A Costly Commitment: Populism, Economic Performance, and the Quality of Bureaucracy

Supplemental Information

Luca Bellodi* Massimo Morelli† Matia Vannoni‡

Contents

*Bocconi University.
†Bocconi University.
‡King's College London.

A Populist Parties in Italy

In this section we provide qualitative information about the five main populis parties in Italy.

The Lega (Nord) was established in 1991, with a strong regionalist and secessionist focus (Meardi and Guardiancich 2021). Together with Giorgia Meloni's Fratelli d'Italia, established in 2012, the new leadership of Salvini in 2013 moved the party to a more right-wing, conservative, nationalist platform, with a strong focus on anti-immigration and security. The Five-Star Movement, instead, was established as a more participatory and deliberative platform, advocate of direct democracy, and with a strong anti-elite identity (Mosca and Tronconi 2019). Despite some stark differences, they all share the aversion to austerity measures and see the European Union as a technocratic organisation which puts at risk the national interest (Caiani and Graziano 2019). Silvio Berlusconi's Forza Italia and, then, Il Popolo della Libertà, has been portrayed as the first instance of populist party in Italy, known for its anti-establishment and people-centric rhetoric against corrupt elites, intellectuals and members of the judiciary (Van Kessel 2015). However, the populist nature of Forza Italia, which replaced Il Popolo della Libertà after its dissolution in 2013, has been recently questioned in the literature. PopuList, for instance, stops coding Forza Italia as populist after 2018, for it is considered a borderline case (Rooduijn et al. 2019). In Figure 4 we show that our results are robust to omitting these two parties from the list of populist parties.

The features that can be found in Italian populism are far from being a distinct characteristic of Italian politics. The combination of anti-establishment sentiment with right-wing conservatism, holistic-representation ambitions, and economic nationalism can be found in many countries and regions of the world, from Latin to North America, Europe, Asian, and Africa alike (Moffitt 2016).

A.1 Distribution of Candidates Across Supporting Populist Parties

Table A.1 shows the distribution of populist candidates across supporting populist parties for all mayors supported by one (diagonal of the matrix) or two parties (every other entry).

	Forza Italia	Pop. Libertà	Lega (Nord)	Fratelli d'Italia	Movimento 5 Stelle	Liga Veneta	Lega Az. Meridionale
Forza Italia	1,310	2	352	85	0	0	0
Popolo della Libertà		781	738	13	0	0	0
Lega (Nord)			3,211	384	0	1	0
Fratelli d'Italia				84	0	0	0
Movimento 5 Stelle					763	0	0
Liga Veneta						3	0
Lega d'Azione Meridionale							0

Table A.1: Distribution of populist candidates across supporting populist parties. Each entry in the matrix represent the number of candidates supported by the parties in the respective row and column. Diagonal of the matrix shows the number of candidates supported by one populist parties. The 169 instances where mayors are supported by the right-wing populist coalition (Forza Italia, Lega (Nord), and Fratelli d'Italia) have been omitted.

B Datasets

In this section we provide detailed information on the source of data used to assemble the dataset.

We obtained election data directly from the Ministry of Interior. Similar data – with less detailed information on the denomination of the party-lists supporting each candidate – is reported in the Historical Electoral Archive accessible at https://elezioni.interno.gov.it/opendata. The dataset includes information about every mayoral candidate in the total population of municipal elections from 1989 to 2020. We focus on the elections where *one* populist candidate ran against *at least one* non-populist candidate. Municipalities with more than 15,000 inhabitants have a two-round electoral system, where the two most voted candidates compete in a second round when no one obtains more than 50% of votes in the first round. When a second-round occurred, we focused on the two candidates running in the second round. As a result, if a populist was running in the first round but did not qualify to the second round, the election is excluded from the sample.

Data on bureaucratic composition of municipal governments is obtained from the Annual Account of the Italian General Accounting Office, which is a department within the Ministry of the Economy and Finance (available at https://contoannuale.rgs.mef.gov.it/). The richness of this data allows us build fine-grained measures of bureaucratic turnover and level of education from 2001 to 2019 across all Italian municipalities. Importantly, we are able to focus on key bureaucrats within municipal governments, namely those with managerial rank. To do this, we subset each datasets of the Annual Account to macro-categories of contracts which contain the word *dirigente* (manager).

Database on Local Administrators with information on the number of local councillors and members of the executive committee, as well as the job, gender, date and place of birth of the mayor, is available at http://dait.interno.gov.it/elezioni/open-data. Data on debt repayment for the period 2008-2019 available at http://dati.statistiche-pa.it. Procurement data available at https://dati.anticorruzione.it. Demographic and territorial data were downloaded from the National Institute of Statistics database at http://dati.istat.it/.

Because not every dataset resorts to unique code identifiers, we alternated merging strategies using strings that combined both the municipality and region name, the unique identifiers assigned by the National Institute of Statistics, or the unique code attached to each municipality's budget data.

C Treatment and Control Group

In the table below we report a summary description of the treatment and control groups for the RD analysis.

Treatment Group
1) one populist candidate runs against one or more non-populist candidates in election year T
2) the populist candidate barely wins
3) we analyse outcomes for that municipality during every calendar year t until the next election in $T+1$
Control Group
1) one populist candidate runs against one or more non-populist candidates in election year T
2) the populist candidate barely loses
3) we analyse outcomes for that municipality during every calendar year t until the next election in $T+1$

Table C.2: Description of treatment and control groups.

D Validity of RDD

In this section we report falsification tests for the regression discontinuity design.

D.1 Continuity of Density

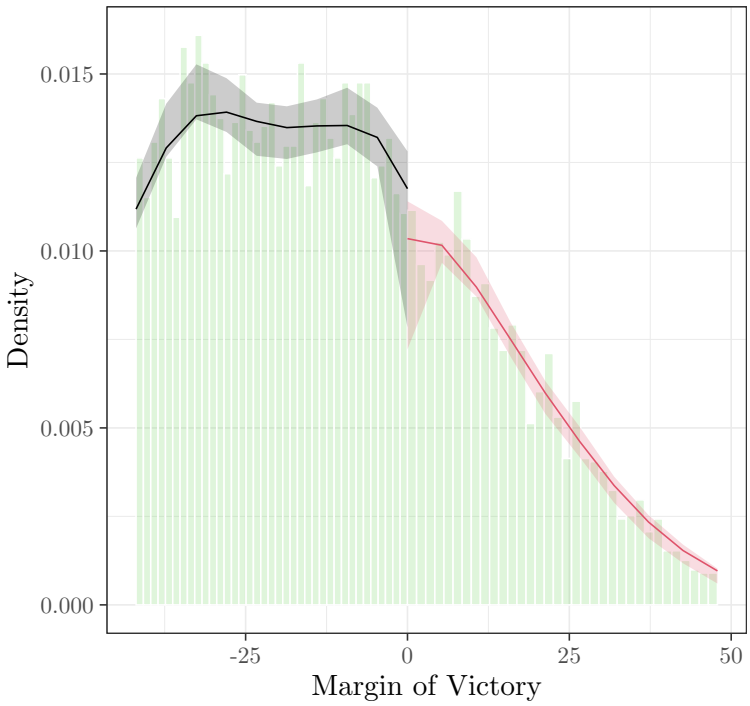

Figure D.1: Manipulation test using the local polynomial density estimator proposed by (Cattaneo, Jansson, and Ma 2020). Histogram estimate of the running variable computed with default values in R; local polynomial density estimate (solid dark and red) and robust bias corrected confidence intervals (shaded dark and red) computed using *rddensity* package in R. We cannot reject the reject the null hypothesis of no sorting with p.value = 0.547.

D.2 Continuity of Potential Outcomes

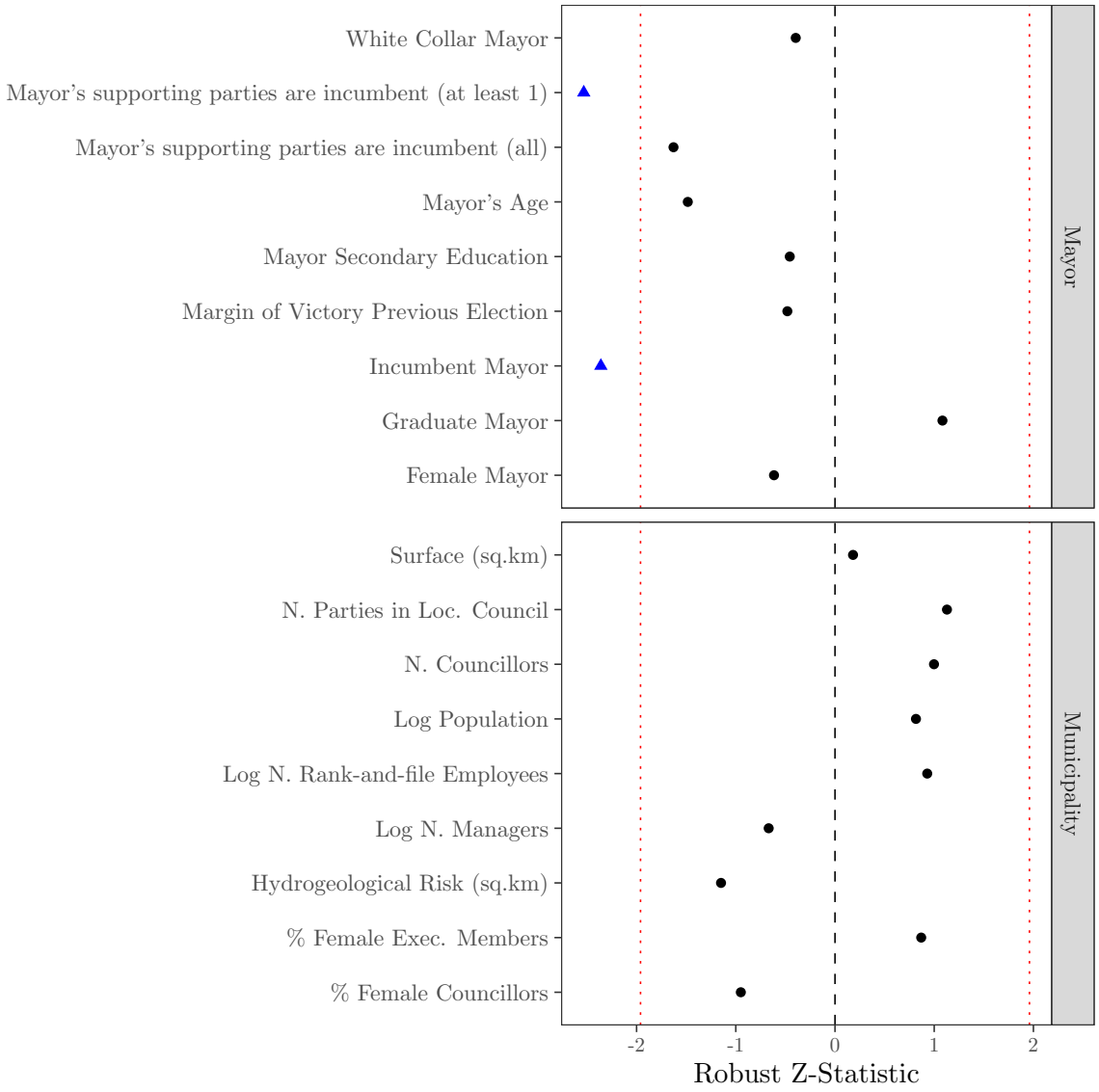

Figure D.2: RD robust Z-statistics of the effect of electing a populist mayor on pre-treatment covariates with vertical line at 95% confidence level. Unit of analysis is municipality-election year for covariates that do not change within the government term, whereas unit of analysis is municipality-calendar year for covariates that do change within the government term (i.e., population, number of rank-and-file employees, and n. of public managers). Estimates constructed using local polynomial estimators with triangular kernel and CER-optimal bandwidth [as suggested by Cattaneo2019, Ch. 5]. Robust p-values using bias-correction with cluster robust standard errors at municipality level. Same covariates as in Table 2, except for the covariate used as outcome variables (year dummies included only for covariates that change at calendar-year level). Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

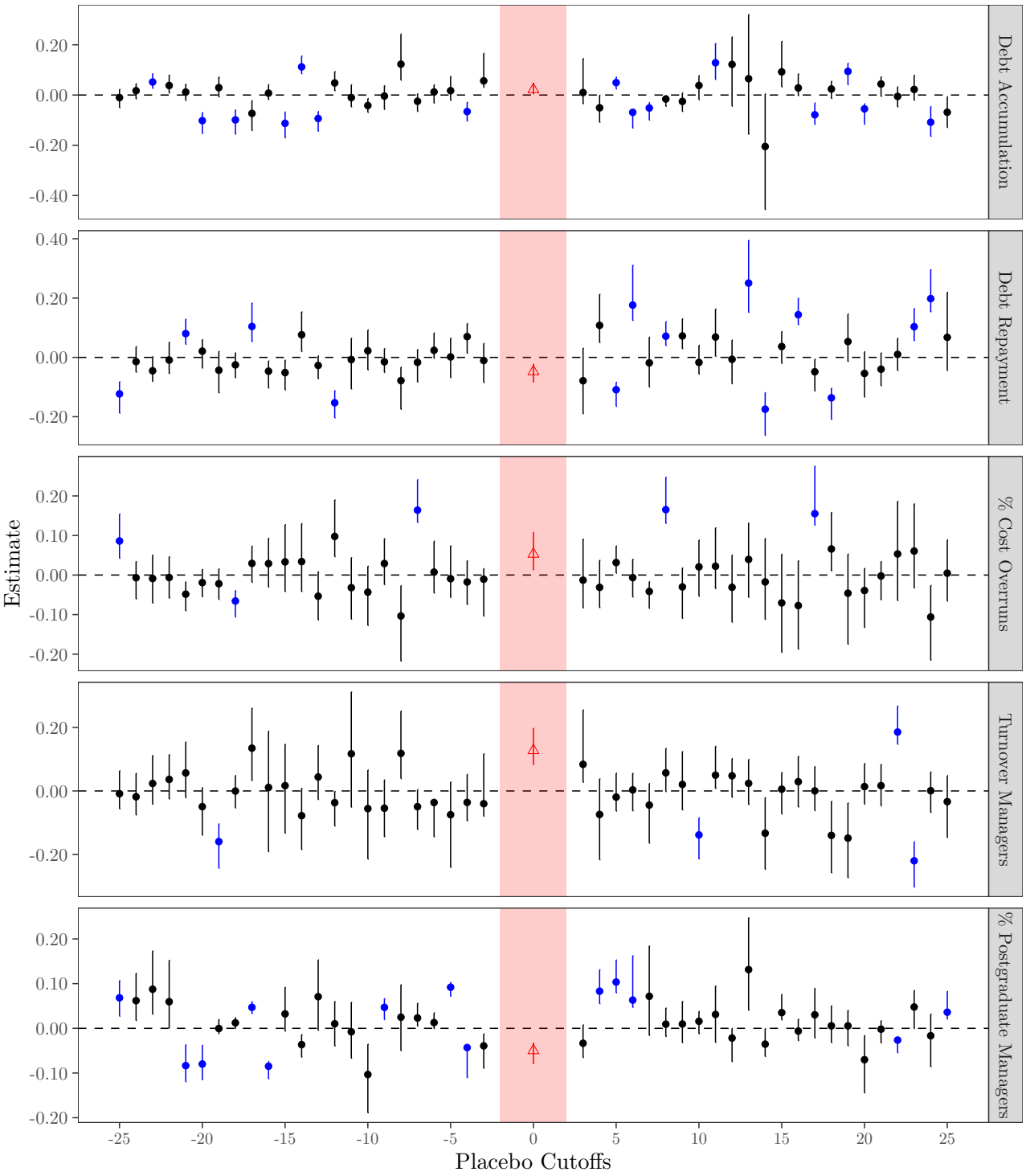

Figure D.3: RD estimates with 95% cluster-robust CI of the effect of electing a populist mayor with placebo cutoffs. Red coefficients at true cutoff (margin of victory = 0). Blue coefficients when p.value after multiple testing adjustment is smaller than 0.05. Multiple-testing adjustment performed separately for each outcome variable with Bonferroni procedure to control for the false discovery rate. RD estimates constructed separately on control unit when placebo cutoff < 0, and on treated unit when placebo cutoff > 0. Placebo cutoffs very close to 0 (i.e., 1%, 2%) omitted due to small sample size. Estimation performed using local polynomial estimators with triangular kernel and MSE-optimal bandwidth. Confidence interval constructed using bias-correction with cluster robust standard errors at municipality level. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, municipality, and year-election dummies. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019. We fail to detect a discontinuity statistically significant effects in 78% of the tests.

Outcome	**% of non-significant estimates**
Debt Accumulation	67
Debt Repayment	72
% Cost Overrun	89
Turnover Managers	91
% Postgraduate Managers	72
Average	**78**

Table D.3: Share of non-significant estimates at placebo cutoffs ranging from −25 to +25 after multiple-testing adjustment separately for each outcome as displayed in Figure D.3.

	Lagged DV				
	Economic Performance			**Quality of Bureaucrats**	
Outcomes	Debt Accumulation	Debt Repayment	% Cost Overruns	Turnover Managers	% Postgraduate Managers
Estimate	-0.004	-0.002	0.011	-0.027	-0.047
95% CI	[-0.036, 0.037]	[-0.054, 0.063]	[-0.033, 0.060]	[-0.088, 0.022]	[-0.105, -0.007]
h	18.617	13.457	15.513	17.050	9.349
Obs. Used	3,540	2,667	397	2,070	1,258

Table D.4: RD estimates of the effects of electing a populist mayor in year T on outcomes observed between election T and $T-1$. Estimates constructed using local polynomial estimators with triangular kernel. Robust 95% confidence interval constructed using bias-correction with cluster robust standard errors at municipality level, h is the MSE-optimal bandwidth. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, municipality, and year-election dummies. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

E Robustness Tests

E.1 Alternative Bandwidths and Bandwidth Selectors

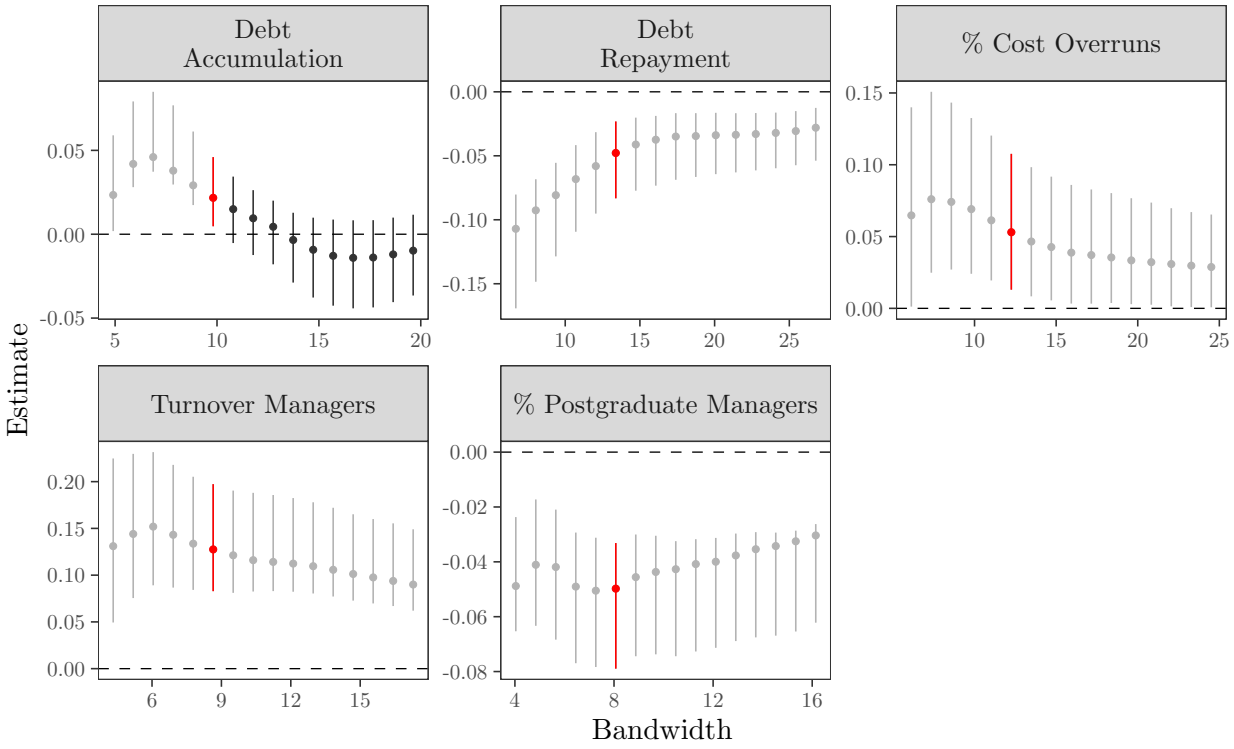

Figure E.4: RD estimates with 95% cluster-robust CI of the effect of electing a populist mayor with alternative bandwidths. Red coefficients estimated with MSE-optimal bandwidth and grey coefficients statistically significant at 95% level. Alternative bandwidths selected automatically ranging from half to 2 times the MSE-optimal bandwidth at interval of .1 (i.e., $h \times j$, where $j = 0.5, 0.6, 0.7, ..., 2$). Estimates constructed using local polynomial estimators with triangular kernel and MSE-optimal bandwidth. Robust p-values and confidence interval constructed using bias-correction with cluster robust standard errors at municipality level. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, municipality, and year-election dummies. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

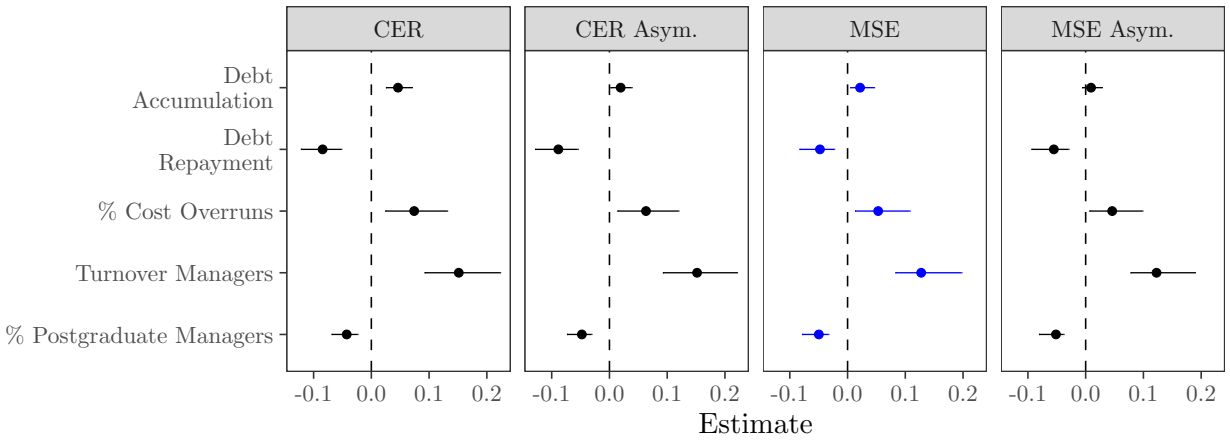

Figure E.5: RD estimates with 95% cluster-robust CI of the effect of electing a populist mayor with alternative bandwidth selection procedures (panel labels): mean-squared-error and coverage-error-rate optimal selectors both symmetric and asymmetric. MSE-optimal selector minimizes the asymptotic MSE of the point estimator, whereas the CER-optimal bandwidth minimizes the asymptotic coverage error rate of the robust bias-corrected confidence interval (Cattaneo, Idrobo, and Titiunik 2019). Blue coefficient for MSE-optimal selector used in baseline analysis. Estimates constructed using local polynomial estimators with triangular kernel. Robust p-values and confidence interval constructed using bias-correction with cluster robust standard errors at municipality level. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, municipality, and year-election dummies. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

E.2 Power Analysis

Stommes, Aronow, and Sävje (2021) assess the validity of 36 studies using the RDD published in top political science journals and find that most studies are poorly powered to detect anything but large effects. To strengthen the validity of our results, we conducted power analysis with the method implemented in the *rdpower* package (Cattaneo, Titiunik, and Vazquez-Bare 2019). We estimate the power of a two-tailed test at the 5% significance level. We use the default settings of the package and investigate power with respect to an effect size equal to the one estimated and reported in Table 2. Table E.5 below reports the statistical power to detect such effects. Except for debt accumulation, the probability of detecting true positive is greater than the conventional 0.8 threshold for each of our outcomes.

Outcome	Target Effect Size (Estimated Effect Size)	Power
Debt Accumulation	0.022	0.541
Debt Repayment	-0.048	0.977
% Cost Overruns	0.053	0.801
Turnover Managers	0.128	1.000
% Postgraduate Managers	-0.050	1.000

Table E.5: Statistical power achieved by an effect size equal to effects reported in Table 2. Analysis implemented with *rdpower* package in R. Calculation performed with same estimation and no covariates.

E.3 Main Results without Covariate-Adjustment

	Economic Performance			Quality of Bureaucrats	
Outcomes	Debt Accumulation	Debt Repayment	Percent Cost Overruns	Turnover Managers	Percent Postgraduate Managers
Estimate	0.008	-0.028	0.039	0.095	-0.041
95% CI	[-0.012, 0.034]	[-0.057, -0.004]	[0.006, 0.083]	[0.050, 0.157]	[-0.067, -0.024]
h	13.127	15.064	14.417	9.315	7.708
Obs. Used	5,177	5,789	1,538	1,834	1,479

Table E.6: RD estimates constructed using local polynomial estimators with triangular kernel. Robust 95% confidence interval constructed using bias-correction with cluster robust standard errors at municipality level, h is the MSE-optimal bandwidth. No covariates included. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

E.4 Alternative Measures of Cost Overruns

	Alternative Measures of Cost Overruns		
Outcomes	% Cost Overruns	% Cost Overruns (> 5%)	% Cost Overruns (> 10%)
Estimate	0.053	0.040	0.039
Robust 95% CI	[0.013, 0.108]	[0.007, 0.085]	[0.008, 0.081]
h	12.25	12.26	12.05
Obs. Used	1,166	1,166	1,143

Table E.7: RD estimates of the effect of electing a populist mayor on three alternative measures of cost overruns: percentage of procurement contracts with payments greater than awarded costs (baseline measure used in results in Table 2), and percentage of contracts with payments exceeding costs by at least 5% and 10%. Estimates constructed using local polynomial estimators with triangular kernel. Robust 95% confidence interval constructed using bias-correction with cluster robust standard errors at municipality level, h is the MSE-optimal bandwidth. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, municipality, and year-election dummies. Period of analysis 2012-2020.

F Additional Evidence on the Mechanism

In this section we provide additional tests to clarify or corroborate the mechanism underpinning our theoretical argument.

F.1 Unpacking the Effect on Turnover

	Components of Turnover		
Outcomes	Hirings/Total	Departures/Total	Hirings + Departures/Total
Estimate	0.063	0.059	0.128
Robust 95% CI	[0.033, 0.110]	[0.035, 0.099]	[0.083, 0.197]
h	9.33	9.39	8.64
Obs. Used	1,655	1,676	1,506

Table F.8: RD estimates of the effect of electing a populist mayor on managers' turnover and the two hirings and departures components thereof. Estimates constructed using local polynomial estimators with triangular kernel. Robust p-values and confidence interval constructed using bias-correction with cluster robust standard errors at municipality level, h is the MSE-optimal bandwidth. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, municipality, and year-election dummies. Period of analysis: 2001-2019.

	Rank-and-File Employees	
Outcomes	Turnover	% Graduate
Estimate	-0.021	-0.021
Robust 95% CI	[-0.033, -0.014]	[-0.029, -0.016]
h	8.53	10.85
Obs. Used	4,518	5,880

Table F.9: RD estimates of the effect of electing a populist mayor on turnover and education of rank-and-file employees. Estimates constructed using local polynomial estimators with triangular kernel. Robust p-values and confidence interval constructed using bias-correction with cluster robust standard errors at municipality level, h is the MSE-optimal bandwidth. Covariates include: population (log), surface (sq.km), surface at hydro-geological risk (sq.km), number of local councillors, gender, secondary education, degree, and white-collar job of mayor (all dichotomous), year, year-election. Period of analysis: 2001-2019.

F.2 Supply and Demand side of Turnover

Here we describe the various categories of managers' departures analysed in Figure **??**.

For every municipality with public managers, we have data on the number of departures. Every departure is associated with one of eight categories listed in Table **??**. These categories can be clustered in three groups: voluntary departures, forced departures, and a third cluster of unknown reasons.

Resignations consists of public managers unilaterally deciding to terminate their contract of employment. Similarly, it is public managers who need to apply and request to be *transferred to other administrations*. On the other hand, mayors can decide to *terminate the contract of public managers* (especially with fixed term contracts), they can *fire* them, and they can *force the retirement* when there are age limits. Normal *retirements* automatically occur after 40 years of work, and *transfers due to outsourcing* materialize when public services are outsourced to a public-owned company. There is also a big black box consisting of *"other reasons"*, which is the largest category of managers' departures.

F.3 Heterogeneity Analysis

In Table F.10 below, we report the estimated differences in the RD coefficients from two samples: second and first half of the government term. There are no differences that are statistically significant at standard confidence levels. The results do not change if we perform the analysis separately for each year of the government term.

	First Half		**Second Half**		**Difference (Second-First)**		
Outcome	Estimate	SE	Estimate	SE	Difference	SE	p.value
Debt Accumulation	-0.030	0.044	0.014	0.027	0.044	0.051	0.391
Debt Repayment	0.010	0.044	-0.060	0.038	-0.070	0.058	0.225
% Cost Overruns	0.019	0.027	0.050	0.037	0.031	0.046	0.499
Turnover Managers	0.066	0.063	0.103	0.050	0.037	0.080	0.646
% Postgraduate Managers	-0.030	0.029	-0.039	0.021	-0.009	0.036	0.808

Table F.10: RD estimates of the effect of electing a populist mayor estimated on two sub-samples of observations in first (first three years) and second half of the government mandate (remaining years), as well as the difference in RD estimates. Same estimation of baseline analysis. To maximize sample size, no covariates were included. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

One reason why we fail to detect significant differences over the government term is that personnel changes are spread quite evenly over the government term, although with a slight decreasing trend, as evidenced by the descriptive statistics in Table F.11 below.

	Turnover		**Departures**		**Hirings**	
Year of Government Term	Mean	SD	Mean	SD	Mean	SD
1	0.34	0.54	1.09	2.74	0.67	1.74
2	0.23	0.43	0.64	2.03	0.54	1.14
3	0.20	0.34	0.63	1.81	0.47	2.13
4	0.20	0.39	0.65	1.68	0.44	1.25
5	0.19	0.38	0.60	1.46	0.37	1.12

Table F.11: Descriptive statistics of turnover, hired and fired managers over the government term. Departures and Hirings are averages of the number of managers that leave and join the municipality. Turnover is measured as the sum of managers who join and leave divided by the total number of managers in any given year.

As for the geographical differences, in Table F.12 below we report the estimated differences in the RD coefficients from two samples: municipalities located in the Centre/South and North of the country, which is the most intuitive geographical divide given the persisting socio-economic differences between the North and South of the country.

As displayed in the table, there are three differences that are statistically significant at standard confidence levels, two for the performance outcomes and one for the level of education of public managers. However, these differences are in contrasting directions. While populists elected in the Centre-South do a better job of repaying debts, they exhibit larger shares of procurements contracts with cost overruns and a larger decrease in the share of postgraduate managers.

	Centre/South		**North**		**Difference (Centre/South-North)**		
Outcome	Estimate	SE	Estimate	SE	Difference	SE	p.value
Debt Accumulation	-0.023	0.046	0.049	0.014	-0.072	0.048	0.134
Debt Repayment	0.020	0.035	-0.062	0.014	0.082	0.038	0.030
% Cost Overruns	0.185	0.063	0.006	0.021	0.179	0.066	0.007
Turnover Managers	0.133	0.051	0.071	0.032	0.062	0.060	0.303
% Postgraduate Managers	-0.059	0.015	-0.022	0.007	-0.037	0.017	0.025

Table F.12: RD estimates of the effect of electing a populist mayor estimated on two sub-samples of observations in the North and Centre-South of the country, as well as the difference in RD estimates. Same estimation of baseline analysis. To maximize sample size, no covariates were included. Northern regions are Veneto, Trentino-Alto Adige, Piemonte, Lombardia, Liguria, Friuli-Venezia Giulia, Emilia-Romagna. Centre and southern regions are the remaining 13 regions. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

In Table F.13 below we show the difference in the effects estimated from a subset of the dataset used for the analysis with population below and above the median (8,616 inhabitants). Overall, we find smaller effects in larger municipalities for performance outcomes, no difference for turnover, and a larger decrease in the percentage of postgraduate managers in larger municipalities.

	Above Median Population		**Below Median Population**		**Difference (Above-Below)**		
Outcome	Estimate	SE	Estimate	SE	Difference	SE	p.value
Debt Accumulation	-0.036	0.017	0.094	0.018	-0.130	0.025	0.000
Debt Repayment	0.026	0.015	-0.081	0.020	0.107	0.025	0.000
% Cost Overruns	0.018	0.027	0.101	0.041	-0.083	0.049	0.091
Turnover Managers	0.116	0.025	-0.131	0.363	0.247	0.364	0.497
% Postgraduate Managers	-0.044	0.012	0.000	0.005	-0.044	0.013	0.001

Table F.13: RD estimates of the effect of electing a populist mayor estimated on two sub-samples of observations above and below the median population size (8,616 inhabitants), as well as the difference in RD estimates. Same estimation of baseline analysis. To maximize sample size, no covariates were included. Period of analysis: cost overruns 2012-2020, debt accumulation and repayment 2008-2019, turnover and education of bureaucrats 2001-2019.

References

Caiani, Manuela, and Paolo Graziano. 2019. "Understanding varieties of populism in times of crises." *West European Politics* 42 (6): 1141–58. https://doi.org/10.1080/01402382.2019.1598062.

Cattaneo, Matias D, Nicolas Idrobo, and Rocío Titiunik. 2019. *A Practical Introduction to Regression Discontinuity Designs: Foundations*. Vol. I. Cambridge University Press.

Cattaneo, Matias D, Michael Jansson, and Xinwei Ma. 2020. "Simple Local Polynomial Density Estimators." *Journal of the American Statistical Association* 115 (531): 1449–55. https://doi.org/10.1080/01621459.2019.1635480.

Cattaneo, Matias D, Rocío Titiunik, and Gonzalo Vazquez-Bare. 2019. "Power calculations for regression-discontinuity designs." *Stata Journal* 19 (1): 210–45. https://doi.org/10.1177/1536867X19830919.

Meardi, Guglielmo, and Igor Guardiancich. 2021. "Back to the familialist future: the rise of social policy for ruling populist radical right parties in Italy and Poland." *West European Politics*, 1–23. https://doi.org/10.1080/01402382.2021.1916720.

Moffitt, Benjamin. 2016. *The Global Rise of Populism. Performance, Political Style, and Representation*. Stanford University Press. https://doi.org/10.11126/stanford/9780804796132.003.0001.

Mosca, Lorenzo, and Filippo Tronconi. 2019. "Beyond left and right: the eclectic populism of the Five Star Movement." *West European Politics* 42 (6): 1258–83. https://doi.org/10.1080/01402382.2019.1596691.

Rooduijn, M., S. Van Kessel, C. Froio, A. Pirro, S. De Lange, D. Halikiopoulou, P. Lewis, C. Mudde, and P. Taggart. 2019. "The PopuList: An Overview of Populist, Far Right, Far Left and Eurosceptic Parties in Europe." www.popu-list.org.

Stommes, Drew, P. M. Aronow, and Fredrik Sävje. 2021. "On the reliability of published findings using the regression discontinuity design in political science," 1–31. http://arxiv.org/abs/2109.14526.

Van Kessel, Stijn. 2015. *Populist parties in Europe: Agents of Discontent?* New York: Palgrave Macmillan. https://doi.org/10.1057/9781137414113.