



**POLITICAL SELECTION AND MONETARY INCENTIVES
IN LOCAL PARLIAMENTARY SYSTEMS**

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Choosing not to lead: Monetary incentives and Political Selection in Local Parliamentary Systems *

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Abstract

Using a rich database covering all local politicians in Italian municipalities, we implement a regression-discontinuity analysis to evaluate the causal effect of monetary incentives on political selection in local parliamentary systems. We find that higher (expected) wages result in more educated council members and more educated executives, but not more educated mayors. While low-wage councils tend to elect mayors who have almost two years of schooling more than the median councillor, this difference vanishes in high-wage councils. We rationalize this finding in a model where better educated councillors shy away from better-paid but full-time positions (such as mayor) and prefer less-paid but part-time positions (executives) which allow them to devote more time to work while in office. An analysis by politicians' occupation provide support to this explanation. Our results thus highlight that the effects of monetary incentives are not invariant across different institutional settings, especially when election systems include a parliamentary stage.

JEL Classification: M52, D72, J45, H70.

Keywords: Political Selection, Monetary Incentives, Parliamentary System, Local Politicians, Moonlighting

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1 Introduction

This paper analyses the interplay between indirect election systems and monetary incentives and how this affects the selection of local politicians. Higher wages for leading positions are typically found to attract better candidates when the election system is direct, i.e., when the voters directly cast ballots for the persons or political party that they desire to see elected (Gagliarducci and Nannicini, 2013). However, in a system where the voters elect a body that in turn elects the officeholder, whether higher wages translate into better-educated leaders is more debatable.

To address this question, we investigate the impact of a remuneration policy on the relative quality of the elected leader within the body, that is, the quality gap between the leader and those who elected her.¹ We study a large sample of Italian municipalities between 1985 and 1990, when the remuneration for local administrators was based on a step-function of the municipality population. We leverage this feature to implement a regression-discontinuity analysis around the 5,000 inhabitants threshold – where mayor’s wage increases by almost 30% – to evaluate the causal effect of higher remuneration on the characteristics of the elected councillors and the (council-elected) mayor and executives. To account for the presence of a confounding treatment around the same population threshold – the electoral rule also changes from majoritarian to proportional for municipalities above 5,000 inhabitants – we limit our sample to *stronghold* municipalities, that is, municipalities where the leading party is likely to obtain the majority of seats and to form a single-party government regardless of the electoral rule.

We provide three main findings. Consistent with the existing literature on the selection of local politicians, we find that (i) higher expected wages result in more educated members of the local council (+0.9 year of schooling on average) and in (ii) better educated executives (+0.6 years of schooling). However, (iii) higher expected wages do not result in better educated mayors: while mayors in control (low-wage) councils are almost 2 years more educated than the median councillor and the median executive, this difference vanishes in high-wage councils.

To rationalize this counterintuitive finding, we adapt and extend the model by Gagliarducci, Nannicini, and Naticchioni (2010). The proposed mechanism is based on a key assumption: moonlighting (i.e. the possibility to work and earn outside income in the private sector while in office) is easier for executives rather than for mayors. We show that under some plausible conditions, better educated councillors shy away from better paid but full-time positions (mayors), rather opting for less-paid but more

¹As emphasized by Dal Bó and Finan (2018), quality is a loaded term but in the political economy literature it usually indicates performance-relevant traits like competence or integrity. In this paper we focus on the competence (i.e. skills) aspect of quality and, following the literature, we mainly use educational attainment (years of schooling) to proxy the individual quality of an elected politician. However, we also propose alternative measures of politicians’ skills for robustness checks in support of our results such as previous occupations.

flexible positions (executives) which allow them to enjoy an income outside their public office. We provide evidence for this mechanism by exploiting the heterogeneity in the possibility “moonlighting” associated to different occupations. We find that appointed councillors and executives are more likely to be employed in occupations that allow them to moonlight – for instance, self-employed professionals such as lawyers and engineers. Conversely, mayors are more likely to be retired (often with a degree), and thus their outside income does not depend on the time spent in political activities.

Taken together, our work suggests that the effects of monetary incentives are not invariant across different institutional settings. Our results can be directly compared to those of Gagliarducci and Nannicini (2013). They perform a similar regression-discontinuity analysis on a similar sample of Italian municipalities but focus on a different time span (1993-2001) when a presidential rather than a parliamentary form of local government was in place. Crucially, in this institutional setting the mayor is directly elected by citizens rather than by the council and executives are appointed by the mayor even from outside the council. Since they find robust evidence that higher wages attract better educated mayors, our results imply that the parliamentary stage of the election process can undo the positive selection effect of monetary incentives on elected local leaders. We believe our findings thus have important implications, as parliamentary forms of government are still widespread in many countries.²

More generally, our results are related to the literature on political selection and its implication on general well-being. Good policies are also the result of good politicians, both at the national (Besley, Montalvo, and Reynal-Querol (2011); Jones and Olken (2005) among others) and the local level (Chattopadhyay and Duflo (2004) and Meyerson (2014) among others). The thriving literature on topics related to political selection seems, therefore, highly motivated.³ One question that received more attention is whether we can “buy” better politicians. However, the evidence on whether higher rewards from office improve politicians’ quality remains inconclusive. On one hand, some recent works support a positive causal relationship between the wage and quality (commonly proxied with educational attainment and previous occupations) of elected local politicians. Besides the above-cited Gagliarducci and Nannicini (2013) (for Italian municipalities), these works include Dal Bó, Finan, and Rossi (2013) (for Mexican municipalities), Ferraz and Finan (2009) (for Brazilian municipalities), and Dal Bó et al. (2017) (for Sweden municipalities). On the other hand, other works focusing on politicians at the national or supranational level find no significant evidence of a positive causal relationship between pay and quality (as in Kotakorpi and Poutvaara (2011) and Hoffman and Lyons (2015), focusing respectively on Finnish and U.S. legislators) or even suggest that such a relationship is negative (as in Fisman et al. (2015) and

²Local parliamentary system are in place in Ireland, France, Portugal, Sweden, Czech Republic, Croatia, Denmark, Estonia, Finland, Latvia, Lithuania, Norway and in most UK and Russian municipalities (http://www.citymayors.com/government/europe_mayors.html)

³Recent developments on political selection are surveyed and discussed by Dal Bó and Finan (2018).

Braendle (2015), both focusing on members of the European Parliament).

We also relate to other recent works dealing with the impacts of electoral and mayors' selection rules. Gulino (2021) also uses micro-level data on Italian municipal elections focusing on the 1985 - 2000 period to evaluate how the change from majority to proportional rule at the 5,000 threshold affects the probability of re-election of mayors.⁴ Hessami (2018) exploits a quasi-experiment at the level of German municipalities to study the effect of the selection rule for mayors on their policy choices, finding that directly elected mayors attract significantly more grants in election years while there is no cycle for council-elected mayors. Finally, Enikolopov (2014) focuses on U.S. local government to study the difference between directly elected vs. council-appointed mayors on politically motivated targeted redistribution finding that appointed bureaucrats are less likely to use targeted redistribution than elected politicians and that this difference is, at least in part, driven by the difference in their career concerns.

The rest of the paper is organized as follows. Section 2 outlines the institutional setting. Section 3 presents the data and the identification strategy. Section 4 is devoted to the description of the main results while Section 5 discusses the possible mechanisms. Finally, section 6 concludes.

2 Institutional setting

2.1 Local government in Italy

We focus on the elections of mayors in Italian municipalities from 1985 to 1990. Municipalities are the third and last level of administrative divisions in the Italian state. They are responsible for the provision of some essential public goods such as local transportation, water supply, waste management, housing, and other welfare policies.

The government of the municipality is composed of the following bodies:

- **The elected council** (*Consiglio Comunale*) represents the local parliament and holds the legislative power with the mayor (it might or might not approve the policies promoted by the local government);
- **The mayor** (*Sindaco*) is the head of the local government and holds the legislative and executive power;
- **The executive committee** (*Giunta*) is the municipality's local government and represents the collegial body of the mayor's collaboration.

⁴Micro-level data on Italian municipalities before 1993 are also used by Daniele and Geys (2015) to show that the average education level of local politicians significantly increases when active mafia infiltration of local politics is remedied through the implementation of a stricter legal-institutional framework.

Table 1: *Legislative thresholds for Italian Municipalities 1985-1992*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Population	Size Council	Size Ex. comm.	Wage mayor	Wage Ex. comm.	Wage Council	Fee Council	Electoral Rule
Below 3,000	15	4	1,446	0%	0%	18	Majority
3,000-5,000	20	6	2,169	0%	0%	18	Majority
5,000-10,000	20	6	2,789	45%	0%	18	Proportional
10,000-30,000	30	6	3,099	45%	0%	22	Proportional

Notes: This table describes how the institutional features of the Italian municipalities vary depending on the municipality population. The wage of the mayor is defined as the gross wage measured in euros at 2000 prices. The wage of the executive committee and the wage of the councillors are expressed as a percentage of the wage of the mayor. Fee Council is the per-session reimbursement (in euros) paid to councillors. The table is adapted from Gagliarducci and Nannicini (2013) and Grembi, Nannicini, and Troiano (2016).

Until 1992, all Italian municipalities were ruled by a parliamentary system.⁵ Hence, citizens could only vote for parties and local members of the council. After the election, the councillors meet to appoint the mayor and the executive committee from *within their ranks*.

2.2 Politicians' wage and electoral rules across population thresholds

Since 1963, the remuneration of the mayor has been an increasing step function of the resident population size in the municipality, as measured by the national Census that takes place every ten years. Table 1 from Gagliarducci and Nannicini (2013) and Grembi, Nannicini, and Troiano (2016) reports the details of this step function in the period 1985-1992 for the first four population thresholds.⁶ Our analysis focuses on the 5,000 inhabitants threshold. Crossing this threshold induces a sharp increase in the mayor's wage from 2,169 to 2,789 euros (measured in terms of 2000 prices), corresponding to an increase of almost 30%. The same threshold also determines an increase in the

⁵In March 25, 1993, the National Parliament approved the Law no. 81 which represented a radical change in the form of the local government as the system shifted from a parliamentary to a presidential one.

⁶Nominal salaries have been adjusted almost every year to account for price inflation, so that real values within each population bracket have remained almost unchanged, in line with the trend in national per capita income. As observed by Gagliarducci and Nannicini (2013), "The average real disposable income remained almost unchanged from the beginning to the end of the 1990s in Italy, decreasing in the first half and returning to the initial level in the second half. Since adjustments were applied uniformly to all municipalities, the relative wage between different population brackets also remained identical across time." (p. 377).

Table 2: *Electoral systems*

	Below 5,000	Above 5,000
Electoral System	Plurality system plurinominal; Majority bonus to the party that obtains the relative majority which allows the latter to obtain the majority of seats in the council	Party-List (D'hondt method): council seats allocated to lists proportionally to the votes they obtain
Outcome of the vote for the formation of the government majority	Election of the City Council and subsequent agreements between the parties for the formation of the majority and the election of the mayor	Election of the City Council and subsequent agreements between the parties for the formation of the majority and the election of the mayor
Electoral districts	Single	Single
Number of preferences	4/5 of seats in the council	4

Notes: This table summarizes the electoral system in municipalities above and below the 5,000 inhabitants thresholds during the 1985-1992 period. The table is adapted from Baldini (2002) and Gulino (2021).

executives' remuneration, which is directly tied to the mayor's wage. While members of the executive committee do not receive compensation in municipalities smaller than 5,000 inhabitants, they receive a salary defined as the 45% of the mayor's one and thus equivalent to 1,255 euros in 2000 prices. By contrast, the remuneration of councillors is invariant across the 5,000 threshold. However, since the councillors appoint both mayors and executives among themselves, each councillor has an ex-ante positive expected wage, and the latter sharply increases above the 5,000 threshold.⁷

The remuneration of mayors and executives is not the only policy which varies across thresholds. In particular, the 5,000 threshold also determines the electoral rule. Table 2 summarizes the electoral system at the two sides of the threshold. The main difference between these two systems is the rule transforming votes to seats. Below 5,000 inhabitants, the party obtaining the relative majority of votes gains the absolute

⁷To give an example, assuming that the unconditional probability of being appointed as mayor for the *representative* councillor is equal to $\frac{1}{\text{Council size}}$ while that of becoming executive is $\frac{\text{Giunta size}-1}{\text{Council size}}$, then the expected wage of the representative member of the council in a municipality with population p , $E[w_{c,p}]$, is

$$E[w_{c,p}] = w_{m,p} \left(\frac{1}{\text{Council size}_p} + f_p \frac{\text{Giunta size}_p - 1}{\text{Council size}_p} \right)$$

where $w_{m,p}$ is the mayor's wage in municipalities with population p (column 4) and f_p is the remuneration of executives in municipalities with population p expressed as fraction of the mayor's remuneration (column 5). This expression entails an increase of the expected wage for the representative councillor from around 108 euros below 5,000 inhabitants to around 453 euros above 5,000.

majority of seats (i.e. not less than 10) whatever their share of citizens' votes. This is not the case in municipalities above 5,000 inhabitants, where council seats are allocated to each party-list proportionally to the share of citizens' votes according to the D'Hondt method.

Accordingly, a party-list obtains the absolute majority of seats only if the share of votes received is large enough. A major implication of this feature, which is crucial for our identification strategy, is that municipalities below the 5,000 inhabitants are relatively much more likely to display a *single-party government* compared to municipalities above the 5,000 thresholds where different parties are more likely to negotiate to find a post-election agreement and which are therefore relatively more likely to display a *coalition government*.

3 Data and Identification Strategy

3.1 Data

Our analysis exploits rich administrative data from the Italian Ministry of Internal Affairs. Data on the characteristics of the elected politicians (mayors, councillors and executives) come from the *Anagrafe degli amministratori locali e regionali*, an online database published and updated annually.⁸ This database includes all members of the regional, provincial, and municipal governments and councils and covers all local elections from 1987 to nowadays. For each politician, the *Anagrafe* reports the position, date of appointment and election, and personal information such as age, gender, highest educational attainment, party affiliation, and (self-declared) previous occupation. As these data do not include information on voting at the local elections – the number of votes and the vote share of each party – we gather this information from historical reports, available only in paper format at the Ministry of Internal Affairs. We also collect municipality-level data on the national elections from 1983 to 1992, reporting, for each municipality, the number of votes received by each party.

We combine these different data sources in a council-level panel dataset, covering all the municipal elections held in Italy from 1985 to 1990. For most municipalities in our sample, we have two data points (in 1985 and 1990), although for a smaller group (about 1,100 municipalities) we only observe one election (in 1988).

3.2 Empirical strategy

We assess the causal effect of monetary incentives on the characteristics of local politicians in a Regression Discontinuity Design (RDD) framework by exploiting the popu-

⁸Anagrafe degli Amministratori Locali e Regionali - <https://dait.interno.gov.it/elezioni/anagrafe-amministratori>

lation thresholds described in Table 1. Specifically, we focus on the 5,000 population threshold as it entails large wage increase while limiting the number of possible confounders. Differently from the case of the 3,000 and 10,000 thresholds, the size of both the Council and the Executive Committee do not vary when crossing the 5,000 population threshold (thus limiting the number of possible confounders).⁹

We estimate the following equation

$$X_{itn} = \delta + Above5000_{it}\gamma + f(P_{it}^*)\lambda + \varepsilon_{itn} \quad (1)$$

where X_{itn} is a vector of characteristics of the Politician n in municipality i in electoral term t , P_{it}^* is the distance, in terms of population, of municipality i from the 5,000 inhabitants threshold, $Above5000$ is a dummy variable equal to 1 when $P_i \geq P_c$, and $f(\cdot)$ is a function of the distance from the threshold $P_{it}^* = P_{it} - P_c$.¹⁰ Errors ε_{itn} are clustered at municipal level. We estimate Equation (1) non-parametrically (LLR) within the symmetrical MSE-optimal bandwidth defined following Calonico et al. (2017).

Our identification strategy relies on the assumption that municipalities just above and below the thresholds are (on average) identical except for the wage increase (the treatment) of the local administrators. Two potential issues threaten the validity of this assumption: 1) the presence of confounding treatments; 2) strategic sorting around the thresholds.¹¹ In the following two subsections, we discuss in detail these issues.

3.3 Confounding Treatments

In Section 2, we highlight that, before 1993, the 5,000 inhabitants threshold also determines the change from the majority to the proportional rule. This additional treatment might thus undermine the identification of the causal effect of the wage treatment on the selection of local politicians. Below we propose a way to deal with this issue and disentangle the causal effect of wage increase from that of the change in the electoral rule.

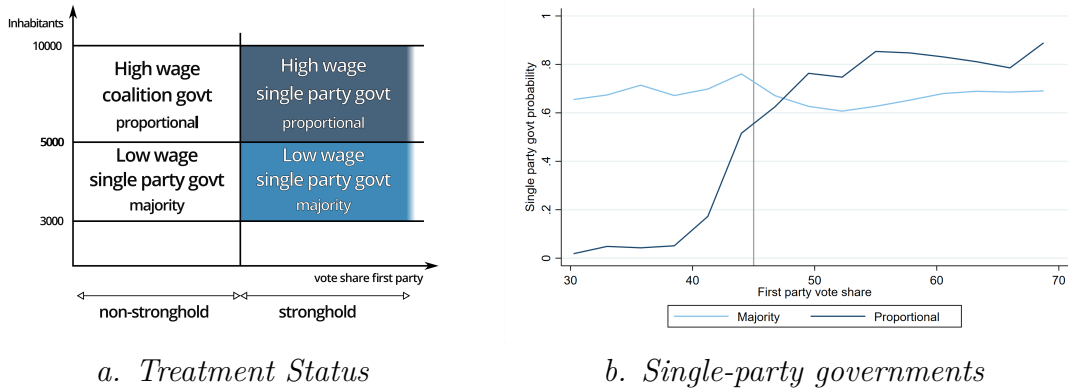
Majority and proportional rules differ in how vote share translates into seat shares. Municipalities below 5,000 inhabitants are relatively more likely to display a single-party government (i.e., a seat allocation where a single party obtains at least 50% of seats - 10 over 20) than municipalities above the 5,000 thresholds. The idea according to which majoritarian elections produce single-party governments more often than proportional elections – which instead produce fragmentation of political parties and coalition, or

⁹Also Gagliarducci and Nannicini (2013) consider the 5,000 population threshold to assess the impact of wage increase in the quality of mayor for the period 1993-2001 (when a direct election and a local presidential system was in place). Our analysis can thus be directly compared to theirs so as to evaluate the impact of different institutional arrangements.

¹⁰The municipality population is based on the last National Census before the election.

¹¹For an extensive review of RD design based on population threshold see Eggers et al. (2018).

Figure 1: *Stronghold and Non-Stronghold Municipalities*



Notes: Panel A illustrates the treatment status – above or below the 5,000 threshold – for stronghold and non-stronghold municipalities. Panel B displays how the probability of observing a single party government varies with the share of votes obtained by the leading party, for both majority (light blue) and proportional (dark blue) councils.

minority governments – is well consolidated in the literature of political science.¹²

We disentangle the effect of the wage increase by focusing on a subset of municipalities that, both above and below the threshold, do not exhibit any significant difference in the probability that a municipality displays a single-party government. We thus define *strongholds* as those municipalities where the vote share of the leading party is large enough that the difference in the likelihood of observing single-party governments between proportional and majority councils is not significantly different from zero. Panel A of Figure 1 illustrates the main idea behind our identification strategy. In stronghold municipalities (in blue), the change in the electoral rule at the threshold does not generate any relevant impact on the probability that a local government is single-party and thereby on the (ex-post) impact on the selection of local politicians. By restricting the analysis to stronghold municipalities, the observed change in the characteristics of local politicians at the threshold should solely reflect the effect of the increase in mayors' and executives' wages.

Our benchmark specification defines the sample of stronghold municipalities as those where the leading party obtained at least 45% of the votes. This choice comes from the nature of the D'Hondt method applied to local parliament of size equal to 20. Under this rule, single-party governments are more likely to be observed in proportional councils when the vote share obtained by the leading party is larger than a threshold which

¹²See for instance, among the many, Cox (1990) and Lijphart, Aitkin, et al. (1994). Also, Persson, Roland, Tabellini, et al. (2007) propose a model to study how different electoral rules (majoritarian vs. proportional) affect government spending. They argue that the impact of the electoral rule is only indirect: proportional elections induce a more fragmented party system and a larger incidence of coalition governments than do majoritarian elections and electoral competition inside coalition governments induces higher spending than under single party governments.

is somewhere within the interval 40 – 50%. Panel B of Figure 1 provides supporting evidence in this direction. It displays the probability of observing a single-party government in municipalities where the leading party obtained at least the share of votes reported in the horizontal axis, separately for councils elected with the majority (light blue) and the proportional (dark blue) rule.

As expected, this probability is constant under a majority rule, where the majority premium allows the leading party to obtain the majority of seats in most cases (around 70%) and regardless of its votes’ share. Conversely, for councils elected under the proportional rule, the probability that the leading party obtains at least 10/20 seats is very low when its votes’ share is below 40%, while it progressively becomes more comparable to the majority municipalities when the votes’ share approaches 50% of the votes. Above this threshold, this probability remains roughly constant at 80%. While in our main specification we choose the intermediate value of 45% as the relevant threshold for defining stronghold municipalities, we also run a battery of robustness tests where we show that the results are robust to the choice of any value within the 40 – 50% vote share range.

Importantly, we define stronghold municipalities based on the results in the last *national* elections (at the municipal level) rather than on the results of the *municipal* elections. We do so to account that even ex-ante (before election) party fragmentation would be smaller under majority rules. That happens because of two main reasons: 1) small parties are less likely to be represented, and therefore their incentive to form a coalition before the election is stronger than in municipalities where the proportional rule is in place; 2) according to the well-known Duverger’s law (Duverger, 1959) a majority electoral system may produce psychological effects in voters which, by learning the mechanics of the electoral system, are induced not to waste the vote and to express their preference for one of the major parties (strategic voting).¹³¹⁴

Table 3 provides empirical support to the choice of the 45% threshold to identify stronghold municipalities. Crossing the 5,000 inhabitants threshold – which implies moving from a majority to a proportional electoral rule – determines a reduction (-6 pp.) in the probability of observing a single party government (a council where the leading party obtains at least ten seats). When restricting the sample to municipal councils where the vote share of the leading parties is below 45%, this gap becomes much larger (-15 pp.) and statistically significant. Conversely, it is close to a precise zero if we consider only stronghold municipalities, that is, those in which the leading

¹³This intuition is confirmed by Figure A2 in the appendix where the kernel density of the vote share obtained by the leading party in municipal elections for small municipalities first-order dominates the same density for large municipalities. By contrast, the two density perfectly overlaps when national elections are considered.

¹⁴In the Appendix we also show that our results are robust to changes in how a stronghold is defined. Specifically, our main findings are maintained whether strongholds are defined using regional or provincial elections in t-1 or whether we use national elections in t+1 (rather than t-1 as in the benchmark case).

Table 3: *Single-party government*

	All	Leading party vote share in nat. elections %			
	(1)	(2)	(3)	(4)	(5)
		<0.43	<0.45	>0.45	>0.47
> 5000 pop	-0.062 (0.056)	-0.154* (0.085)	-0.150* (0.080)	0.017 (0.070)	0.026 (0.069)
Mean dep. var.	0.574	0.389	0.416	0.742	0.773
BW	1477	1340	1365	1620	1586
Observations	2123	858	1041	1111	883
N. of municipalities	1269	574	690	708	561

Notes: This table describes how the probability of a single-party municipal government varies depending on the vote share of the leading party. The table reports the coefficient from a regression discontinuity equation of the form of Equation 1, where the dependent variable is a binary indicator that takes value one if the municipality has a single-party government. The latter is defined as a council with a seat allocation such that a party obtains at least 50% of the seats (10 out of 20). The unit of analysis is the municipality \times election. Leading parties are defined based on the votes in the closest national election. In Column 1, the sample includes all observations. In Columns 2 to 5, the sample is restricted to observations according to the vote share that the major party received in the national election preceding the municipal election. > 5,000pop. is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. SE are clustered at the municipality level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

party obtained at least 45% of the votes in the previous national election (Columns 4 and 5).

Using national rather than municipal elections to define a stronghold allows us to re-balance the ex-ante party fragmentation. Still, national election results represent a good predictor of voting in the municipal ones: in 86% of the cases, the first party in the national and municipal election coincides¹⁵.

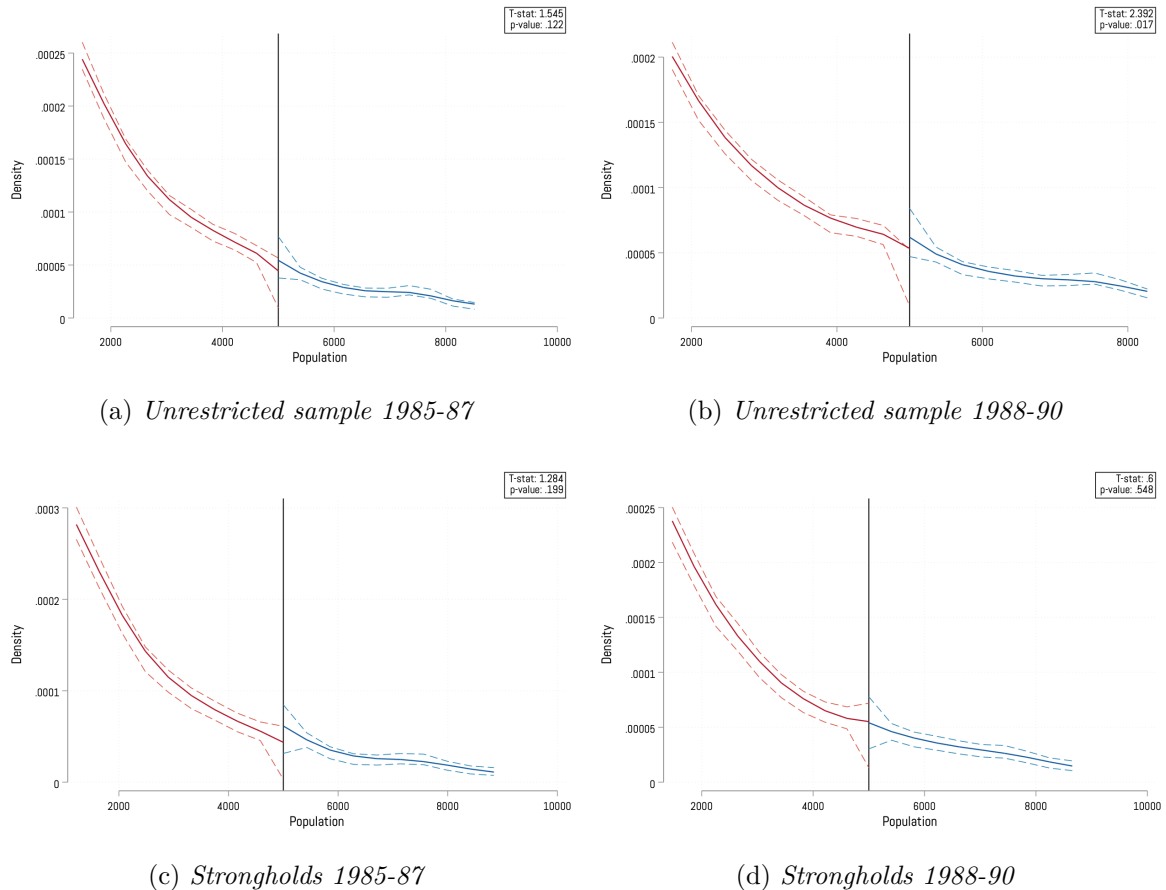
In Appendix Table A1, we report some summary statistics on the characteristics of the councillors, members of the executive committee, and mayors considering both the overall sample and the subset of stronghold municipalities. The two samples do not exhibit meaningful differences in terms of all of the politicians' characteristics considered (which include age, gender, and education).

3.4 Validity tests

The validity of our identification strategy relies on the assumption that municipalities cannot sort across the population threshold. Manipulation of the running variable would jeopardize the exogeneity of the treatment and the evaluation of its causal effect. We test for the validity of this assumption by implementing the manipulation test

¹⁵This number is obtained by considering the subset of strongholds where either *Democrazia Cristiana (DC)* or *Partito Comunista (PCI)* are the first party, which occurs in about 97% of the cases

Figure 2: *Manipulation*



Notes: This figure illustrates the results from a battery of manipulation diagnostics using the test developed by Cattaneo, Jansson, and Ma (2018). We present the test results separately for two electoral cycles: 1985-1988 and 1990-1990. Manipulation test for the whole sample of municipalities are depicted in Panels A and B, and for the sample of stronghold municipalities in Panels C and D.

developed by Cattaneo, Jansson, and Ma (2018) based on a local-polynomial density estimation technique.

In Figure 2, we present the result from the manipulation test for the whole sample of municipalities (Panels A and B) and for the sample of stronghold municipalities which represents our main sample for the rest of the paper (Panels C and D). As our sample covers (at least) two electoral cycles, we observe the same municipality and its time-invariant running variable (at least) twice. For this reason, we present the test results separately for two electoral cycles: 1985-1987 and 1988-1990. The estimated densities reported in Figure 2 show that no significant discontinuity arises when considering our (main) stronghold sample. When considering the overall sample, we observe a discontinuous jump – statistically significant at the 5% level – for the second electoral

term (1988-1900). However, this finding is unlikely to represent a concern for our identification strategy. First, it is specific to an electoral term, and it vanishes when we focus on our baseline stronghold sample. Second, no discontinuity arises – in any of the samples – when we test for covariate smoothness at cutoff. For all of the pre-determined variables considered no statistically significant differences emerge when comparing our treated (barely above-cutoff) and control (barely below-cutoff) municipalities. The results from this exercise are presented in Tables A2 and A3 in the Appendix.

Taken together, these findings lend strong support our identification strategy as they alleviate the concerns of possible manipulation of the running variable.

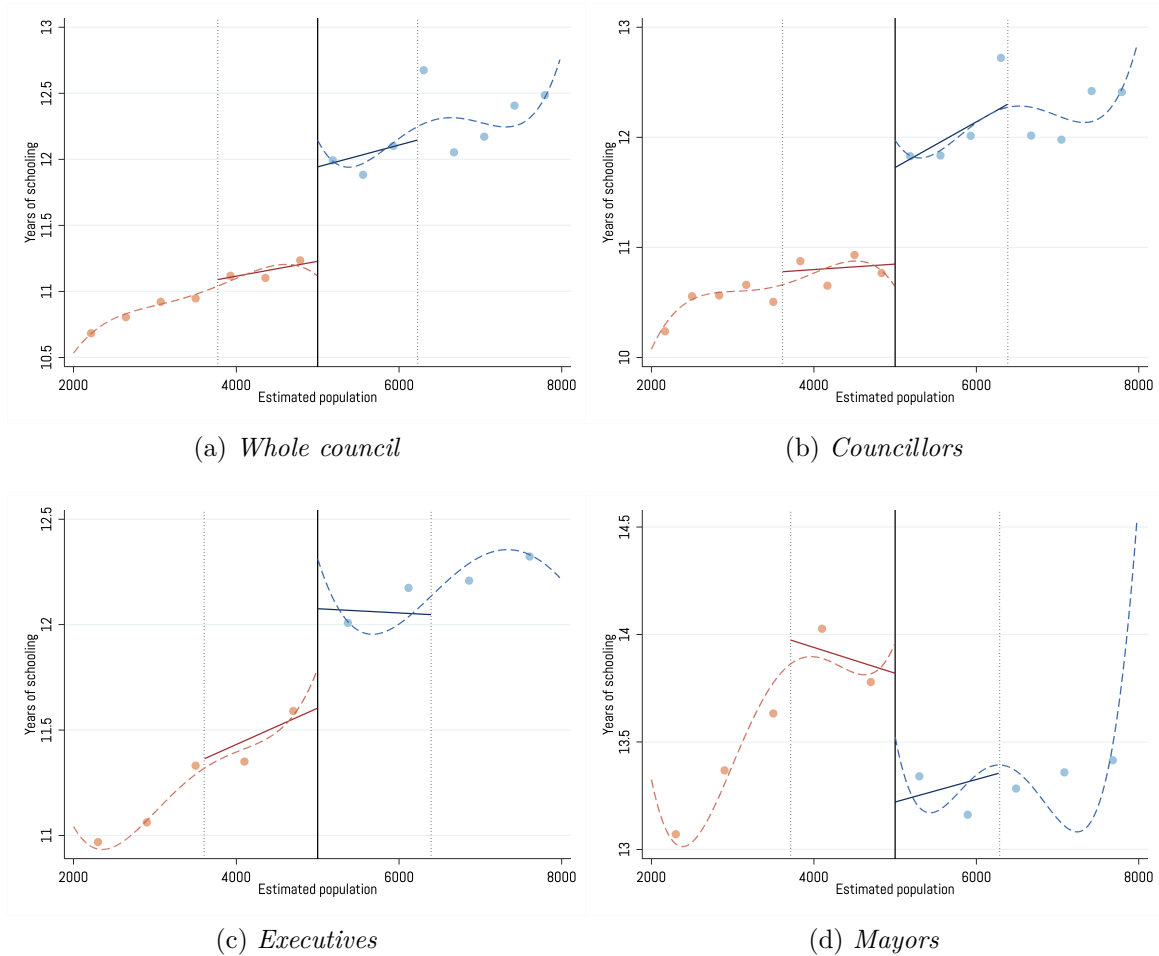
4 Results

Here we report the results of the regression discontinuity analysis described above. Figure 3 depicts the discontinuity in the education of politicians around the 5,000 inhabitants threshold. The four panels present our measure of education – years of schooling – considering four different subgroups: the whole set of members of the elected council (Panel A), those who are councillors but neither mayor nor executives (Panel B), those who are appointed executives (Panel C) and those who are appointed as mayor (Panel D).

Figure 3 shows a sharp positive jump in years of schooling for whole council at the 5,000 threshold. Our identification strategy allows us to interpret this jump as a positive selection effect due to the increase in the *expected* wage. As described in section 2 councillors have no direct compensation on both sides of the thresholds. However, mayors’ and executives’ wages increase when crossing the threshold. As these are appointed by and among the council, councillors’ *ex-ante* expected wages are higher in above-threshold municipalities. Hence Panel A suggests that the higher expected pay for the member of the council leads to a pool of more educated candidates and, ultimately, a more educated council. Moreover, such jump is driven by a positive selection of councillors and executives, but not mayors. We observe a similar pattern, with a positive jump around the 5,000 inhabitants threshold, for both the councillor-only (Panel B) and executives sample (Panel C), although in this latter case the magnitude is lower. By contrast, there is no positive jump for mayors (Panel D): more educated councillors do not result in a more educated mayor.

Importantly, this finding is unlikely to be explained by a “ceiling” effect (i.e., councillors’ education increases more than mayors’ because the latter is already too high). Figure 4 depicts the predicted within-council distribution for control (low-wage) and treated (high-wage) municipalities. While in control municipalities the appointed mayor is ranked 7th (out of 20) – in terms of years of education – her rank is 8 out of 20 in high-pay municipalities. Furthermore, Figure 4 reveals that the increase in councillors’ education due to higher wages is mostly concentrated at the mid-top and mid-bottom

Figure 3: *The effect of higher wages on politicians' education*



Notes: This figure depicts the discontinuous jump in the politicians' education. The four panel depicts how politicians' year of schooling vary depending on the municipality population. The sample includes the whole council (Panel A), councillors not appointed as executives or mayor (Panel B), executives (Panel C), and mayors (Panel D). The solid lines indicates local linear regression within optimal symmetric bandwidth – the vertical dotted lines – while the dashed lines are 4th order polynomial approximation of the outcome variable. Circles represent bin-averages, where bins are defined using the data-driven approach proposed by Calonico, Cattaneo, and Titiunik (2015).

of the skill distribution.

Our main results are also presented in table format in Table 4. In Panel A we consider the whole sample of municipalities, while in Panel B and C we restrict the sample to stronghold municipalities. When considering the overall sample, members

Table 4: *The effect of higher wages on politicians' characteristics (I)*

Panel A: All sample				
	Whole Council		By appointment	
	(1)	(2)	(3)	(4)
		Councillors	Executives	Mayor
> 5000 pop	0.849*** (0.187)	1.124*** (0.217)	0.236 (0.204)	-0.208 (0.529)
Mean dep. var.	11.733	11.509	11.858	13.649
BW	878.044	910.970	1615.931	1158.424
Observations	24286	16890	12844	1653
N. of municipalities	749	772	1406	988

Panel B: Stronghold sample				
	Whole Council		By appointment	
	(1)	(2)	(3)	(4)
		Councillors	Executives	Mayor
> 5000 pop	0.920*** (0.233)	1.094*** (0.268)	0.566* (0.320)	-0.225 (0.738)
Mean dep. var.	11.520	11.271	11.687	13.663
BW	1110.131	1280.095	1327.395	1261.884
Observations	14403	11349	4760	845
N. of municipalities	465	543	559	535

Panel C: Stronghold sample (between-offices education gap)				
	(1)	(2)	(3)	
	Mayor-Median coun.	Mayor-Median exe.	Median exe.-Median coun.	
> 5000 pop	-1.563** (0.718)	-1.482* (0.765)	-0.051 (0.403)	
Mean dep. var.	1.825	1.775	0.067	
BW	1478.725	1462.407	1659.847	
Observations	995	984	1134	
N. of municipalities	636	630	723	

Notes: This table reports the threshold-crossing effect on the education – as measured by the number of years of schooling – of the elected council members. The table reports the coefficient from a regression discontinuity equation of the form of Equation 1, when considering the overall sample of municipalities (Panel A) and the stronghold sample (Panel B and C). The dependent variable is the number of years of schooling in Panel A and B, while it is expressed in relative terms (that is, the education gap in terms of years of schooling) in Panel C. Each column in Panel A and B reports the estimated effect for the whole sample of council members (Column 1), the sample of councillors who are not appointed as executive or mayor (Column 2), the sample of executives (Column 3), and the sample of mayors (Column 4). > 5,000pop. is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. SE are clustered at the council level in Columns (1) to (3), while at the municipality level in Column (4). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5: *The effect of higher wages on politicians' characteristics (II)*

Panel A: Whole Council						
	Education Level			Other Characteristics		
	(1) < Secondary	(2) Secondary	(3) Degree	(4) Age	(5) Female	(6) Born elsewhere
> 5000 pop	-0.135*** (0.030)	0.089*** (0.028)	0.041*** (0.016)	-0.024 (0.549)	-0.002 (0.011)	0.067** (0.034)
Mean dep. var.	0.390	0.387	0.216	39.551	0.083	0.337
BW	849.004	800.553	1971.571	1450.229	1943.724	1360.091
Observations	11007	10396	27828	19377	27290	17893
N. of municipalities	359	338	906	627	871	575

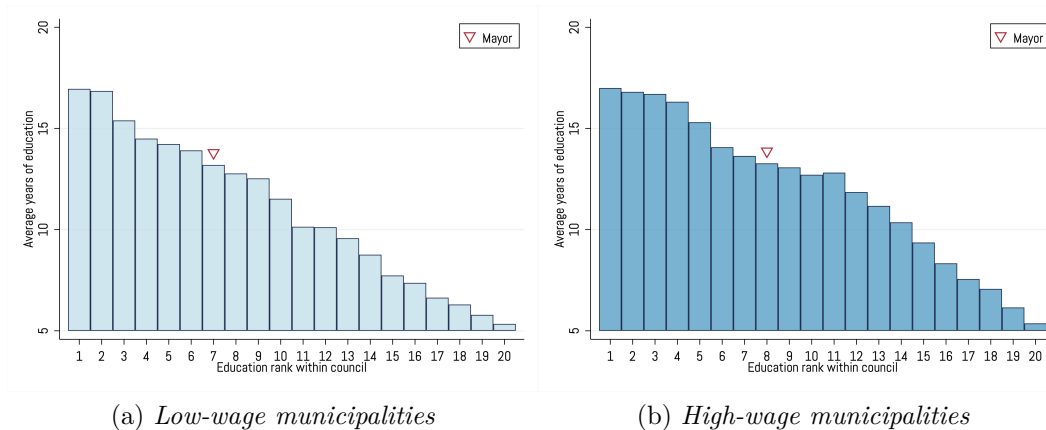
Panel B: Councillors						
	Education Level			Other Characteristics		
	(1) < Secondary	(2) Secondary	(3) Degree	(4) Age	(5) Female	(6) Born elsewhere
> 5000 pop	-0.150*** (0.034)	0.109*** (0.033)	0.043** (0.017)	0.019 (0.629)	-0.000 (0.012)	0.074** (0.037)
Mean dep. var.	0.418	0.372	0.201	39.044	0.087	0.345
BW	1074.075	933.257	2184.239	1486.434	2196.991	1376.734
Observations	9344	7947	20567	13315	21267	12269
N. of municipalities	448	384	1006	639	1012	585

Panel C: Executive committee						
	Education Level			Other Characteristics		
	(1) < Secondary	(2) Secondary	(3) Degree	(4) Age	(5) Female	(6) Born elsewhere
> 5000 pop	-0.064 (0.039)	0.019 (0.043)	0.065** (0.028)	0.008 (0.692)	-0.023 (0.016)	0.055 (0.041)
Mean dep. var.	0.367	0.411	0.215	39.932	0.080	0.325
BW	1217.277	1155.607	2033.664	2045.280	2545.446	1585.240
Observations	4307	4107	7930	8001	9896	5910
N. of municipalities	507	482	941	944	1258	694

Panel D: Mayor						
	Education Level			Other Characteristics		
	(1) < Secondary	(2) Secondary	(3) Degree	(4) Age	(5) Female	(6) Born elsewhere
> 5000 pop	0.044 (0.091)	-0.029 (0.101)	-0.046 (0.087)	-1.081 (1.646)	0.016 (0.027)	0.036 (0.089)
Mean dep. var.	0.172	0.422	0.395	43.818	0.024	0.270
BW	1224.090	1377.583	1745.457	1544.418	2446.351	1576.266
Observations	806	921	1190	1051	1843	1089
N. of municipalities	511	585	761	671	1180	694

Notes: This table reports the threshold-crossing effect on the education attainment and demographics of the elected council members for the sample of stronghold municipalities. Panel A reports the estimated effect for the whole sample of council members; Panel B, C and D report the analogous estimates for the sample of councillors-only (those who are not appointed as executive or mayor), the sample of executives, and the sample of mayors, respectively. In all panels, the dependent variables in Column 1 to 3 are a set of binary indicators taking value one if the politicians education attainment is below secondary, secondary, or above secondary (degree), respectively. In Column 4 to 6 these are a set of demographic variables: age (in years), gender, and a binary indicator for politicians who are born in a different municipality. > 5,000pop. is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. SE are clustered at the council level in Panels A to C, while at the municipality level in Panel D *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 4: *Within-council education distribution*



Notes: This figure depicts the predicted distribution of the councillors below (Panel A) and above (Panel B) the threshold. In both panels, predictions are obtained from estimating a set of twenty RD regressions of the form of Equation 1 where the outcome is the number of years of schooling of the councillor ranked j (for $j \leq 20$) within the council education distributions. Triangles and diamonds indicate the predicted within-council education rank of the mayor.

of the council in (barely) above-threshold municipalities are 0.85 years more educated than their counterparts in low-wage municipalities. Such effect is statistically significant at the 1% level and sizable in magnitude, as it corresponds to an 7% increase when compared to the control group mean (that is, the average education in below-threshold councils). However, the effect of higher wages on politicians education is fully driven by those who are not appointed as mayor or executives. For councillors who are appointed as executives, the estimates are positive but not statistically different from zero; for those who end up being mayors, the estimates are negative. When accounting for the confounding treatment that also turns on around the same cutoff – the change from the majority to the proportional rule – results are qualitatively similar but larger in magnitude. The average council education increases by about 8% (+0.92 years) in high-wage municipalities, and this effect is explained by a positive selection of council members who remain councillors (+1.1 years) or are appointed as executives (+0.57). By contrast, such increase in the average education of the elected council members does not translate into a more educated mayor but rather into a less educated one (although the estimates reported in Column 4 are not statistically different from zero).

Panel C reports the estimates for the effect of the high remuneration policy on politicians education expressed in relative terms. Specifically, it reports the threshold-crossing effect on the education gap between the mayor and the median councillor (Column 1), the mayor and the median executive (Column 2) and the median executive and the median councillor (column 3). While low-wage councils tend to elect mayors

who have almost two years of schooling more than the median councillor and the median executive (1.83 and 1.8, respectively), this difference vanishes in high-wage councils. This is not the case when comparing the median councillor and the median executive, whose education gap is close to zero in both low- and high-wage municipalities.¹⁶

In Table 5, we also report the threshold-crossing effects on a set of additional education measures and demographics for our sample of stronghold municipalities. The estimates show that the discontinuous jump in the education of council members discussed above is mostly driven by a decrease in the share of the councillors with a below-secondary education level, and a symmetric increase in the proportion of those who have completed secondary education, or with a degree. In line with the results presented in Table 4, we do not observe any significant effect in the mayors' education attainment, while we observe a significant – and sizable (+30%) – increase in the share of graduated executives. When looking at other politicians characteristics, we do not find evidence that the high-wage policy impacts the selection and appointment of politicians in terms of age and gender. The RD estimates reveals an increase in the proportion of 'foreign-borns' (i.e., in another municipality) when politicians' remuneration is higher, which is consistent with wages attracting a larger pool of candidates. However, this effect is specific of the councillor-only sample.

Taken together, our findings show that a higher remuneration policy has a positive and significant effect on the education of the council members. The policy does not imply higher *actual* councillors' wages, but only higher *expected* wages, associated with their probability of being elected mayors or executives. The magnitude of our estimated effect – around one year of schooling, +8% with respect to the control mean – is comparable to what found by Gagliarducci and Nannicini (2013) who look at the education of mayors and candidate mayors in the municipal elections 1993-2001 (when a direct election was in place). We also find that the better pool of council members leads to more educated executives. Unlike previous studies, however, we find that higher wages does not lead to higher educated (council-elected) mayors.

In the next section we propose a candidate mechanism for this a-priori puzzling finding.

5 Mechanism: moonlighting executives

The lack of any positive wage effect for the education of mayors, combined with the positive education effect for councillors and executives, is puzzling and counterintuitive at first sight. Mayors are better paid than executives, both below and above the threshold but nevertheless, better educated elected councillors are appointed execu-

¹⁶In appendix A.2 we also report the results from a battery of robustness test, where we replicate these estimates under a different method for calculating the optimal bandwidth, and we use regional and provincial elections in t-1 and national election in t+1 to define stronghold municipalities.

tives rather than mayors. In this section, we propose a candidate mechanism based on a reasonable assumption: moonlighting – i.e., continuing to work on the previous occupation and enjoying its wage – is easier for executives than for mayors. According to this view, better-educated candidates would self-select in above-threshold councils, attracted mainly by the probability of becoming executives to supplement their income without giving up their previous occupation.

To better formalize this intuition, in the following subsection, we explore the implications of an adapted version of the simple model proposed by Gagliarducci, Nannicini, and Naticchioni (2010) to study the ex-ante self-selection decision and ex-post behavior of moonlighting politicians. In the second subsection, we test and provide supportive evidence for some empirical implications of the model.

5.1 Framework

The main aim of the model is to find the conditions under which monetary incentives lead to better-educated candidates for executive positions but not for a mayor position. Accordingly, we model the process of candidate (self-)selection but not the election process. Clearly, the implicit assumption is that less skilled candidate mayors result in less skilled elected mayors. While recognizing that such an assumption might not always hold, we also think this is a good approximation of reality. While not excluding the existence of other important channels (for instance, the role of parties in supporting or hampering the election of some candidate profiles), our view is that candidate self-selection has a primary influence on the characteristics of elected politicians.

To this purpose, we extend and adapt the model of Gagliarducci, Nannicini, and Naticchioni (*ibid.*). There is a population of individuals with ability a , uniformly distributed in the interval $[0, \bar{a}]$. The market value of ability is $M(a)$ so that each individual with ability \tilde{a} can earn a market income equal to $M(\tilde{a})$ if she decide to work in the private sector. Income is increasing in ability so that $M'(a) > 0$.

Each individual has also the alternative of becoming a politician. In this case the reward from a political office is both monetary and psychological. The monetary reward is equal to W_p^k where $k = m, g$ is the type of political office ($m = \text{mayor}$; $g = \text{executive}$) and $p = l, h$ is the municipality population which can be high (h) or low (l). Consistent with the institutional setting presented in Section 2, we assume that $W_h^m > W_l^m > W_h^g > W_l^g = 0$. On the psychological side, we assume that ego rents accrue from spending time in the council. Most precisely, we assume that a politician of type k obtains an ego-rent $R^k = R$ for each unit of time spent doing politics.¹⁷

¹⁷Gagliarducci, Nannicini, and Naticchioni (2010) assume that positive payoffs (ego rents) accrue both from *being* a politician and from *doing* politics. In other words they assume that ego rents from becoming a politician are made up of both payoff attached to the position itself and payoffs attached to the time spent doing politics. For the sake of simplicity, and without loss of generality, we assume the first kind of psychological payoff is included in the monetary payoff W .

A crucial feature of this model is the possibility, for political office g but not for m , to earn money in the private sector while in office. The motivation behind this assumption is that being a mayor requires a full-time commitment which prevents politicians from moonlight. This is not the case for a member of the executive committee, which could potentially devote (part of) her time to work in the private sector while in office¹⁸. Potential outside income is assumed to be a function $P(a)$ strictly increasing in ability: $P'(a) > 0$. As in Gagliarducci, Nannicini, and Naticchioni (2010), we remain agnostic on whether the returns to ability $P'(a)$ (for a given time allocated to outside activities) is higher, lower, or equal to $M'(a)$. $P'(a)$ might be higher than $M'(a)$ when, for instance, the demand for professional services (this could be the case for lawyers and engineers) is boosted by the reputation gained as a local politician. On the other hand, $P'(a)$ might be lower than $M'(a)$ if the political activity negatively impacts the productivity of market activities (e.g. because of lack of attention, stress, overburdening, etc.).

Time is scarce, so if politicians devote their time to working in the private sector, their time for political activities (and thereby the rewards from doing politics R) will be lower. Formally, if $e^k \in [0, 1]$ is the time spent in political activities for political office $k = m, g$, the net payoff of becoming a politician of type k in municipality p is

$$\pi_p^k(a) = W_p^k + e^k R + (1 - e^k) P(a) - M(a) \quad (2)$$

Notice that we are assuming here that R , $M(a)$, and $P(a)$ are invariant across political office so that mayors and executives share the same psychological reward from politics and the same rule which links ability to market and outside income. While there are reasons to think that this might not be the case, removing this simplifying assumption would not generate any relevant additional insight.

5.1.1 Payoffs across political offices

In what follows, for clarity and without particular loss of generality, we assume constant returns to ability such that $M(a) = ma$ and $P(a) = pa$ with m and p strictly positive. By assumption, the mayor cannot moonlight, so, by definition, $e^m \equiv 1$. Therefore, the mayor's payoff in municipality p is

$$\pi_p^m(a) = W_p^m + R - ma \quad (3)$$

An individual will be willing to run for mayor as long as $\pi_p^m = W_p^m + R - ma \geq 0$. Hence, only individuals with ability higher than $a_p^m \equiv \frac{W_p^m + R}{m}$ will run for mayor in municipality p . By contrast, executives can – but need not – moonlight. If in charge, given the linearity in e of the payoff (2), she will choose a value of e which is either 1 or

¹⁸Notice that main results of the model hold even if moonlighting is also a feasible for mayors but it is sufficiently less "rewarding". Formally, if their returns to ability $P'(a)$ is not zero but still sufficiently lower than those for executives.

0 depending on whether psychological rewards R are higher or lower than its outside income while in office pa .¹⁹ More precisely

$$\pi_p^g(a) |_{e=1} = W_p^g + R - ma \quad (4)$$

$$\pi_p^g(a) |_{e=0} = W_p^g + (p - m) a. \quad (5)$$

An important implication is that only skilled enough executives will decide to moonlight²⁰. Formally,

$$\pi_p^g(a) |_{e=0} \geq \pi_p^g(a) |_{e=1} \Leftrightarrow a \geq \hat{a} \equiv \frac{R}{p}$$

Hence, the decision to run for an executive position now differs according to whether the individual is a potential moonlighter (call her $k = g0$, for $a \geq \hat{a}$) or a non-moonlighter (call her $k = g1$, for $a < \hat{a}$). The latter will be willing to run for executive as long as $a < \min(a_p^{g1}, \hat{a})$ where $a_p^{g1} \equiv \frac{W_p^g + R}{m}$ is the value of ability above which the net payoff for a non-moonlighting executive $\pi_p^g(a) |_{e=1}$, expressed in (4), is negative.

By contrast, for individuals with ability higher than \hat{a} the willingness to run for a position of (moonlighting) executive depends on the sign of $(p - m)$. Specifically, using (5), we find that

$$\pi_p^g(a) |_{e=0} = \pi_p^{g0}(a) \geq 0 \Leftrightarrow \begin{cases} a \in (\hat{a}, \max(\hat{a}, a_p^{g0})) \text{ if } p < m \\ a > \hat{a} \text{ if } p \geq m \end{cases} \quad (6)$$

where $a_p^{g0} \equiv \frac{W_p^g}{m-p}$. So, when returns to ability are stronger while in office ($p > m$), it is always worth it for a skilled enough individual ($a > \hat{a}$) to become a moonlighting executive. Conversely, when $p < m$ only individuals with ability lower than $a_p^{g0} \equiv \frac{W_p^g}{m-p}$ would be attracted by a position of moonlighting executive. Importantly, when $\max(\hat{a}, a_p^{g0}) = \hat{a}$, then the set of moonlighting executives is empty. That happens when $\frac{m-p}{p} > \frac{W_p^g}{R}$, i.e. when p and/or W_p^g are small enough. Hence, intuitively, when returns to ability while moonlighting and/or the wage for executives are too small, no individual with ability higher than \hat{a} will be willing to run an executive position and simultaneously work in the labour market.

5.1.2 Ability across the threshold and across offices when $p < m$

Our model presents two additional features with respect to that of Gagliarducci, Naticchini, and Naticchioni (2010): 1) the possibility to run for two different political offices

¹⁹We can of course think of a model where the optimal value of e is an interior solution, but such a complication would not add any relevant insight to our mechanism. Specifically, as long as psychological rewards are less sensitive to ability with respect to outside income, our argument still holds.

²⁰To avoid the uninteresting results we assume $\hat{a} < \bar{a}$.

(mayor and executive); 2) the fact that wages are differentiated across offices and across locations. We now study the impact of a wage increase in such a framework focusing on the case in which returns to ability are lower while in office ($p < m$). While this case is not necessarily the most empirically relevant, it rules out the somewhat unrealistic scenario in which the all individuals with ability $a > \hat{a}$ will be willing to run for a position of moonlighting executive, as from (6)

Let's first study what happens in small municipalities. First notice that the assumption $p < m$, together with $W_l^g = 0$, implies that the net payoff of moonlighting executives is negative: $\pi_l^{g0}(a) = (p - m)a < 0$. Hence, all executives in small municipalities are non-moonlighter, thereby with ability lower than \hat{a} .

Also, since $W_l^m > W_l^g = 0$, the payoff structure described by (3) and (5) straightforwardly implies $a_l^m - a_l^{g1} > 0$, meaning that, since ability is uniformly distributed, candidates for a mayor position are on average more skilled than candidate for executive positions in small municipalities. The data confirm this result (see Table 4).

What happens in large municipalities? Wages of mayors and executives increase so that $W_h^m > W_l^m > W_h^g > W_l^g = 0$. If moonlighting were impossible for executives and mayors, the ability of mayor's candidates in large municipalities would be higher than in small ones, and also higher than the ability of mayor's candidate in large municipalities: $a_h^m > a_l^m > a_h^{g1} > a_l^{g1}$. However, when executives can moonlight, ability of mayor's candidates in large municipalities might be lower than in small municipalities.

To see this, first consider that (3) and (4) imply that only individuals with ability lower than a certain threshold a_h^* would prefer to run for a mayor rather than a moonlighting executive position. Formally,

$$\pi_h^{g0}(a) < \pi_h^m(a) \Leftrightarrow a < a_h^* \equiv \frac{W_h^m - W_h^g + R}{p} > 0. \quad (7)$$

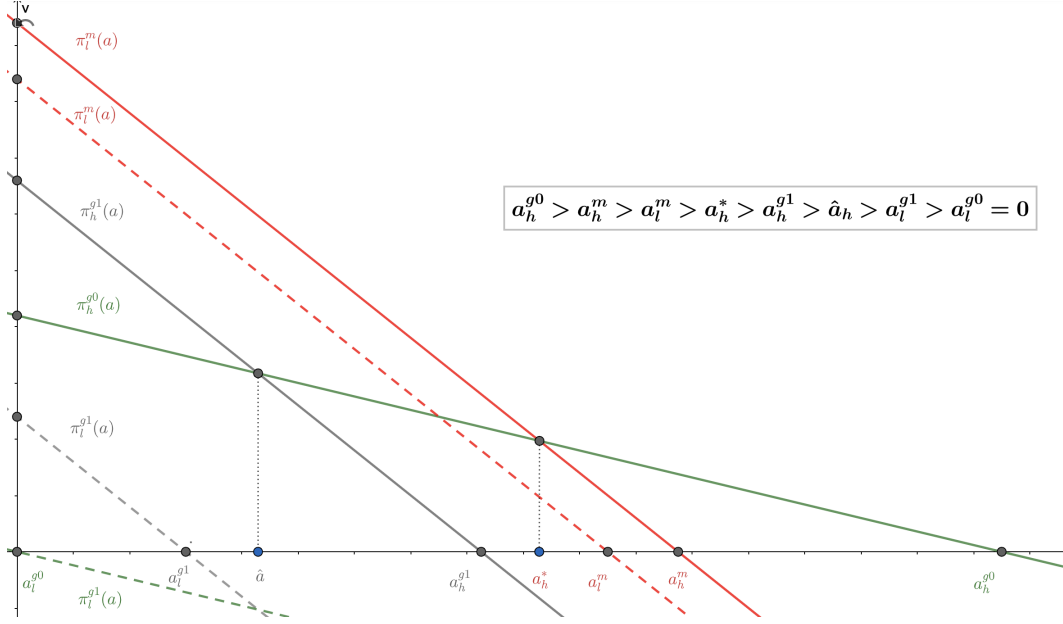
Since the net payoff for a mayor must also be non-negative ($\pi_h^m(a) = W_h^m + R - ma > 0$), then only individuals with ability lower than $\min(a_h^*, a_h^m) = \min\left(\frac{W_h^m - W_h^g + R}{p}, \frac{W_h^m + R}{m}\right)$ will run for a mayor position. Notice that a_h^* might be lower than a_h^m , meaning that individuals with ability a_h^* would earn a strictly positive payoff from becoming a mayor. That happens when

$$a_h^* < a_h^m \Leftrightarrow \frac{m}{p} < \frac{W_h^m + R}{W_h^m - W_h^g + R} \quad (8)$$

In this case, individuals with ability $a \in (a_h^*, a_h^m)$ prefer to run for a position of moonlighting executive rather than for a position of (non-moonlighting) mayor, despite the lower reward from office ($W_h^m > W_h^g$).

Finally, and most importantly, when a_h^* is small enough (which happens when $W_h^m - W_h^g$ is small, when ego-rents R are small or when p is large), the ability of mayors in large municipalities is lower than in small ones. Using (7) and (3), we conclude that this outcome occurs when

Figure 5: An example when increasing wage result in lesser educated mayor



Notes: The graph depicts the payoffs of different offices (red for mayors, green for non-moonlighting executives, green for moonlighting executives) in different municipalities (dashed lines for low-wage municipalities, solid lines for high-wage municipalities) as functions of ability.

$$a_h^* < a_l^m \Leftrightarrow \frac{m}{p} < \frac{W_l^m + R}{W_h^m - W_h^g + R} \quad (9)$$

This proves the following

Proposition 1 (Mayor's ability in large vs small municipalities) *The ability of mayors is lower in large/high-wage municipalities than in small/low-wage municipalities if condition (9) applies, i.e. when: 1) returns from ability while in office (p) are close enough to returns from ability in the private sector (m); 2) and/or the mayor wage premium $W_h^m - W_h^g$ is small enough; 3) and/or ego rents (R) are small enough.*

Figure 5 illustrates an example where the values of the parameters are such that proposition 1 holds. Here, the thick green line – representing the payoff of moonlighting politicians in high-wage municipalities as function of ability – is flat enough (and hence p is large enough) to cross the thick red line (representing the payoff of mayors in high-wage municipalities as function of ability) in correspondence to a value of a_h^* which is lower than a_l^m . Consequently, mayors in low-wage municipalities are more skilled than in high-wage ones despite higher pay because more skilled individuals prefer to run for a position of moonlighting executive.

To sum up, this simple model rationalizes the counterintuitive finding that a better-educated council does not result in a better-educated elected mayor, despite increasing wages. The mechanism is based on the idea that moonlighting is easier for executives than for the mayor. In this case, assuming that the relative increase in executives' pay in high-wage municipalities is large enough, most educated individuals might prefer to run for a moonlighting executive position rather than for mayor, despite the lower rewards from the political office. Importantly this mechanism would not apply to direct election since the mayor candidates are chosen ex-ante. Also, executives are appointed by the mayor herself and need not belong to the council. In the following section, we test the empirical implications of this mechanism.

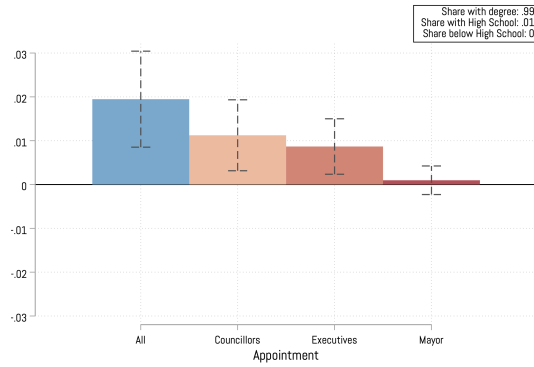
5.2 Empirical support for the proposed mechanism

To provide empirical support to the theoretical model described in the above paragraphs, we exploit a peculiar feature of our dataset. The *Anagrafe* reports, for each individual, her occupation as of the appointment date. We can thus test whether politicians respond differently to monetary incentives depending on their previous occupation, which indeed represents a key determinant of their possibility to moonlight. Figure 6 summarizes the result of this heterogeneity exercise. Since our main results highlight that high-wages result in a pool of better educated council members, here we focus on the occupations of high-skilled politicians. However, in the Appendix we also present the analogous of Figure 6 for low-skilled (Figure A4) and mid-skilled (Figure A5) politicians.

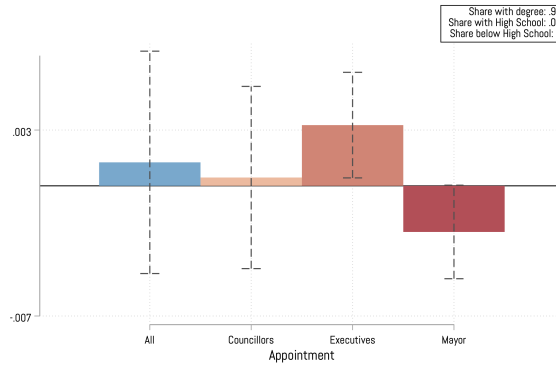
Figure 6 depicts the estimated coefficients – along with their confidence interval – from a battery of regressions where the dependent variable is an indicator for each of the high-skilled occupation considered: professionals (including lawyers and engineers), teachers and professors, and physicians. Consistent with the main results, monetary incentives lead to a higher probability of electing high skilled, self-employed professionals. However, this larger inflow translates into a higher probability of observing, in high-wage councils, high-skilled professionals among the councillors and executives, but not among mayors. When focusing on mayors – an office that, differently from the others, offers fewer opportunities to moonlight – the coefficient is statistically indistinguishable from zero. This result is thus in line with the proposed mechanism, as it suggests that professionals who are attracted by the higher (expected) wage may prefer becoming executives rather than mayors.

Moreover, higher wages have a much weaker effect on the selection of politicians employed in occupations less suitable to moonlight. This is the case, for instance, of teachers and professors and physicians, who typically experience a less flexible work schedule. The wage policy induces a weaker selection effect, as the probability of observing politicians in these occupations is not statistically different in low- and high-wages councils. In particular, there is no significant effect at the threshold on the

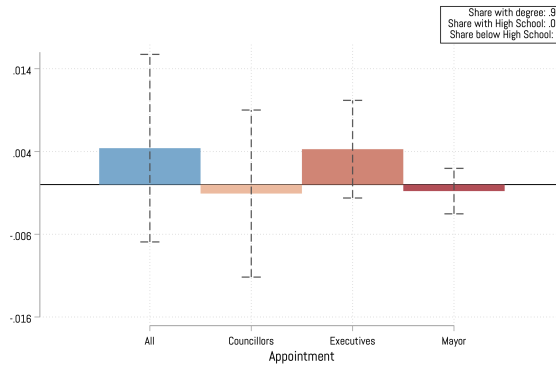
Figure 6: *Higher wages and politicians' occupation*



(a) *Professionals*



(b) *Teachers and Professors*



(c) *Physicians*

Notes: This figure depicts the coefficients and confidence interval from a set of regressions of the form of Equation 1, where the dependent variable is a binary indicator taking value one if the appointed councillor, executive, or mayor is a high-skilled professional (Panel A), teacher or university professor (Panel B), or a physician (Panel C). Numbers in the upper-right box indicates, for each profession, the share of observations by education attainment.

Table 6: *Higher wages and politicians' retirement status*

<i>Panel A: Retired</i>				
	Whole Council	By appointment		
	(1)	(2)	(3)	(4)
		Councillors	Executives	Mayor
> 5000 pop	0.026** (0.013)	0.017 (0.014)	0.016 (0.021)	0.148** (0.063)
Mean dep. var.	0.078	0.073	0.076	0.176
BW	1116.815	1238.225	1274.849	1599.993
Observations	14491	10983	4639	1094
N. of municipalities	465	521	542	697

<i>Panel B: Retired & degree</i>				
	Whole Council	By appointment		
	(1)	(2)	(3)	(4)
		Councillors	Executives	Mayor
> 5000 pop	0.009*** (0.004)	0.009** (0.004)	0.001 (0.006)	0.103*** (0.034)
Mean dep. var.	0.011	0.009	0.008	0.028
BW	1839.180	1899.316	1755.542	868.510
Observations	24766	17700	6491	568
N. of municipalities	804	850	768	363

*Notes: this table describes the threshold-crossing effects on the probability that the elected council members are retired in the sample of stronghold municipalities. The table reports the coefficients from a battery of regression discontinuity equations of the form of Equation 1, where the dependent variable is a binary indicator taking value one when the politician's occupation is defined as "retired" (Panel A), or an indicator for "retired" politicians whose education attainment is above secondary (Panel B). > 5,000pop. is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. SE are clustered at the municipality level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

probability to observe executives employed as physicians, an occupation characterised by even stricter work schedule which is less compatible with moonlighting.

Table 6 provides additional evidence in this direction. Here we look at the effect of higher wages on the selection of local politicians depending on their retirement status. The estimates in Column (1) reveal that monetary incentives have a significant impact (+2.6 pp.) on the probability of observing a retired politician among the council members. In this case, however, we also observe a much larger share of retired mayors in high-pay councils. The estimated coefficient in Column (4) shows that the mayor's positions in high-pay councils are twice as likely (+15 pp.) to be filled by retired politicians than in low-pay councils. No significant effect emerges for executives (Column

3).

Moreover – and consistently with wage increases attracting high-skilled individuals – this result is almost entirely driven by more retired politicians with a degree (see Column 4 of Panel B). Hence, this evidence is complementary to that presented in Figure 6: the mayor’s office does not attract those who have the opportunity to moonlight, who instead opt for an executive position. Hence, high-wage councils are more likely to appoint as mayor a retired politician, whose outside income does not depend on the time spent in political activities.

6 Conclusion

We study how monetary incentives affect the characteristics of local politicians in an indirect election system where citizens elect the members of a local parliament, who in turn choose the mayor among themselves. We investigate the problem using micro-level data on Italian local elections and local politicians between 1985 and 1990.

Consistent with the literature that highlights a positive selection effect of monetary incentives, we find that higher expected wages result in more educated members of the local council but not in better-educated mayors. While low-wage councils tend to elect mayors who have almost two years of schooling more than the median councillor and the median executive, this difference vanishes in high-wage councils.

To rationalize this result, we propose a model for which moonlighting - i.e., continuing to work on their previous occupation and enjoying its wage - is easier for executives than for mayors. Thus, better-educated candidates would self-select in above-threshold councils attracted by the probability of becoming executives to supplement their income without giving up their previous occupation. We provide empirical support to this mechanism by investigating how higher wages affect the selection of local politicians depending on their previous occupations.

Our work implies that the positive impacts of monetary incentives can be undone or even reversed in the parliamentary stage of the election process. Such policy implication is particularly relevant as a parliamentary form of local government is widespread in many European countries. More generally, the main takeaway of our analysis is that the effects of monetary incentives are not invariant across different institutional settings, and therefore they should be cautiously implemented.

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A Appendix

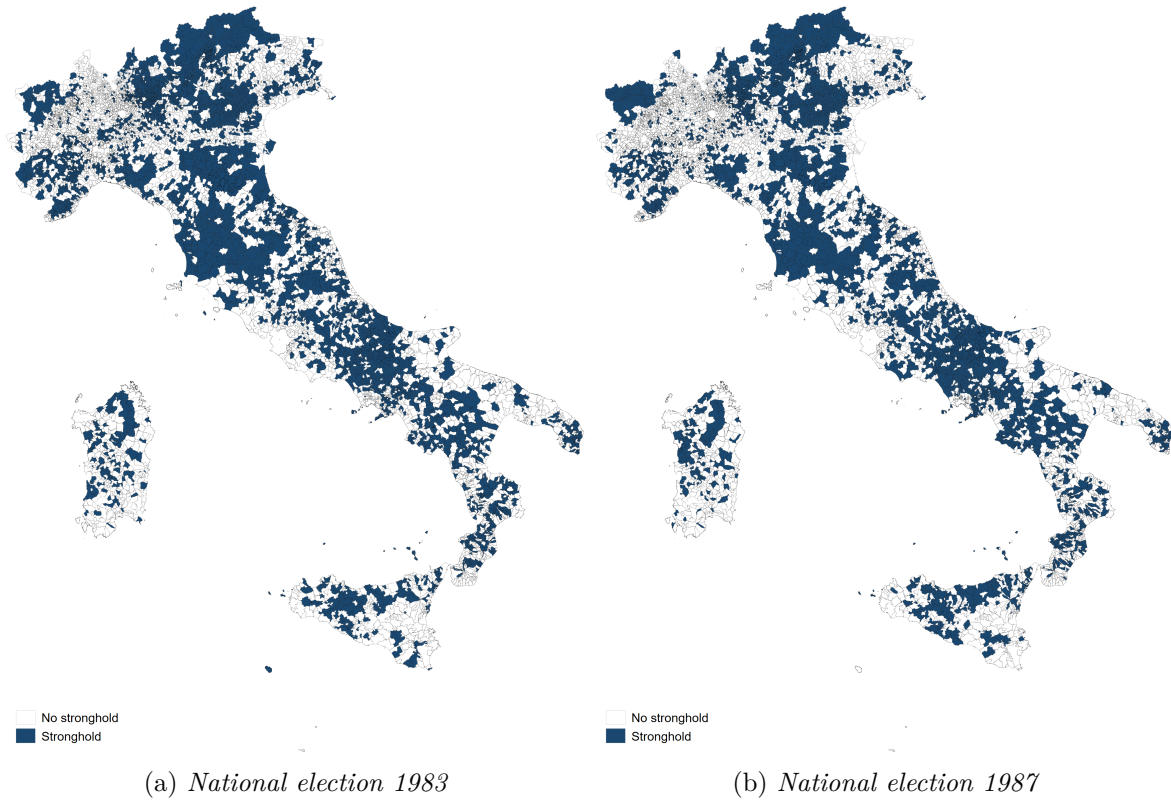
A.1 Summary statistics

Table A1: *Summary statistics*

Panel A: Councillors				
	Whole Sample		Stronghold Sample	
	Mean	Sd	Mean	Sd
Years of education	11.03	4.22	10.59	4.22
Degree	0.20	0.40	0.17	0.38
Secondary education	0.35	0.48	0.33	0.47
Below secondary education	0.45	0.50	0.50	0.50
Age	40.18	10.92	39.53	10.95
Female	0.09	0.28	0.08	0.28
Born in other municipality	0.41	0.49	0.37	0.48
Observations	170463		78090	
Panel B: Executive Committee				
	Whole Sample		Stronghold Sample	
	Mean	Sd	Mean	Sd
Years of education	11.24	4.12	10.88	4.16
Degree	0.20	0.40	0.18	0.38
Secondary education	0.38	0.49	0.37	0.48
Below secondary education	0.42	0.49	0.45	0.50
Age	41.14	10.15	40.45	10.18
Female	0.08	0.26	0.07	0.26
Born in other municipality	0.38	0.49	0.33	0.47
Observations	59847		27824	
Panel C: Mayors				
	Whole Sample		Stronghold Sample	
	Mean	Sd	Mean	Sd
Years of education	12.90	3.80	12.82	3.85
Degree	0.33	0.47	0.33	0.47
Secondary education	0.43	0.49	0.42	0.49
Below secondary education	0.24	0.43	0.25	0.43
Age	45.24	10.07	44.48	10.10
Female	0.03	0.17	0.03	0.16
Born in other municipality	0.34	0.47	0.30	0.46
Observations	13551		6543	

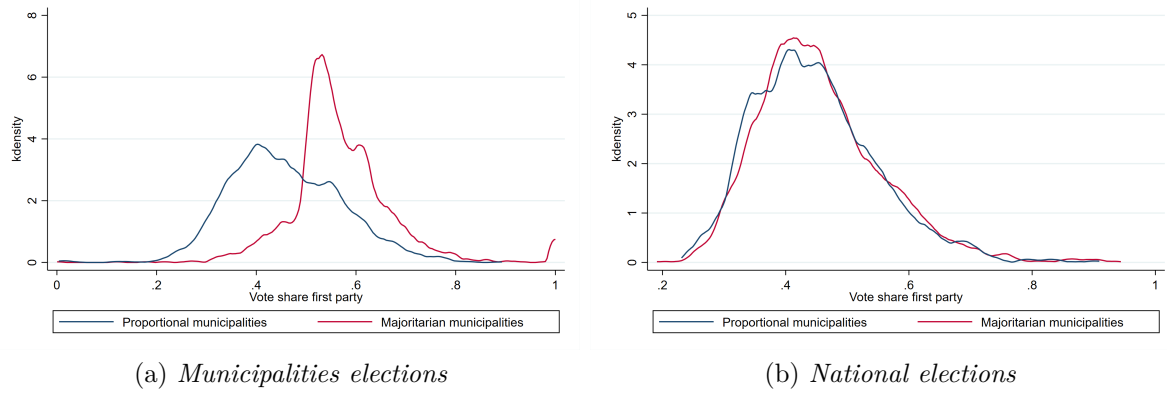
Notes: This table reports the summary statistics for council members in the overall sample of municipalities (left columns) and the stronghold sample (right columns).

Figure A1: *Geographical Distribution of Stronghold Municipalities*



Notes: This figure illustrates the geographic distribution of stronghold municipalities (inblue) in the Italian territory according to the 1983 (Panel a) and 1987 (Panel b) national elections.

Figure A2: *Vote share distribution across elections*



Notes: This figure depicts the distribution of the vote share of the leading party computed on the data for the municipal (Panel A) and national elections (Panel B). The unit of observation is a municipality \times term.

A.2 Robustness checks

Table A2: *Covariates smoothness I: political characteristics*

	(1)	(2)	(3)	(4)	(5)	(6)
	Strongholds	N. voters	Share 1st party	Share 2nd party	1st party is DC	1st party is PCI
Panel A: All terms						
> 5000 pop	-0.0485 (0.0761)	-42.15 (45.22)	-0.00680 (0.0153)	0.00654 (0.0125)	0.0552 (0.0553)	-0.0254 (0.0631)
Mean dep. var.	0.455	3203.633	0.451	0.241	0.691	0.277
BW	1281	1683	1358	1124	2237	1643
Observations	1951	2605	2060	1711	3653	2555
N. of municipalities	1125	1491	1183	986	2090	1463
Panel B: Term 1985-87						
> 5000 pop	0.0394 (0.0841)	-0.562 (41.23)	-0.00590 (0.0176)	0.00653 (0.0145)	0.0378 (0.0676)	0.000334 (0.0802)
Mean dep. var.	0.486	3032.412	0.458	0.243	0.662	0.317
BW	1586	1883	1378	1215	2179	1474
Observations	1048	1282	886	771	1513	952
N. of municipalities	1048	1282	886	771	1513	952
Panel C: Term 1988-90						
> 5000 pop	-0.102 (0.0851)	-55.83 (54.21)	-0.00710 (0.0160)	0.000713 (0.0123)	0.0527 (0.0647)	-0.0567 (0.0554)
Mean dep. var.	0.431	3279.895	0.447	0.238	0.711	0.253
BW	1160	1649	1325	1206	1758	2166
Observations	963	1392	1096	994	1494	1926
N. of municipalities	963	1392	1096	994	1494	1926

Notes: this table reports the threshold-crossing effect on a set of political characteristics. These are a binary indicator for stronghold municipalities (Column 1), the number of voters (Column 2), the vote share of the leading (Column 3) and the second party (Column 4), and two indicators taking value one if the leading party is Democrazia Cristiana or Partito Comunista (Column 5 and 6, respectively). In all columns, the outcome variable is defined based on the votes in the previous national election. Panel A reports the estimates for the overall sample of municipalities \times term, while Panel B and C consider separately the first (1985-87) and second (1988-92) electoral term. The table reports the coefficient from a regression discontinuity equation of the form of Equation 1, for the overall sample of municipalities. $> 5,000pop.$ is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. SE are clustered at the municipality level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A3: Covariates smoothness II: geographical characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Coastal	Mountain	Area km2	North-West	North-East	Centre	South	Islands
> 5000 pop	-0.0503 (0.0529)	-0.162 (0.217)	6.126 (5.657)	-0.0407 (0.0688)	-0.0208 (0.0523)	-0.0439 (0.0446)	0.112 (0.0729)	0.0418 (0.0502)
Mean dep. var.	0.113	3.424	40.680	0.262	0.227	0.133	0.241	0.115
BW	1442	1493	1842	1391	1973	1901	1001	1816
Observations	1202	1249	1574	1165	1773	1671	837	1562

Notes: this table reports the threshold-crossing effect on a set of time invariants geographical characteristics. These are a binary indicator for municipalities located on a coastal (Column 1) or mountain area (Column 2), the municipal area in squared km (Column 3), and a set of five indicators taking value one if the municipality belongs to the corresponding Italian macro-area (Columns 4 to 8). The table reports the coefficient from a regression discontinuity equation of the form of Equation 1, for the overall sample of municipalities. Each observation is a municipality. $> 5,000pop.$ is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A4: *Robustness checks I: CER-optimal bandwidth*

	(1)	(2)	(3)	(4)	(5)	(6)
	Ys of Schooling	Secondary	Degree	Age	Female	Born elsewhere
Panel A: Whole Council						
> 5000 pop	1.024*** (0.282)	0.108*** (0.0331)	0.0433** (0.0175)	-0.225 (0.648)	-0.000893 (0.0126)	0.0660* (0.0400)
Mean dep. var.	11.552	0.393	0.222	39.473	0.083	0.336
BW	715	515	1270	934	1252	876
Observations	9074	6751	16752	11893	16710	11291
N. of municipalities	297	224	541	385	528	365
Panel B: Councillors						
> 5000 pop	1.233*** (0.318)	0.112*** (0.0393)	0.0428** (0.0193)	-0.0692 (0.731)	0.000442 (0.0142)	0.0647 (0.0434)
Mean dep. var.	11.305	0.377	0.207	38.956	0.088	0.344
BW	824	601	1407	957	1415	887
Observations	7164	5383	12586	8300	12983	7761
N. of municipalities	346	260	607	397	610	371
Panel C: Executive Committee						
> 5000 pop	0.631* (0.374)	0.0576 (0.0495)	0.0584* (0.0315)	0.0445 (0.798)	-0.0160 (0.0182)	0.0628 (0.0475)
Mean dep. var.	11.751	0.413	0.221	39.912	0.082	0.329
BW	855	744	1310	1318	1640	1021
Observations	3027	2623	4726	4779	6088	3628
N. of municipalities	360	313	554	558	715	426
Panel D: Mayors						
> 5000 pop	-0.259 (0.776)	-0.0397 (0.101)	0.00504 (0.0887)	-1.938 (1.646)	0.0156 (0.0311)	0.0490 (0.0884)
Mean dep. var.	13.534	0.393	0.409	43.322	0.027	0.262
BW	791	874	1112	994	1374	939
Observations	528	570	734	647	921	603
N. of municipalities	337	364	465	412	584	385

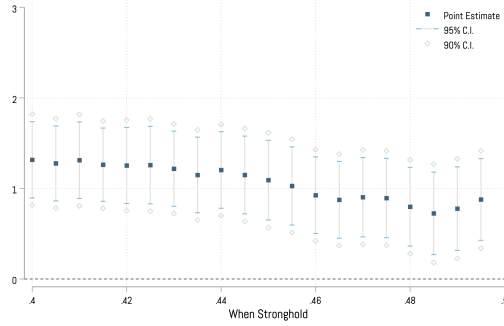
Notes: This table reports the threshold-crossing effect on the education of the council members and other demographics under a different method to compute the optimal bandwidth. Panel A considers all council members, while Panel B, C, and D consider the sample of councillors-only (those who are not appointed as executives or mayor), executives, and mayors, respectively. In all panels, the dependent variable is the number of years of schooling (Column 1), two indicators for a politician's education attainment (Column 2 and 3), age (Column 4), gender (Column 5), and an indicator taking value one if the elected politicians is born in a different municipality. The table reports the coefficients from a regression discontinuity equation of the form of Equation 1 on the stronghold sample. > 5,000pop. is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The optimal bandwidth is the CERRD optimal bandwidth computed following Calonico, Cattaneo, and Farrell (2020), which is reported at the bottom of each panel. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ SE are clustered at the council level in Panels A-C, while at the municipality level in Panel D. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A5: *Robustness checks II: alternative stronghold definition (1)*

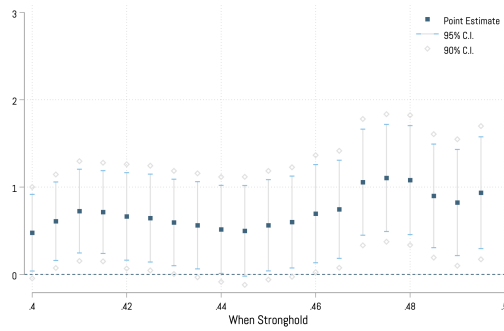
	(1)	(2)	(3)	(4)
	Whole Council	Councillors	Ex. committee	Mayors
Panel A: National election (post)				
> 5000 pop	0.797*** (0.268)	1.032*** (0.331)	0.422 (0.346)	-0.159 (0.850)
Mean dep. var.	11.434	11.189	11.506	13.772
BW	1248	1377	1582	1040
Observations	10920	8178	3842	448
N. of municipalities	435	482	572	351
Panel B: Regional election				
> 5000 pop	0.747*** (0.220)	0.942*** (0.266)	0.358 (0.294)	-0.696 (0.621)
Mean dep. var.	11.483	11.275	11.635	13.530
BW	1231	1335	1706	1327
Observations	16347	12193	6443	913
N. of municipalities	576	637	829	629
Panel C: Provincial election				
> 5000 pop	0.828*** (0.226)	0.958*** (0.261)	0.763* (0.394)	-0.743 (0.724)
Mean dep. var.	11.617	11.361	11.786	13.692
BW	1412	1526	1326	1381
Observations	12515	9315	3172	616
N. of municipalities	374	410	345	364

*Notes: This table reports the threshold-crossing effect on the education of the council members using different electoral data to define the sample of stronghold municipalities. Panel A uses the national elections that took place after – rather than before – the municipal ones; Panel B uses the previous regional elections, while Panel C uses the previous provincial elections. In all panels, the dependent variable is the number of years of schooling of all council members (Column 1), councillors-only (Column 2), executives (Column 3), and mayors (Column 4). > 5,000pop. is an indicator that takes value one for municipalities whose population falls above the 5,000 inhabitants threshold, and zero otherwise. The table also reports the mean of the dependent variable for municipalities whose population falls within the interval $[-BW; 0]$ (where BW is the MSR optimal bandwidth computed following Calonico, Cattaneo, and Titiunik (2014) and reported below) and the number of within-bandwidth observations. SE are clustered at the council level in Columns (1) to (3), while at the municipality level in Column 4. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

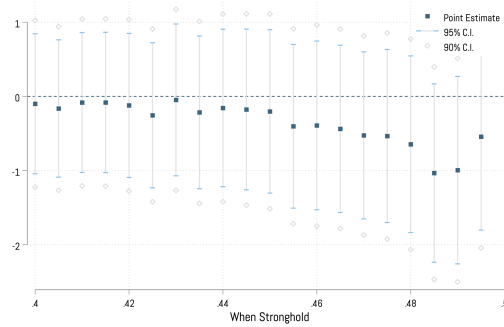
Figure A3: *Robustness checks III: alternative stronghold definition (2)*



(a) *Councillors*



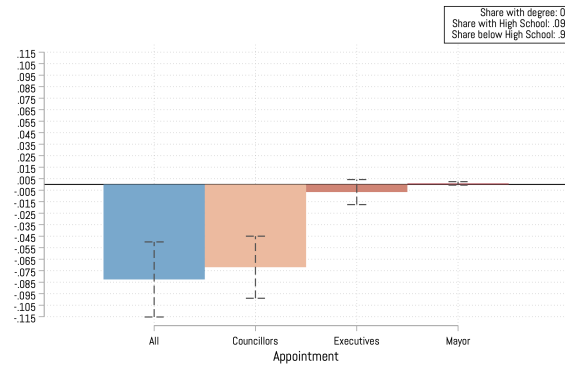
(b) *Executives*



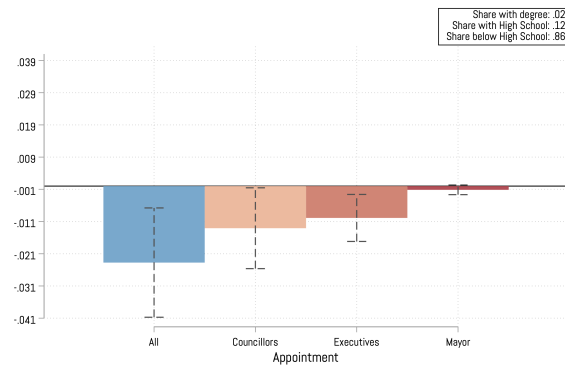
(c) *Mayor*

Notes: This figure depicts the robustness of the estimates presented in Table 4 alternative choice of the threshold that identifies the sample of stronghold municipalities. Each square indicates the point estimates from a regression discontinuity regression of the form of Equation 1 where the dependent variable is the number of year of education of council members and we limit the sample to municipalities where the leading party in the national election has a vote share $\geq j$, for $j \in (0.4, 0.5)$. In Panel A, the sample considers councillors-only (that is, those who are not appointed as executive or mayor); in Panel B and C, the sample considers executives and mayors, respectively.

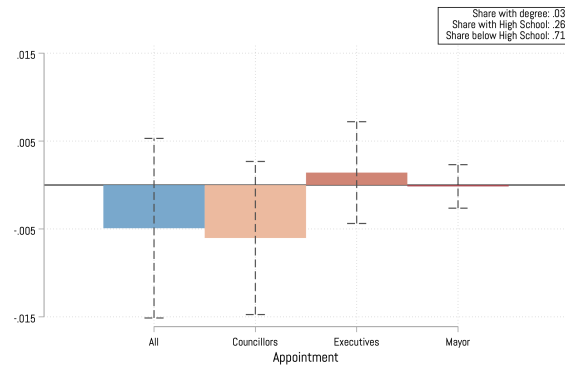
Figure A4: *Higher wages and politicians' occupation (low-skill jobs)*



(a) *Blue collar*



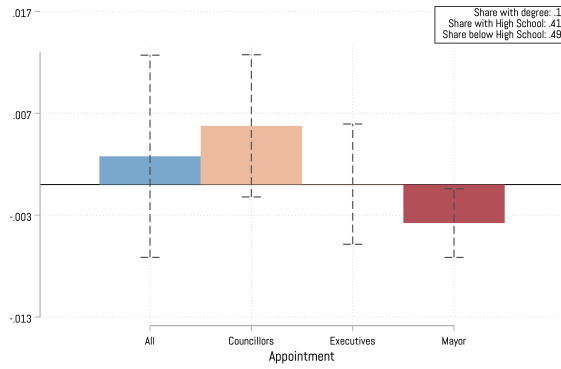
(b) *Agricultural worker*



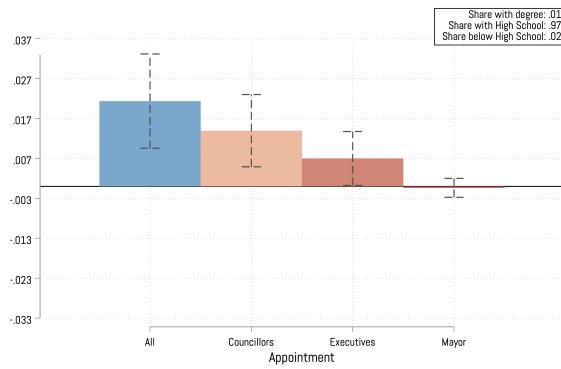
(c) *Small business owner*

Notes: This figure depicts the coefficients and confidence interval from a set of regression discontinuity regressions of the form of Equation 1, where the dependent variable is a binary indicator taking value one if the appointed councillor, executive, or mayor is a blue-collar worker (Panel A), agricultural worker (Panel B), or a small business owner (Panel C). Numbers in the upper-right box indicates, for each profession, the share of observations by education level.

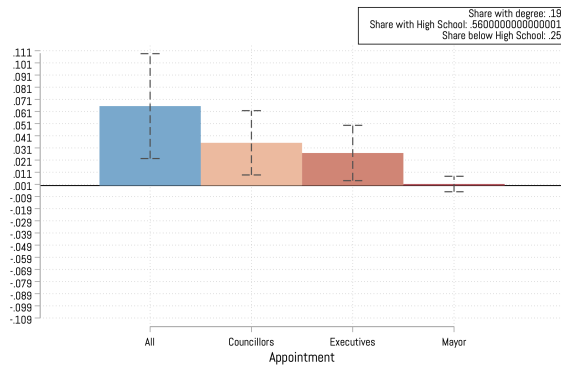
Figure A5: *Higher wages and politicians' occupation (mid-skill jobs)*



(a) *Entrepreneurs*



(b) *Technicians*



(c) *Office workers*

Notes: This figure depicts the coefficients and confidence interval from a set of regression discontinuity regressions of the form of Equation 1, where the dependent variable is a binary indicator taking value one if the appointed councillor, executive, or mayor is a (mid-skilled) entrepreneur (Panel A), technician (Panel B), or office worker (Panel C). Numbers in the upper-right box indicates, for each profession, the share of observations by education level.

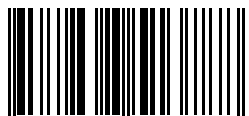
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