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POLITICAL COMPETITION AND POLITICIAN QUALITY: EVIDENCE FROM ITALIAN MUNICIPALITIES

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Political Competition and Politician Quality: Evidence from Italian Municipalities

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Abstract: In this paper, using data from Italian local level governments for the years 1985-2008, we investigate whether political competition affects the quality of elected politicians, as measured by using some ex-ante characteristics such as educational level and type of job held. We handle endogeneity problems through an instrumental variable approach using a variable which takes into account whether the previous legislature survived until the end of its legislative term as an instrument for political competition. Early termination increases political competition, without directly affecting the quality of candidates. Two Stage Least Square estimates support the assumption that political competition positively affects politician quality. Results are robust to different measures of political competition and to different specifications of the model.

JEL classification: D72, D78; J45
Keywords: Political Competition; Politicians; Political Selection.

1. Introduction

Recent theories of political economy argue that political competition at elections produces a positive effect on the quality of politicians and their performance. The idea dates back to Stigler (1972), who argues that the beneficial effects of political competition are analogous to the effects of market competition on economic efficiency. According to Polo (1998), Svensson (1998), Persson and Tabellini, (2000), Besley *et al.* (2008) and Galasso and Nannicini (2009), when voters are motivated by ideological reasons rather than by evaluations based on the effective performance of politicians, the level of competition among parties is reduced and the party enjoying an electoral advantage will tend to select politicians of lower quality.

In addition, a large electoral advantage is likely to moderate the extent to which politicians are accountable for their choices leading to negative consequences on their performance. In fact, while tight political competition reduces the possibility of politicians to engage in opportunistic behavior (in the form of rent extraction and inefficient choices) as it is a credible threat of removal from office, a lack of political competitors induces incumbent politicians to pursue distorted policies, since their probability of being re-elected is hardly affected by these choices (Skilling and Zeckhauser, 2002). In a similar vein, Kiss (2009a, 2009b) shows that coalition governments, emerging when neither party is able to achieve a

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majority, can be held accountable as long as there is an electoral alternative, which crucially depends on the share of ideological voters.

A number of works have recently tried to verify empirically the effects of political competition on politician quality and behavior when in office. Besley and Preston (2007) consider English local governments to analyse how an electoral bias in favor of one party affects the mayor's policy choices. They find that, when a party enjoys such a bias, it becomes keener to offer policies to suit its core supporters rather than swing voters. Using data from a sample of Flemish municipalities, Ashworth *et al.* (2006) show that political competition at elections has a beneficial effect on the efficiency of municipal administration. Galasso and Nannicini (2009), using an individual-level dataset on the Members of the Italian Parliament, show that the degree of contestability or uncertainty in the race between office-seeking candidates positively affects politician quality and performance. Using a dataset on the outside earnings of the members of the German Federal Assembly, Becker *et al.* (2009) find that politicians facing low competition have substantially higher outside earnings. Padovano and Ricciuti (2009), instead, examine the effects of political competition on the economic performance of Italian regions. They use the electoral margin between the two largest parties as a measure of competition and show that Italian regions with higher political competition tend to adopt better policies and to grow more. Finally, Zhang and Congleton (2008) find a positive relationship between the educational level of US Presidents and some aggregate economic outcomes.

In this paper we investigate the relationship between political competition and the quality of elected politicians focusing our attention on local governments. More precisely, we analyze the effects of political competition using data from Italian municipal governments over the years from 1985 to 2008.

Measuring politician quality is not an easy task, since it is not possible to find any indicator that unquestionably determines what makes a good politician. In this work, we measure politicians' quality in terms of human capital: their educational attainment and the skill-content of their jobs. There is a great deal of economic literature showing that a larger accumulation of human capital produces positive effects both on individual economic prospects and on aggregate variables. Given the reasonable assumption that "political" and "market" skills are correlated, human capital also represents a good proxy for politician quality and for their performance.

We first estimate a simple OLS model explaining the quality of mayors and of the members of Municipal Councils in relation to the degree of political competition in the electoral race, by controlling for a number of municipal characteristics. Our results show that political competition is positively correlated with the quality of mayors and of the Municipal Councilors.

However, OLS estimates might not show a causal relationship if politician quality determines, at least in part, the degree of political competition. Endogeneity problems that may derive from reverse causality are handled through an instrumental variable approach using the early termination of the legislature as an instrument. Two-Stage-Least-Square estimates confirm OLS results, supporting the idea that political competition positively affects politician quality. These findings are robust to different measures of political competition and to different specifications of our model.

The paper is organized in the following way. Section 2 is devoted to the description of the institutional framework and of our dataset. In Section 3, results from OLS estimations are presented, while, in Section 4, we show Two-Stage-Least-Square estimates. Section 5 concludes.

2. Institutional framework and data

In Italy, municipal administrations are responsible for a number of important functions such as the management of public utilities (local roads, water, sewage, and garbage collection), the provision of public housing, transportation and nursery schools, and the assistance of elderly people. Since these services have a great impact on citizens' daily lives, voters are generally very interested in the composition and the performance of Municipal Councils.

The Municipal Council (*Consiglio Comunale*) is endowed with legislative power, while the executive authority is assigned to a Mayor (*Sindaco*) heading an Executive Committee (*Giunta Comunale*). Since 1993, mayors have been subject to a two-term limit, while members of the Executive Committee and of the Municipal Council can be re-elected indefinitely.

Seats on the Municipal Council, whose size varies form 12 to 60 according to population size, are allocated using an individual ballot system. This system was introduced in 1993, replacing a party ballot system. For communities with a population of less than 15,000 inhabitants, elections are held with single ballot and plurality rule, and the winning candidate is awarded a majority premium of at least two-thirds of the seats in the Council; for municipalities with populations above 15,000, elections are held with a dual ballot (where the second is held if none of the candidates in the first ballot obtained an absolute majority of the votes), and the winning candidate is awarded a majority premium of at least 60 percent of the seats on the Council.

We base our analysis on a panel dataset, provided by the Italian Ministry of the Interior, of about 8,100 Italian municipal governments, over the period 1985-2008. We have information on the identity, gender, age, educational attainment and previous jobs of the elected mayor, the Executive Committee members and the Municipal Councilors. The data at hand also provide information on the exact duration of the legislature and the reasons for early termination. For the period 1993-2006, we also observe the electoral results of mayors and their opponents. In

addition, we use the 1991 and 2001 Italian Census of Population to obtain data at the municipal level regarding the size of the resident population, the number of employed individuals and the educational attainment of the population.

In Table 1, some descriptive statistics are reported.[1] The average number of years mayors spent at school is about 14.2.[2] About 41% of mayors obtained a College Degree. Mayor education increases with the population size. In small cities (fewer than 15,000 inhabitants), the number of years the mayor spent in education is 13.8, while in larger cities education it is, on average, 15.7. The average level of education of Municipal Councilors is about 12.2 years, while the average education of Executive Committees members is 12.9 years. For the period from 1993 to 2006, we also have information about the characteristics of the mayor's opponents in the electoral race. Their average level of education is 14 years.

Under the assumption that "political" skills are related to market "skills", the type of job in which individuals are employed may represent another indicator of human capital and, therefore, of politician quality. We define a "Highly Skilled" category including "professionals" and entrepreneurs. Nearly 28% of Municipal Councilors are employed in highly skilled jobs. The percentage is equal to 33.4% for Executive Committees members. As far as mayors are concerned, 5% of them were entrepreneurs before being appointed, while 38% were professionals. Nearly 41% of the mayor's opponents are employed in high-skill jobs.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Average Education Municipal Council	29729	12.248	1.783	5.706	17.149
Average Education Executive Committe	29725	12.906	2.376	5	18
Mayor's Education	29420	14.160	3.703	5	18
Highly-Skilled Municipal Councilors	29714	0.280	0.170	0	1
Highly-Skilled Executive Committee	29680	0.334	0.262	0	1
Highly-Skilled Mayor	29121	0.426	0.494	0	1
CompetitionH	29729	0.557	0.263	0	0.998
CompetitionEA	21109	0.755	0.249	0	1.000
CompetitionMW	25251	0.314	0.070	0.021	0.531
Early Termination	29729	0.216	0.412	0	1
Female	29729	0.069	0.253	0	1
North	29729	0.545	0.498	0	1
Center	29729	0.127	0.333	0	1
South	29729	0.233	0.422	0	1
Islands	29729	0.095	0.294	0	1
Population	29729	7102.760	44118.500	33	2733908
Average Education (Population)	29729	7.156	0.893	1.616	17.910
Employment/Population	29729	0.249	0.142	0.012	0.899
Av. Opponents' education	17598	14.069	3.372	5	18
% Highly Skilled Opponents	17404	0.412	0.443	0	1

Sources: Dataset on Local Administrators (1985-2008), Ministry of the Interior; Italian Census of Population 1991 and 2001.

[1] The sample we use is defined in relation to the availability of the instrument "Early termination" (see Section 4).

[2] In the Italian educational system, it takes 13 years to attain a High-School Diploma while 17-18 years are necessary to attain an University Degree.

We measure political competition in a number of ways. *CompetitionH* is given by one minus the Herfindahl index, i.e., the sum of squares of each party's share of seats on the Municipal Council. This measure allows us to take into account both the number of parties represented on the Municipal Council and the number of seats each obtained. *CompetitionH* is equal to zero if all the seats are obtained by just one party and increases if the number of represented parties increases or if their relative shares decrease.

An alternative measure of competition, *CompetitionEA* (*EA* stands for Electoral Advantage) is given by one minus the difference between the percentage of votes obtained by the elected mayor and the percentage of votes obtained by his best competitor. Therefore, a high value of *CompetitionEA* represents situations in which the electoral advantage between the mayor and his best competitor is low. Unfortunately, this measure is available only for a limited period of time (1993-2006). We also experiment with a third measure, *CompetitionMW*, (MW stands for Majority Weight), given by 1 minus the percentage of seats obtained by the parties supporting the elected mayor. High values taken by this variable signal that there is a relatively low share of Councilors supporting the mayor, implying that the electoral race involved a high level of competition.

As it is possible to see from Table 1, *CompetitionH* has a mean of 0.56. Using the Herfindahl interpretation, this implies that there are on average 2.27 parties on the Municipal Council, under the assumption that all parties have an equal share of seats. The variable *CompetitionEA* takes a value of about 0.75 on average, implying that the margin between the elected mayor and the second most voted candidate is about 25 percentage points. Finally, *CompetitionMW* has a mean of 0.31, i.e. the mayor has the support of 69% of Municipal Councilors.

The change in the electoral system introduced in 1993 has led to a higher level of political competition. Both of our measures of political competition, *CompetitionH* and *CompetitionMW*, have significantly increased since the introduction of the individual ballot system.

The statutory length of a legislature is 5 years. However, as explained before, there are a number of circumstances that may lead to early termination: in our sample, about 22% of Municipal Councils have had their mandate terminated before the legal duration.[3]

[3] We do not observe this information for Municipal Councils that in the year 2008 have not yet concluded their mandate.

3. Political Competition and Politician Quality: OLS estimates

In this Section, we estimate an OLS model to analyze whether political competition enhances the quality of elected candidates, measured using a number of ex-ante characteristics such as education and type of profession. We estimate the following model:

$$Q_{it} = \beta_0 + \beta_1 Competition_{it} + \beta_2 X_{it} + \eta_t + \mu_p + \varepsilon_{it}$$

where Q_{it} is a variable measuring the (average) quality of politicians in municipality i in election year t, $Competition_{it}$ measures political competition, X_{it} is a vector of municipal characteristics such as the average number of years of education of the inhabitants, the fraction of employed people in the population and the population size, η_t is a vector of election year dummies, μ_p is a vector of provincial dummies (107),[4] included to capture unobserved geographical heterogeneity, and ε_{it} is an error term.

In all the regressions standard errors are robust to heteroskedasticity and are clustered at the municipal level to take into account the fact that the quality of politicians in the same municipality may be affected by common shocks.

In Table 2, we show OLS estimates considering the educational level of elected politicians as a dependent variable. To make these estimates comparable with the TSLS estimations presented in Section 4, we have restricted our sample on the basis of the availability of the instrument which we will use (*Early Termination*).

In column 1, it is possible to see that political competition measured as one minus the Herfindhal index, *CompetitionH,* produces a positive effect on Municipal Councilors's average number of years in education. This result holds also true in columns 2 and 3 where we consider, respectively, the average number of years in education of Executive Committee members and of mayors.

The effect of political competition is highly statistically significant (at the 1 percent level) but quite small in magnitude: a reduction in the Herfindahl index of 0.1 increases the average level of education of mayors and Municipal Councilors by 0.045-0.047 years.

In column 4, we add the average level of education of the mayor' opponents at the electoral race among controls. As the information on candidates is available only for the years from 1993 to 2006, we end up with many missing observations. It emerges that a mayor's education increases with the average level of education of his opponents. However, the effect of *CompetitionH* is still highly statistically significant.

[4] Provinces are an intermediate level administrative division between municipality and region and correspond to the NUTS3 level of the European Union nomenclature.

Since, in the regressions, we control for the average level of education of the citizens living in the municipality and for yearly dummies, we are confident that the uncovered effect of political competition on politician quality is not driven by a generalized increase in the level of education in the population or by other temporal trends.

In columns 5-8, we use *CompetitionEA*, based on the electoral advantage between the mayor and the second best candidate as a measure of political competition. A higher degree of competition significantly increases the educational level of elected politicians, but, as above, the effect is quite small: a reduction of 10 percentage points in the electoral margin determines an increase in the level of education of politicians ranging from 0.06 to 0.08 years.

Similar results also emerge when we consider *CompetitionMW* as a measure of competition (not reported).[5]

Table 2. OLS estimates. Political Competition and Education of Municipal Councilors, Executive Committee members and Mayors

Education	Municipal Council	Executive Committee	Mayor	Mayor	Municipal Council	Executive Committee	Mayor	Mayor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CompetitionH	0.470***	0.437***	0.451***	0.361***				
	(0.034)	(0.048)	(0.085)	(0.119)				
CompetitionEA					0.797***	0.678***	0.683***	0.572***
					(0.045)	(0.064)	(0.102)	(0.169)
Opponent Education				0.065***				0.061***
				(0.009)				(0.009)
Population	0.000*	0.000*	0.000	0.000	0.000**	0.000**	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.917***	0.855***	0.549***	0.481***	0.869***	0.812***	0.535***	0.483***
	(0.044)	(0.046)	(0.051)	(0.052)	(0.034)	(0.038)	(0.049)	(0.052)
Employment/ Population	1.861***	2.071***	1.794***	1.621***	1.740***	1.979***	1.686***	1.662***
	(0.114)	(0.152)	(0.252)	(0.294)	(0.135)	(0.181)	(0.271)	(0.292)
Observations	29729	29725	29420	17412	22577	22574	22329	17501
R-squared	0.443	0.297	0.132	0.113	0.349	0.225	0.121	0.113

Notes: The dependent variables are, respectively, average number of years in education of Municipal Councilors, Executive Committee members and Mayors. We control for provincial and electoral year dummies (not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

We have also investigated whether the effect of political competition on politician quality has changed since the 1993 reform which introduced an individual ballot system. With this aim, we have used an interaction term between our measures of political competition and a dummy variable which takes a value of one for years after 1993. However, this interaction is never statistically significant implying that the impact of political competition on politician quality has not changed over time.[6]

In all of the specifications, control variables have the expected sign: the quality of politicians increases with the population size, with the average number of years of education of inhabitants and with the fraction of employed individuals. Provincial fixed effects (not reported)

[5] Estimation results are available upon request.
[6] Estimation results are not reported and are available upon request.

are statistically significant: results show that politicians' average level of education is higher in the South and Islands compared to the Centre and the North.[7] Yearly dummies (not reported) show a trend of a rising educational level of politicians.

In Table 3, we present OLS estimates for the effect of political competition on an alternative measure of politician quality based on the type of job in which politicians are (or were) employed.[8] In columns 1 and 2, the dependent variable is the proportion of Highly-Skilled workers (individuals employed in professional jobs and entrepreneurs), respectively, on the Municipal Council and on the Executive Committee. In column 3, we estimate a Linear Probability Model for the probability that the elected mayor was employed in a highly skilled job before the elections. In column 4, we control for the percentage of highly skilled opponents faced by the mayor in the electoral race.

An increase in political competition (*CompetitionH*) of 0.1 increases the proportion of highly skilled workers elected onto the Municipal Council by almost 0.4 percentage points (column 1), while it produces a slightly smaller effect on the proportion of Highly-Skilled members of Executive Committees (column 2). Similar effects (but slightly larger in magnitude) emerge when we use *CompetitionEA* as an alternative measure of political competition (columns 5 and 6). Less clear results are obtained for the probability of electing a Highly-Skilled Mayor (columns 3, 4, 7, 8): we do not find any statistically significant effect using *CompetitionH* as a measure of political competition, while a positive and statistically significant impact emerges when using *CompetitionEA.*

Table 3. OLS estimates. Political Competition and Percentage of Highly-Skilled among Municipal Councilors, Executive Committee members and Mayors

Highly-Skilled	Municipal Council	Executive Committee	Mayor	Mayor	Municipal Council	Executive Committee	Mayor	Mayor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CompetitionH	0.037***	0.029***	0.012	0.000				
	(0.004)	(0.006)	(0.011)	(0.017)				
CompetitionEA					0.061***	0.047***	0.056***	0.067***
					(0.005)	(0.007)	(0.014)	(0.023)
% Highly skilled Competitors				0.041***				0.038***
				(0.009)				(0.009)
Population	0.000*	0.000**	0.000***	0.000***	0.000*	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.055***	0.053***	0.035***	0.031***	0.053***	0.051***	0.033***	0.029***
	(0.003)	(0.004)	(0.006)	(0.007)	(0.003)	(0.004)	(0.007)	(0.007)
Employment/Population	0.178***	0.213***	0.228***	0.231***	0.174***	0.216***	0.237***	0.232***
	(0.011)	(0.017)	(0.031)	(0.039)	(0.013)	(0.020)	(0.035)	(0.038)
Observations	29714	29680	29121	17097	22381	22354	21966	17184
R-squared	0.250	0.142	0.064	0.066	0.213	0.131	0.069	0.066

Notes: The dependent variable is the proportion of Municipal Councilors, Executive Committee members and Mayors employed in highly skilled occupations. In all the regressions, we control for provincial and electoral year dummies (not reported). Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

[7] This may be due to different labor market conditions. Highly educated individuals typically have worse outside options in the South compared to the North, which makes a political career more attractive for Southern residents.

[8] Typically mayors leave their previous jobs when elected, while members of Municipal Councils and Executive Committees continue with their jobs.

OLS estimates, showing a positive correlation between political competition and politician quality, may not identify a causal relationship. The degree of political competition is generally not exogenously given, but is usually jointly determined with the dependent variable. In fact, our measures of political competition are affected, at least partly, by candidate quality. To clarify, in all those circumstances where candidates have different levels of education, a high quality candidate might be elected with a large number of votes: in this way, the direction of causality goes from politician quality to political competition. Another possibility is that when the overall quality of candidates increases, other potential candidates who are evaluating whether to participate at the electoral race or not might not stand because of the low probability of being elected. This again leads to a lower level of competition compared to what we would have observed with a lower level of politician quality. In the next section we tackle this problem using an instrumental variable approach.

4. Instrumental Variable Estimates

To take into account the fact that political competition determines politician quality but, at the same time, the quality of politicians might affect the degree of political competition, we use the following two-equation model:

[1] $$Q_{it} = \beta_0 + \beta_1 Competition_{it} + \beta_2 X_{it} + \eta_t + \mu_p + \varepsilon_{1it}$$

[2] $$Competition_{it} = \chi_0 + \chi_1 Q_{it} + \chi_2 Z_{it} + \eta_t + \mu_p + \varepsilon_{2it}$$

The coefficient β_1, in the first equation, is the effect of our interest. In the second equation we formalize the effect that politician quality has on competition, assuming that χ_1 is negative, i.e. politician quality tends to reduce the degree of competition.

From equations [1] and [2], it is easy to ascertain that *Competition* is correlated with the error term ε_{1it} and that the direction of the bias of the OLS estimation of β_1 has the same sign as $\chi_1/(1-\chi_1\beta_1)$, i.e. OLS estimates are downward biased.

To handle this problem, we estimate the model explaining politician quality through Two-Stage-Least-Squares (TSLS) and use a dummy variable, *Early Termination*, as an instrument for political competition, describing for each municipality whether the previous legislation survived until the end of the legislative term, which, we believe, influences political competition (i.e. it is included in equation 2) in the following electoral race, but it is not correlated with the error term ε_{1it} (i.e. it is not included in equation 1).

The elected Municipal Council may fail to complete its mandate for one of the following reasons: the resignation of the mayor, the resignation of the majority of the council or

a no-confidence vote in the council,[9] the death of the mayor, ex-post incompatibilities or the mayor being charged with a crime. All these cases, which lead to early termination of the legislature, are likely to produce an increase in the degree of political competition since, given the instability generated by these shocks and the uncertainty introduced in the electoral results, a larger number of subjects will be encouraged to enter into the electoral competition, making it more difficult for the subsequent elections to be lopsided in favor of any one candidate. This is especially true for Italian municipal elections where voters are typically not motivated by ideological factors and evaluate the characteristics of the candidates more than their parties. On the other hand, the early termination of the previous mandate should not directly affect on average the current quality of politicians.

Results from our TSLS are shown in Table 4. Panel B shows results from First Stage regressions. The instrumental variable significantly determines our two measures of political competition *CompetitionH* and *CompetitionEA*. We are reassured that our instrument is not weak, since the *F*-statistic for the test of whether the instrument coefficient is equal to zero is 52.75, well above the threshold value of 10 suggested by Staiger and Stock (1997).

Panel A of Table 4 presents TSLS estimates. Our results show that political competition (measured both through *CompetitionH* and *CompetitionEA*) produces a positive and highly statistically significant effect on the average number of years in education of mayors, Municipal Councilors and members of Executive Committees. Similar results also emerge when we use our third measure of political competition (*CompetitionMW*) (not reported).

An increase of 0.1 of *CompetitionH* increases the average level of education of mayors by about 0.81 years, while a reduction of 10 percentage points in the electoral margin results in an increase in the level of mayors' education of 0.56 years. Similar impacts are also observed for the educational levels of Municipal Councilors and Executive Committee members. These effects are much larger in magnitude than those emerging from OLS estimates (see Table 2) and this is consistent with our conjecture of a negative bias affecting OLS estimates.

[9] In Italy, in the case of early resignation of the mayor or of at least 50 per cent of the members, the legislature is terminated and early elections are called without the possibility of forming a new governing coalition.

Table 4. Two-Stage Least Squares estimates. Political Competition and Education of Municipal Councilors, Executive Committee members and Mayors.

Education	Municipal Council (1)	Executive Committee (2)	Mayor (3)	Mayor (4)	Municipal Council (5)	Executive Committee (6)	Mayor (7)	Mayor (8)
			Panel A					
			Two Stage Least Square					
CompetitionH	7.149***	7.862***	4.236**	8.141**				
	(1.182)	(1.529)	(1.919)	(3.881)				
CompetitionEA					5.712***	5.612***	3.044**	5.622**
					(0.849)	(1.107)	(1.508)	(2.596)
Opponent Education				0.054***				0.032*
				(0.011)				(0.017)
Population	0.000	0.000*	0.000	-0.000	0.000**	0.000**	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.678***	0.588***	0.412***	0.328***	0.753***	0.696***	0.479***	0.433***
	(0.060)	(0.070)	(0.086)	(0.093)	(0.041)	(0.048)	(0.060)	(0.059)
Employment/Pop	0.895***	1.000***	1.246***	0.849*	0.914***	1.149***	1.284***	1.484***
	(0.216)	(0.276)	(0.373)	(0.485)	(0.209)	(0.267)	(0.365)	(0.297)
Observations	29729	29725	29420	17412	22577	22574	22329	17501
			Panel B					
			First Stage					
			CompetitionH			CompetitionEA		
Early Termination			0.031***			0.040***		
			(0.004)			(0.004)		
Population			0.000*			0.000		
			(0.000)			(0.000)		
Education			0.035***			0.022***		
			(0.003)			(0.003)		
Employment/Population			0.142***			0.163***		
			(0.014)			(0.018)		
First-Stage *F*-statistics			52.75			92.92		
(*p*-value)			(0.000)			(0.000)		
R-squared			0.078			0.127		

Notes: The dependent variables are, respectively, average number of years in education of Municipal Councilors, Executive Committee members and Mayors. In all the regressions, we control for provincial and electoral year dummies (not reported). Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

In Table 5, we present TSLS estimates for the proportion of Highly-Skilled workers elected to Municipal Councils and Executive Committees. Again, we find a positive and statistically significant effect of political competition on politician quality. For example, an increase of 0.1 in *CompetitionH* increases the proportion of highly skilled Municipal Councilors by 7.9 percentage points, while a reduction of 10 percentage points in the electoral margin determines an increase in this proportion of 6 percentage points. In this case too, the effects estimated by using TSLS are larger than those emerging from OLS.

Table 5. Two-Stage Least Squares estimates. Political Competition and Percentage of Highly-Skilled among Municipal Councilors, Executive Committee members and Mayors

Highly-Skilled	Municipal Council (1)	Executive Committee (2)	Mayor (3)	Mayor (4)	Municipal Council (5)	Executive Committee (6)	Mayor (7)	Mayor (8)
				Panel A				
				Two Stage Least Square				
CompetitionH	0.788***	0.775***	0.542*	0.821				
	(0.135)	(0.175)	(0.277)	(0.532)				
CompetitionEA					0.596***	0.626***	0.418*	0.636
					(0.095)	(0.138)	(0.228)	(0.399)
% Highly skilled Competitors				0.033***				0.019
				(0.011)				(0.016)
Population	-0.000	0.000	0.000**	0.000	0.000*	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.028***	0.026***	0.016	0.015	0.040***	0.038***	0.024***	0.022**
	(0.006)	(0.007)	(0.012)	(0.013)	(0.004)	(0.005)	(0.009)	(0.009)
Employment/Pop	0.069***	0.103***	0.149***	0.149**	0.085***	0.119***	0.176***	0.210***
	(0.024)	(0.031)	(0.051)	(0.067)	(0.023)	(0.032)	(0.053)	(0.042)
Observations	29714	29680	29121	17097	22381	22354	21966	17184
				Panel B				
				First Stage				
Early Termination			0.031***				0.040***	
			(0.004)				(0.004)	
First-Stage *F*-statistics			52.75				92.92	
(*p*-value)			(0.000)				(0.000)	
R-squared			0.073				0.125	

Notes: The dependent variable is the proportion of Municipal Councilors, Executive Committee members and Mayors employed in highly skilled occupations. In all the regressions, we control for provincial and electoral year dummies (not reported). First Stage results: see Table 4 Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

5. Concluding Remarks

The identity of politicians plays a crucial role in shaping policy decisions and, therefore, in defining citizens' quality of life and welfare prospects. The process of politician selection has important consequences and has been increasingly analyzed in economic literature. One of the issues most investigated is the effect of political competition on the selection of politicians and on their incentives to behave properly and pursue citizens' interests.

In this paper, using data from Italian municipal governments over the period from 1985 to 2008, we have focused our attention on the effects of political competition on the quality of local administrators, measured considering their educational attainment and the type of job they hold.

The degree of political competition has been measured by using a number of indicators which take into account the number of parties in the Municipal Council and their relative weight through a Herfindahl index, the electoral advantage of the elected mayor and the strength of the majority supporting the mayor.

From OLS estimates, it emerges that political competition produces a positive, highly statistically significant, effect on the quality of politicians. However, the effect is quite small in magnitude. This is probably due to a downward bias deriving from the fact that a high quality of politicians may tend to reduce the degree of political competition.

To deal with this endogeneity problem, we have used Two-Stage-Least-Square estimates, instrumenting political competition with the early termination of the previous legislature. The

early termination of the political mandate tends to be associated with a higher degree of political competition in subsequent elections, as a higher level of instability introduces more uncertainty in the electoral results and induces a larger number of parties to participate in the electoral race.

TSLS estimates confirm the positive effect of political competition on politician quality. In line with our assumption that endogeneity problems determine a negative bias in OLS, the estimated effects turn out to be larger in magnitude than OLS estimates. An increase of 0.1 in our measure of political competition increases the average level of education of Municipal Councilors by 0.5-0.8 years, while it increases the fraction of highly skilled workers elected by 6-7 percentage points.

An interesting question – which we leave for future research – is whether a higher level of human capital in local administrators also leads to better performance in terms of policy choices.

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