Share of population over 65 years old	0.0109 (1.41)	0.0301 (1.43)
Share of pop. with less than primary education	-0.00418 (-0.42)	-0.0126 (-0.47)
Effective number of parties (Municipal Council)	-0.165 (-1.16)	-0.477 (-1.23)
Mayor's margin of victory (previous election)	0.00807** (2.02)	0.0215** (1.97)
Party similarity (mayor and prime minister)	0.113 (1.14)	0.305 (1.15)
Presence of independent lists	-0.308 (-1.21)	-0.810 (-1.20)
Average past vote share of left-wing parties	-0.000397 (-0.21)	-0.000928 (-0.19)
Average past turnout	-0.00703 (-1.25)	-0.0205 (-1.34)
Observations	308	308
Adjusted R <sup>2</sup> (OLS) / Pseudo R <sup>2</sup> (Probit)	0.0548	0.0821

Notes: The dependent variable is a dummy variable that takes the value of 1 for treated municipalities. Averages for the pre-treatment period (1997-2009) were used for all explanatory variables. Robust t-statistics in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix B. Probability that a mayor runs for reelection

**Table B.1: Probability of running for reelection (1997-2009)**

Variables	(1)	(2)
	Probit	Probit Random Effects
Existence of term limits (dummy for 2009 elections)	0.177 (1.36)	0.181 (1.32)
Mayor's age	-0.0271*** (-3.96)	-0.0335*** (-4.25)
Mayor lives in the municipality	-0.352* (-1.84)	-0.303 (-1.50)
Mayor was born in the municipality	0.0890 (0.85)	0.123 (1.09)
Female mayor	0.960** (2.29)	0.991** (2.20)
Mayor's party holds majorities in the Municipal Council and Municipal Assembly	0.219* (1.81)	0.235* (1.86)
Number of consecutive terms in office	-0.0976*** (-2.98)	-0.126*** (-2.59)
Mayor's margin of victory (previous election)	0.00159 (0.40)	0.00245 (0.57)
Party similarity (mayor and prime minister)	0.0152 (0.09)	0.0179 (0.09)
Presence of independent lists	-0.178* (-1.69)	-0.183* (-1.69)
Left-wing mayor	0.0994 (0.61)	0.0620 (0.30)
Unemployment rate	0.0339* (1.65)	0.0250 (1.05)
Log(Population)	0.124* (1.92)	0.000197 (0.00)
Population growth (absolute value)	0.0151 (0.96)	0.0115 (0.67)
Share of population with less than primary education	0.00357 (0.25)	-0.00995 (-0.61)
Average past turnout	0.00969 (1.04)	-0.00183 (-0.15)
Regional (NUTS III) fixed effects	No	Yes
Observations	1,170	1,170
Log-likelihood	-452.9	-444.5

Notes: Robust t-statistics in parentheses (standard errors clustered by municipality). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix C. Robustness Tests

**Table C.1: Robustness Tests for Municipalities**

Robustness checks	Term-limited mayor	Share of voters with term-limited parish president
Using municipal trends	1.542*** (3.40)	0.0367*** (2.74)
Using a single trend for treated municipalities	1.467*** (3.48)	0.00518 (0.58)
Using data only since 2001	1.051*** (3.09)	0.0171* (1.82)
Using data only since 2005	1.278*** (4.12)	0.0176* (1.89)
Using data only since 2009	1.638*** (5.53)	0.00345 (0.39)
Excluding covariates with interpolated data	0.931** (2.58)	0.0191* (1.95)
Defining turnout relative to the population that is 15 or more years old	0.996** (2.48)	0.0110 (1.01)
Treated group based on Prob(Run for Reelection in 2009) > 0.7	0.837** (2.41)	0.0178* (1.90)
Fractional probit	1.052*** (3.19)	0.0173* (1.96)
Beta Regression	1.070*** (3.27)	0.0174** (1.99)

Notes: Each line corresponds to a different regression. All models include municipal and election fixed effects, and the control variables of the models of Table 2. NUTS III region-specific trends are included, except when otherwise indicated. Marginal effects are reported for Fractional Probit and Beta Regression methods. Robust t-statistics in parentheses (standard errors clustered by municipality). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table C.2: Robustness Tests for Parishes**

Robustness check	Term-limited mayor	Term-limited parish president
Using municipal trends	1.418*** (5.06)	0.838*** (3.62)
Using a single trend for treated municipalities	0.827*** (3.25)	1.164*** (4.10)
Using data only since 2001	1.072*** (4.45)	0.954*** (3.91)
Using data only since 2005	0.954*** (4.09)	1.366*** (5.68)
Using data only since 2009	0.886*** (3.71)	1.601*** (6.73)
Using data only for 2001 and 2013	1.255*** (3.94)	0.433 (1.42)
Excluding covariates with interpolated data	1.092*** (4.44)	0.934*** (3.79)
Defining turnout relative to the population that is 15 or more years old	1.405*** (4.07)	0.861** (2.54)
Fractional probit	1.170*** (4.89)	0.956*** (4.00)
Beta Regression	1.187*** (4.97)	0.969*** (4.06)

Notes: Each line corresponds to a different regression. All models include municipal and election fixed effects, and the control variables of the parsimonious models of Table 5. NUTS III region-specific trends are included, except when otherwise indicated. Marginal effects are reported for Fractional Probit and Beta Regression methods. Robust t-statistics in parentheses (standard errors clustered by parish). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix D. Descriptive Statistics

**Table D.1: Descriptive Statistics for Municipalities**

VARIABLES	N. Obs.	Mean	SD	Min	Max
<i>Dependent and term limits variables</i>					
Turnout (participation rate of registered voters)	1,493	63.87	8.274	37.77	83.43
Term-limited mayor	1,493	0.107	0.309	0.00	1.00
Re-election eligible mayor does not run	1,493	0.128	0.334	0.00	1.00
Mayors resigns (=1) or runs for other office (=2)	1,493	0.206	0.582	0.00	2.00
Share of voters with term-limited parish president	1,493	3.358	10.84	0.00	100.00
<i>Control variables</i>					
Unemployment rate	1,493	6.718	2.882	1.27	18.29
Log(Average real wage)	1,474	6.728	0.171	6.32	7.56
Log(Own revenues - real per capita)	1,493	5.517	0.533	3.72	7.49
Log(Population)	1,493	9.755	1.108	6.05	13.32
Population growth (absolute value)	1,493	4.165	3.453	0.002	29.59
Share of population over 65 years old	1,493	21.34	6.352	7.76	44.28
Share of pop. with less than primary education	1,493	13.59	5.099	4.14	35.29
Effective number of parties (Municipal Council)	1,493	2.011	0.393	1.00	4.46
Mayor's margin of victory (previous election)	1,493	19.44	14.13	0.02	75.75
Party similarity (mayor and prime minister)	1,493	0.408	0.492	0.00	1.00
Presence of independent lists	1,493	0.303	0.460	0.00	1.00
Average past vote share of left-wing parties	1,493	50.77	19.70	3.83	95.75
Average past turnout	1,493	65.73	6.829	43.98	82.79
Number of municipalities	308	308	308	308	308

Sources: Ministry of Internal Affairs (MAI), National Statistics Institute (INE), Directorate General for Local Authorities (DGAL), Institute for Employment and Professional Training (IEFP), Quadros de Pessoal database of the Ministry of Labor, Solidarity and Social Security.

**Table D.2: Descriptive Statistics for Parishes**

VARIABLES	N. Obs.	Mean	SD	Min	Max
<i>Dependent and term limits variables</i>					
Turnout (particip. rate of registered voters)	10,756	66.25	9.374	28.73	95.84
Term-limited mayor	10,756	0.108	0.311	0.00	1.00
Term-limited parish president	10,756	0.082	0.274	0.00	1.00
Term-limited mayor * Term-lim. parish pres.	10,756	0.048	0.215	0.00	1.00
<i>Control variables with data at the parish level</i>					
Unemployment rate	10,666	5.857	3.530	0.00	29.01
Log(Population)	10,756	7.029	1.081	4.53	11.11
Population growth (absolute value)	10,756	5.229	4.664	0.00	138.3
Share of the population above 65 years old	10,756	23.72	10.31	4.59	65.44
Share of pop. with less than primary educ.	10,756	21.02	6.814	0.00	60.71
Effective number of parties (Parish Assemb.)	10,756	2.113	0.662	1.00	8.00
Parish pres. margin of victory (prev. election)	10,756	25.03	19.69	0.00	97.80
Party similarity (parish president and mayor)	10,756	0.655	0.475	0.00	1.00
Presence of independent lists	10,756	0.171	0.377	0.00	1.00
Average past vote share of left-wing parties	10,756	45.71	19.82	0.57	97.86
Average past turnout	10,756	67.69	8.185	29.62	90.68
<i>Control variables with data at the municipal level</i>					
Log(Average real wage)	10,369	6.695	0.148	6.32	7.56
Log(Own revenues - real per capita)	10,756	5.381	0.502	3.72	7.49
Effective number of parties (Municipal Council)	10,756	1.980	0.355	1.00	4.46
Mayor's margin of victory (previous election)	10,756	19.58	13.94	0.02	75.75
Party similarity (mayor and prime minister)	10,756	0.423	0.494	0.00	1.00
Presence of independent lists	10,756	0.316	0.465	0.00	1.00
Number of parishes	2,163	2,163	2,163	2,163	2,163

Sources: Ministry of Internal Affairs (MAI), National Statistics Institute (INE), Directorate General for Local Authorities (DGAL), Institute for Employment and Professional Training (IEFP), Quadros de Pessoal database of the Ministry of Labor, Solidarity and Social Security.



## Appendix E. Term limits and competitiveness of elections in Portuguese Parishes

**Table E.1: Effects of Term Limits on the Win-Margin - Parishes**

VARIABLES	(1) Fixed Effects	(2) Fractional Probit	(3) Beta Regression
Term-limited parish president	-12.39*** (-14.05)	-12.23*** (-14.20)	-11.81*** (-13.41)
Unemployment rate	-0.00750 (-0.07)	-0.0129 (-0.13)	0.0442 (0.43)
Party similarity (parish president and mayor)	1.379*** (3.13)	1.361*** (3.06)	1.211*** (2.73)
Presence of independent lists	-3.612*** (-5.79)	-3.720*** (-6.01)	-3.710*** (-5.73)
Effective number of parties (Parish Assembly)	-14.22*** (-10.32)	-13.26*** (-10.74)	-13.49*** (-10.52)
Observations	10,695	10,695	10,695
Parishes	2,144	2,144	2,144
Log-likelihood	-43917	-5539	7369

Notes: The dependent variable, Win-margin, is the difference in vote shares between the two most voted parties/lists. The estimation method used in each regression is indicated in the title of the respective column. All models include parish and election fixed effects. Marginal effects (in percentage points) are reported for Fractional Probit and Beta Regression methods. Robust t-statistics in parentheses (standard errors clustered by parish). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix F. Multilevel Models for Parishes

**Table F.1: Multilevel Mixed-Effects Linear Regressions for Parishes**

VARIABLES	(1) Random Intercepts	(2) Random Intercepts & Slopes
Term-limited mayor	0.958*** (4.43)	0.899*** (2.76)
Term-limited parish president	0.880*** (4.16)	0.881*** (3.32)
<i>Control variables at the parish level</i>		
Population growth (absolute value)	-0.0378*** (-2.76)	-0.0431*** (-3.20)
Share of population with less than primary education	-0.0803*** (-5.34)	-0.0918*** (-6.13)
Effective number of parties in the Parish Assembly	1.564*** (9.70)	1.495*** (9.33)
Parish president's margin of victory (previous election)	-0.0138*** (-4.87)	-0.0146*** (-5.24)
Party similarity (parish president and mayor)	-0.466*** (-4.18)	-0.455*** (-4.17)
Presence of independent lists	0.958*** (6.70)	1.046*** (7.28)
Average past vote share of left-wing parties	-0.0166*** (-2.98)	-0.0256*** (-4.41)
<i>Control variables at the municipal level</i>		
Mayor's margin of victory (previous election)	-0.0250*** (-5.94)	-0.0275*** (-6.45)
Party similarity (mayor and prime minister)	-0.314*** (-2.97)	-0.272** (-2.19)
Number of observations	10,756	10,756
Number of parishes	2,144	2,144
Number of municipalities	302	302
Log-likelihood	-33,627	-33,483

Notes: All models include election dummies and NUTS III region-specific trends. Robust t-statistics in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix G. Placebo Tests

**Table G.1: Placebo tests for the 2005 and 2009 elections**

	(1) Fixed Effects	(2) Fractional Probit	(3) Beta Regression
<i>Placebo test for treatment in the 2005 elections</i>			
Municipalities			
Term-limited mayor	0.159 (0.23)	0.122 (0.22)	0.116 (0.21)
Share of voters with term-limited parish president	-0.0172 (-0.84)	-0.0170 (-1.03)	-0.0172 (-1.04)
Parishes			
Term-limited mayor	-0.0012 (-0.01)	0.0107 (0.05)	0.0431 (0.21)
Term-limited parish president	-0.709*** (-3.35)	-0.715*** (-3.38)	-0.719*** (-3.41)
<i>Placebo test for treatment in the 2009 elections</i>			
Municipalities			
Term-limited mayor	-0.225 (-0.43)	-0.123 (-0.27)	-0.103 (-0.23)
Share of voters with term-limited parish president	-0.00206 (-0.12)	-0.00297 (-0.20)	-0.00411 (-0.28)
Parishes			
Term-limited mayor	-0.0510 (-0.22)	0.0600 (0.26)	0.0768 (0.33)
Term-limited parish president	-0.773*** (-3.49)	-0.737*** (-3.38)	-0.738*** (-3.40)

Notes: The estimation method used in each regression is indicated in the title of the respective column. All models include municipal and election fixed effects, NUTS III region-specific trends, and the sets of control variables. Marginal effects are reported for Fractional Probit and Beta Regression methods. Robust t-statistics in parentheses (standard errors clustered by municipality/parish). \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## Appendix H. Plausibility of as-if assignment (excluding non-compliers)

**Table H.1: Difference of Means Tests Between Treatment and Control Groups, Excluding Non-Compliers (1997-2009)**

	Control group		Treated group		Difference	
	Mean	Obs.	Mean	Obs.	Mean	p-value
Turnout (participation rate of registered voters)	65.486	300	64.085	546	1.401	0.013**
Unemployment rate	5.957	300	6.129	546	-0.173	0.342
Log(Average real wage)	6.727	300	6.718	546	0.009	0.478
Log(Own revenues - real per capita)	5.448	300	5.491	546	-0.043	0.278
Log(Population)	9.729	300	9.869	546	-0.141	0.078*
Population growth (absolute value)	3.955	300	3.956	546	-0.001	0.994
Share of population over 65 years old	20.753	300	20.970	546	-0.217	0.645
Share of pop. with less than primary education	14.379	300	14.761	546	-0.382	0.302
Effective number of parties (Municipal Council)	2.128	300	1.984	546	0.143	0.000***
Mayor's margin of victory (previous election)	14.222	300	20.691	546	-6.469	0.000***
Party similarity (mayor and prime minister)	0.393	300	0.441	546	-0.048	0.176
Presence of independent lists	0.320	300	0.315	546	0.005	0.882
Average past vote share of left-wing parties	50.957	300	51.373	546	-0.416	0.769
Average past turnout	66.069	300	65.349	546	0.720	0.145

**Table H.2: Regressions of Treatment on all Covariates, Excluding Non-Compliers  
(averages 1997-2009)**

VARIABLES	(1) OLS	(2) Probit
Unemployment rate	0.0154 (0.81)	0.0402 (0.74)
Log(Average real wage)	-0.195 (-0.74)	-0.661 (-0.95)
Log(Own revenues - real per capita)	0.127 (1.55)	0.345 (1.48)
Log(Population)	0.0804* (1.76)	0.231* (1.73)
Population growth (absolute value)	-0.00953 (-0.73)	-0.0278 (-0.76)
Share of population over 65 years old	0.00997 (1.15)	0.0294 (1.12)
Share of pop. with less than primary education	0.000968 (0.09)	0.00307 (0.09)
Effective number of parties (Municipal Council)	-0.140 (-0.89)	-0.391 (-0.90)
Mayor's margin of victory (previous election)	0.0126*** (2.76)	0.0379** (2.56)
Party similarity (mayor and prime minister)	0.153 (1.37)	0.460 (1.40)
Presence of independent lists	-0.108 (-0.35)	-0.311 (-0.37)
Average past vote share of left-wing parties	-0.000177 (-0.08)	0.000548 (0.09)
Average past turnout	0.00138 (0.23)	0.00331 (0.19)
Observations	222	222
Adjusted R <sup>2</sup> (OLS) / Pseudo R <sup>2</sup> (Probit)	0.0660	0.0976

Notes: The dependent variable is a dummy variable that takes the value of 1 for treated municipalities. Averages for the pre-treatment period (1997-2009) were used for all explanatory variables. Robust t-statistics in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.