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Do Voters Choose Better Politicians than Political Parties? Evidence from a Natural Experiment in Italy

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This work analyses the effect of the two preference voting systems – proportional system with blocked lists of candidates vs proportional system with open list of candidates - on the quality of politicians. The exogenous variation in the Italian Parliament electoral system (Law n. 270/2005) - which marked the switch from an open to a closed list - allows us implement a Difference-in-Differences approach to compare the change in politicians' quality (as their education level) across the treatment group (the Parliamentarians) and the control group (the regional councillors) of politicians before and after the electoral reform is enforced. We find that the introduction of the reform lowered the politicians' ability. The result is common for Senators and Deputies and it is robust to the inclusion of control variables and to the restriction of treatment group to past-appointed Parliamentarians. This evidence suggests that voters are able to choose more qualifying politicians than political parties and it may be an argument in favor the re-introduction, in the electoral law, of preference voting schemes.

Keywords: Ballot Structure, Preference Vote, Politicians' Quality, Human Capital

JEL Classification: D72, K16, C21

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Do Voters Choose Better Politicians than Political Parties? Evidence from a Natural Experiment in Italy ^{*}

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September 30, 2020

Abstract

This work analyses the effect of the two preference voting systems - proportional system with blocked lists of candidates vs proportional system with open list of candidates - on the quality of politicians. The exogenous variation in the Italian Parliament electoral system (Law n. 270/2005) - which marked the switch from an open to a closed list - allows us implement a Difference-in-Differences approach to compare the change in politicians' quality (as their education level) across the treatment group (the Parliamentarians) and the control group (the regional councillors) of politicians before and after the electoral reform is enforced. We find that the introduction of the reform lowered the politicians' ability. The result is common for Senators and Deputies and it is robust to the inclusion of control variables and to the restriction of treatment group to past- appointed Parliamentarians. This evidence suggests that voters are able to choose more qualifying politicians than political parties and it may be an argument in favor the re-introduction, in the electoral law, of preference voting schemes.

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1 Introduction

Parliamentary democracies rely on the interaction between electors and political parties that takes place at elections. Politicians pursue their own particular interests as well as the interests of the community; those interests, often, differ and conflict. The public interest can be achieved in two ways: the first one by giving right incentives to politicians; the second one by selecting good politicians (in terms of both honesty and competencies). This paper focuses on the second way. Political selection is of utmost importance for several reasons. An increase in the honesty, integrity and skill of those who are elected leads to an improvement in the quality of institutions. High-quality politicians can adopt general interest' oriented policies and fight corruption and rent-seeking. The credibility of a policy depends on who is picked for public office. Therefore, searching for appropriate mechanisms for selecting high quality politicians becomes a primary aim for society in order to improve social welfare.

Democratic elections are the primary instrument to select politicians. Elections are governed by electoral laws that define the characteristics of electoral systems in terms of *district magnitude* (the number of politicians elected in a district), *electoral formula* (how votes are translated into seats) and *ballot structure* (the voting schemes). The political economy literature largely dealt with the effects of the first two characteristics of electoral systems on the recruitment of politicians and on policy outcomes. The literature has paid very little attention to the implications of ballot structures. This work starts filling this gap by studying the effect of different ballot structures on political selection. The ballot structure allows identifying “preference” and “non-preference” voting schemes, that is, how voters can vote for candidates. It defines: 1) that voters can cast votes for their favorite candidates to run for office; or 2) that voters can vote for a list of candidates drawn up by political parties where political leaders have previously decided the ranking of candidates. The ballot structure can affect the quality of politicians through the distribution of power that it gives to voters and political parties. Indeed, if voters can vote for a list, party leaders can effectively decide candidates to the Parliament by allocating them in the secure positions at the top of the party list; if voters can cast vote for candidates, the ranking of elected politicians depends on the number of votes each candidate receives from electors. Such voting schemes affect both voters (in the sense of determining the nature and the extent of choice available to them at the election day) and politicians (who are conscious of the effect on voters and react accordingly).

The crucial difference between the two voting schemes is linked to the rationale followed by voters and political leaders, respectively, in the choice of their preferred candidates. Looking at the voters, the central premise is that they agree that competent politicians are more desirable. Thus, voters cast vote to candidates that they consider capable to implement policies in the public interest. Voters use the “identity” (in the meaning of personal characteristics) to infer the ability of candidates, that is, to infer about their competences (i.e., the

skill they have to select the appropriate policy objectives and to achieve them at minimum social cost) and their honesty (i.e., the character that leads an official to perform his duties without harassing private citizens for bribes or other kickbacks). Therefore, identity ultimately drives the selection process of talented politicians which is of primary importance for the functioning of democratic systems and for the successful adoption of economic policies (Jones and Olken, 2005). Otherwise, looking at the political leaders' behavior, they tend to rank candidates within the list according to criteria that not always coincide with that of voters. Leaders, with the aim of being in power, do not look at the ideological commitment to a party or to the extent to which candidates seek to represent the interests of voters; they choose candidates that can win elections and, once involved in the policy-making process, follow the guidelines of political parties. As Besley (2005) underlines, if parties as well as successful candidates share rents, and protection of those rents depends on the selection of politicians with no public interest motivation, then the party may have an interest in putting up those kind of candidates.

To sum up, under voting schemes where voters vote for closed lists of candidates, elected politicians are likely to feel more accountable towards the party leadership than to voters, given that their political future lies with the party rather than with the electorate. Conversely, where voters can directly select their preferred candidate, the accountability of politicians towards voters grows leading to an elected body more incline to promote effective policies in the interest of the community.

In this paper we try to shed some light on the effect of such different kinds of accountability on politicians' quality. Measuring the ability of politicians with their education level, we show that preference voting schemes are better mechanisms of selection of higher quality politicians than closed list voting schemes; in other words, voters are able to choose better politicians than political parties. More in detail, we focus on the effect of preference vote (toward voters' favorite candidates) versus casting votes for a closed list of candidates on the quality of elected officials. We exploit, firstly, the electoral reform (Law n. 270/2005) that introduced in the electoral rule of the Italian Parliament a pure proportional system with blocked list of candidates, cutting out the old proportional electoral system with open lists of candidates (preference voting scheme) governed by Laws 6/1948 and 29/1948;¹ secondly, the fact that the ballot structure prescribed by the electoral Laws for regional councilors (Law n. 108/1968 and Law n. 43/1995, proportional with open list of candidates) remained unchanged over the period under consideration. regional politicians (politicians elected in regional councils). Thus, our identification strategy resembles a Difference-in-Differences framework in which we are able to identify a "treatment" group of politicians (the Parliamentarians) and a "control" group of politicians (regional councillors). We observe the

¹The pure proportional system with open list of candidates introduced with Laws 6/1948 and 29/1948 was in force until 1993, when the two-tier electoral system was introduced. We will discuss about Italian electoral laws in the next sections.

outcome of interest before and after the treatment (the electoral reform), where the assignment of the treatment is independent of the ability of politicians, and we estimate the effects of the different ballot structures (preference/no preference) on the quality of politicians. Given the reasonable assumption that there is a positive relationship between educational attainment and the ability of politicians, we measure the quality of politicians in terms of human capital (Kotakorpi and Poutvaara, 2011). We compare the change in the average education level of politicians across the two groups of politicians before and after the electoral reform is enforced. In this way, firstly, we disentangle the effect of the reform on politicians' quality from the temporal trend, which we assume and verify to be common to the two groups;² secondly, we compare the politicians' ability between two different ballot structures of the *same* electoral system, the proportional one, controlling for possible bias due to the comparison of different electoral rules. Although national and regional elections are different, regional politicians seem a quite appropriate counterfactual because Italian Parliamentarians elections occurred with a break-down of the constituencies at the regional (Senate) or sub-regional levels (House of Representatives), corresponding to a region. Hence, the same group of electors – approximately at the same time – are invited to choose parliamentary members as well as regional councilors.

We find that the introduction of the ballot structure with closed lists of candidates lowered the education level of elected Parliamentarians. Namely, the reform lowers the probability of graduate parliamentarians from 14 to 17 percentage points compared to what it would have been in the absence of the reform. Looking at the years of education of politicians as a more detailed measure of politicians' quality, reform decreased the average number of the years of education of more than one year in the treatment group than in the control group. We find that there is a common sharp reduction in the ability level of Senators as well as of Deputies; the different size of their estimated coefficients does not depend on the number of preferences available to voters for Deputies' appointment. We corroborate the casual effect of the reform on politicians' quality by adding regional-varying control variable and we investigate the plausibility of our identification strategy by performing a placebo test on parallel trend. Findings are robust to a sample restriction to past-appointed Parliamentarians (in regional councils) and to the introduction of the regional "Legge Tatarella". Moreover, we investigate the gender aspect of the reform and we show that it had no effects for female politicians, probably due to the presence of negative stereotypes about the performance of women as policy-makers; thus, the effect is driven by the election of low-educated men.

The rest of the paper is organized as follows. Section 2 discusses the related literature. Section 3 describes the Italian institutional framework, variables and data. Sections 4 and 5 present the empirical strategy and results, respectively. Section 6 performs some robustness checks. Finally, Section 7 concludes. The Appendix provides a detailed description of Italian national and regional electoral laws.

²We will discuss in section 4 on the common trend assumption.

2 Literature Review

In a well-functioning democracy, we should expect political parties to select candidates that best represent the public interest. The political economy literature has recognized the importance of having good politicians to achieve good policy. Numbers of papers examine how to give the right incentives in order to have high-quality politicians. According to the standard efficiency wage theory, a higher wage is likely to attract more skilled individuals into politics, to enhance performance and to discourage the rent seeking (Besley, 2004, Gagliarducci and Nannicini, 2013). Other models suggest that an increase in the wage of politicians may have a negative impact on their quality when high-quality citizens have other incentives to enter politics (Brollo et al., 2013, Mattozzi and Merlo, 2008).

In a democratic setting, electoral rules are the primary selection mechanism of politicians. Political economy literature largely studied the effect of electoral systems on policy outcomes (Persson et al., 2016) and on the recruitment of politicians (Caselli and Morelli, 2004). From a theoretical point of view, Galasso and Nannicini (2015), comparing closed list and open list proportional systems, predict that parties optimally allocate low quality politicians to safe seats and high quality politicians to uncertain positions. Galasso and Nannicini (2017) study the different patterns of political selection in majoritarian versus proportional systems: when the number of competitive districts increases, the majoritarian system becomes more effective; the opposite is true when safe districts are the majority. In the same direction, the theoretical model implemented in Besley and Preston (2007) predicts that electoral competition has beneficial effects, since parties choose to send their high-quality politicians to the most contestable districts. Empirical evidence on Italian members of parliament confirms this prediction. Independently of political ideology, high-quality politicians tend to be allocated to non-safe districts and, once elected, they show a lower absenteeism rate in electronic parliament votes (Galasso and Nannicini, 2011). In a purely citizen-candidate environment, Beath et al. (2016) showed that the quality of politicians is higher in at-large elections. Comparing the behaviour of politicians elected in single-member majoritarian districts with those of politicians elected under proportional representation, Gagliarducci et al. (2011) find that being elected in a majoritarian district increases the amount of geographically targeted bills and reduces the absenteeism rate. All these works concentrated on politicians behavior; instead, the paper of Myerson (1993) deals with the impact of electoral systems on political selection showing how higher entry barriers in majoritarian systems may lead to the election of low quality (dishonest) candidates.

The way electoral systems affect the politicians' quality has also been largely investigated to the light of political corruption. The Italian electoral system from the post-war period to 1993 was the scenario of several studies on that issue. Under open-list proportional system, the traditional view, which suggests that electoral uncertainty helps to discipline politicians, collides with the contrasting position that incumbent politicians' electoral uncertainty drives

them to seek illegal rents in order to finance electoral campaigns (Chang, 2005). Moreover, the analysis of the Italian open-list proportional system in force until 1993 nourished the huge literature on the pork barrel allocations that caused the bureaucratic corruption and, consequently, the inefficiencies of Italian public sector (Chang and Golden, 2007, Golden and Picci, 2008).

Other studies on the Italian municipalities have demonstrated that the politicians' quality is affected by gender policies, as gender quotas (Baltrunaite et al., 2014), and organized crime (Daniele, 2019, Daniele and Geys, 2015).

At least in our knowledge, very little attention has been paid to the effect of different ballot structures characterizing electoral systems, which may largely modify the selection incentives for both voters and political parties. The ballot structure defines whether the choice is between parties or candidates (Bowler and Farrell, 1993, Farrell, 2011) and allows distinguishing between "preference" and "non-preference" systems. In "non-preference" systems, such as closed lists, voter makes a simple choice between parties. In "preference" systems, such as the single transferable vote system, voter can rank all the candidates (from all parties) on a ballot paper.³ The ballot structure may affect the process of political selection. Indeed, if voters can cast a vote for closed (blocked) lists, party leaders actually nominate candidates to the Parliament by allocating them in the secure positions at the top of the party list. In choosing their candidates, leaders follow criteria that often are not in the voters' interest and face a trade-off between high quality politicians (that are strategic to win the election) and low quality politicians (that are loyal and, hence, valuable to the party). Instead, if voters can cast votes for favorite candidates, voters have the power to elect politicians according to their perception of the quality of politicians in terms of acting in the public interest. Here, the knowledge about the identity of the candidates is of huge importance (Norris et al., 2004).

No empirical evidence has solved the puzzle of the effect of ballot structures on politicians' quality. We start filling this gap by following the idea that accountability identifies who (political parties or voters) has the power to select politicians. When politicians are accountable to voters, they can award competent politicians through the reelection as well as they can punish bad ones by removing them from office at the next elections. When accountable to political leaders, politicians' future depends on the political parties' choice that not always relies on the promotion of policies in the interest of voters. Carey and Shugart (1995) explained that candidates have strong incentive to differentiate themselves from others in their party where the vote was cast for a candidate and not a party. Accordingly, we may expect voters have a more powerful tool to select higher quality politicians than political parties.

³This ballot structure can prescribe that voters may assign more than one preference for candidates.

3 Institutional framework, Data and Variables

3.1 Italian electoral laws

As stated by the Italian Constitution, different electoral laws discipline the election of representatives at the various levels of government. Here we are interested in national and regional electoral laws. The electoral rules for the Italian Parliament have changed several times. In the empirical analysis we refer to two national electoral laws; 1) Laws 6/1948 and 29/1948, 2) Law 270/2005. Laws 6/1948 and 29/1948 were in force until the legislative term XII (1994). Accordingly, members of parliament were elected under an open-list proportional system with large districts. Voters could express up to four preferences for Deputies and one preference for Senators in single-member districts. Thereafter, we will refer to this electoral law as *proportional with preferences*.

Law 270/2005, known as “Legge Calderoli”, has implemented a proportional system with blocked lists of candidates for the election of the entire members of Parliament. Thereafter, we will refer to this electoral law as *proportional with no-preferences*.⁴ Those electoral Laws prescribed different ballot structures within a proportional system: the *proportional with preferences* allows to up to four preferences for candidates; the *proportional with no-preferences* allows to no preferences for candidates, just a vote for the list. Table 1 summarizes the main characteristics of national electoral laws just mentioned.

Table 1: Electoral systems and ballot structure of national electoral laws

	Proportional with preferences (Laws 6/1948-29/1948)	Proportional with no-preferences (Law 270/2005)
Electoral system	Proportional with open lists	Proportional with blocked lists
Ballot structure	House of Representatives: up to 4 preferences Senate: 1 preference	House of Representatives: no preferences Senate: no preferences

Law 108/1968, a proportional electoral system where voters could express up to three preferences, firstly disciplined the election of regional councilors. It was in force until 1995 when Law 43/1995, known as “Legge Tatarella”, was introduced. The “Legge Tatarella” implemented a proportional system with a majority bonus, giving to the elector the possibility to express only one preference. Table 2 below summarizes the main characteristics of regional electoral laws we consider in the analysis.⁵

Table 2: Electoral systems and ballot structure of regional electoral laws

	Law 108/1968	Law 43/1995
Electoral system	Proportional	Proportional system with a majority bonus for the winning coalition
Ballot structure	Up to 3 preferences	1 preference

During the period, the regional electoral law remained unchanged in its ballot structure: proportional system with open list and preferences.

⁴Between the two electoral Laws under analysis, Italian Parliament was elected according to Laws 276/1993 and 277/1993, known as “Legge Mattarella”, that introduced a mixed electoral system. It was in force until the Law 270/2005.

⁵A detailed description of Italian national and regional electoral laws is in Appendix, A.1 and A.2.

3.2 Data and variables

In our analysis we use data provided by the Ministry of Interior on parliamentary and regional politicians. Regional elections do not occur at the same time as national ones. Tables 3 and 4 respectively show national and regional elections that we consider in the analysis:

Table 3: Parliamentary Legislatures

Legislature	Beginning	Yearly duration	Electoral Law	Reform
IX	July 1983	4	6/1948-29/1948	Before
X	June 1987	5	6/1948-29/1948	Before
XV	April 2006	2	270/2005	After
XVI	April 2008	5	270/2005	After

Table 4: Regional elections

Regions	2 election before the reform	1 election before the reform	1 election after the reform	2 election after the reform
Basilicata, Calabria, Campania, Emilia Romagna, Lazio, Liguria, Lombardia, Marche, Piemonte, Puglia, Toscana, Umbria, Veneto	1985	1990	2005*	2010
Abruzzo	1985	1990	2005	2008*
Friuli Venezia Giulia	1988	1993	2008	2013
Molise	1985	1990	2006	2011
Sardegna	1984	1989	2009	2014
Sicilia	1986	1991	2006	2008
Trentino Alto Adige	1988	1993	2008	2013
Valle D'Aosta	1988	1993	2008	2013

Notes: *The Abruzzo regional election of 2008 took place on 14/15 December 2008, due to the early resignation of President Ottaviano Del Turco, after his indictment for alleged corruption. *Basilicata did not vote along with the other Italian regions in the 3-4 April 2005 regional elections because of some legal issues with the presentation of the list of Social Alternative. It voted a couple of weeks later instead, on 17 -18 April 2005. *The Molise regional election of 2001 took place on 11 November 2001. The early election in 2000 was invalidated due to irregularities of vote.

In the empirical analysis, we compare two Legislatures before the national reform of 2005 and two after the reform, at national and regional level. In detail, for national elections, we consider the IX (1983) and X (1987) Legislatures before and the XV (2006) and XVI (2008) Legislatures after the reform; for regional elections, we consider the corresponding 1-2 elections before and 3-4 elections after (see Table 4). Even though Legislature XII (starting in April 1992) belongs to the ones interested by the electoral Laws of 1948 (*Proportional with preferences*) we take it out from the estimations because of two reasons: 1) it falls in the period of “Tangentopoli”,⁶ the greatest campaign against corruption of politicians and bureaucrats in Italy; it is reasonable to believe that the fight against the widespread

⁶“Tangentopoli” or “mani pulite” was the greatest judicial investigation against political corruption in

corruption altered the behavior of both political parties and voters; 2) the Italian referendum of 1991 modified the electoral law allowing, for the election of Deputies, only one preference (instead of up to 4, as before).

We measure politicians' quality (the dependent variable of the empirical analysis) with their education level, that literature recognizes as a good proxy for human capital level (Bó et al., 2006); (Besley and Reynal-Querol, 2011, Fortunato and Panizza, 2015, Galasso and Nannicini, 2011, Glaeser et al., 2004, Kotakorpi and Poutvaara, 2011). No Italian institution provides comprehensive database on the years of education of national politicians (Deputies and Senators). Thus, we collected them to build our own database. Our main source of information is the official website of the Ministry of Interior. For each parliamentary term, the website shows the list of parliamentarians in office at that time and gives out the education level as well as some personal information such as date and place of birth, previous job, date of election, political movement and so on. The data on the politicians elected in 1983 were drawn from Fondazione Rodolfo De Benedetti⁷ and from the publication "La Navicella".⁸ We also drew information on the members of the Italian Parliamentarians elected in 1987 from the database used by Gagliarducci et al. (2011).⁹

For how it concerns regional politicians, the Italian Ministry of Interior supplied the datasets¹⁰ and it covers the period between 1984 and 2019. For each year, the databases provide information about identity, gender, age, regional function, previous job, as well as other information concerning regional politicians. More importantly, evidence related to politicians' education is provided. In particular, these data report the type of highest qualification attained for each regional politician. We translate the qualitative information on the level of education of national and regional politicians into years of education. We upgrade the criterion followed by De Paola et al. (2010), Baltrunaite et al. (2014) and Daniele and Geys (2015);¹¹ that is, we matched the qualification and the previous occupation of each politicians to attribute suitable number of years of education. It allowed to obtain a range of variation in the number of years of education from 0 to 23. Table 14 in Appendix shows the adopted approach of conversion. We consider two measures of politicians' quality: 1) a dummy variable taking value of 1 for politician having a university degree and 0 otherwise (thereafter *Degree*); 2) the years of education of politicians (thereafter *Years of Education*). The rationale is that the more the years of education the higher the quality of politicians.

Italy started in February 1992. Its consequence was the end of the First Republic and the most important Italian political parties (as the Democrazia Cristiana and the Partito Socialista Italiano) disappeared. The so-called "Parlamento degli inquisiti" (i.e., "parliament of the indicted") was in the XI legislative term (1992–94).

⁷Data can be downloaded at: <http://www.frdp.org/>.

⁸I Deputati e Senatori del IX Parlamento Repubblicano, (1983), La Navicella, Editoriale Italiana, Roma.

⁹This database is available at: <http://www.tommasonannicini.eu/>.

¹⁰Available online at <http://amministratori.interno.it/AmmIndex5.htm>.

¹¹They measure education as the minimum number of years necessary to obtain a certain degree, i.e., no education = 0 years; primary education = 5 years; lower secondary = 8 years; higher secondary = 13 years; university or more = 18 years.

Table 5 shows the descriptive statistics of the two measures just mentioned for the full sample of Parliamentarians in each legislature under analysis. It is quiet clear how the percentage of the Parliamentarians having a degree sharply decrease after the electoral reform of 2005. The decrease also marked looking at the number of years of education where it correspond approximately to 8 months of education.

Table 5: Descriptive statistics. Parliamentarians

Legislature	Parliamentarians					
	<i>Degree</i>			<i>Years of Education</i>		
	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.
IX (1983)	83.04	37.54	696	17.67	3.39	696
X (1987)	84.53	36.18	763	17.70	2.51	763
XV (2006)	68.50	46.47	927	17.02	2.83	927
XVI (2008)	69.29	46.15	925	17.07	2.94	925

Tables 6 and 7 shows the statistics in the sub-sample of Senators and Deputies and in Regional council respectively for the variable *Degree* and *Years of Education*. The temporal trend of the education level of Senators and Deputies replicates the pattern of the full sample of Parliamentarians.

Table 6: Descriptive statistics of Senators, Deputies and Regional councilors having a degree in the Legislatures/Elections

Legislature	Senators			Deputies			Elections	Regional		
	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.		Mean	St. Dev.	Obs.
IX (1983)	88.44	32.04	225	80.46	39.68	471	2 before	59.25	49.16	1,087
X (1987)	89.39	30.86	245	82.24	38.25	518	1 before	60.30	48.95	1,063
XV (2006)	65.48	47.65	309	70.06	45.83	618	1 after	58.79	49.24	1,230
XVI (2008)	69.28	46.20	306	69.30	46.16	619	2 after	57.40	49.47	946

The percentage of graduate Senators is higher than that of Deputies before the reform, but the reverse is quite clear after the reform. Instead, Senators seem having a higher number of years of education than Deputies both before and after the reform (approximately 6 more months, on average). The education of Regional councilors does not show significant discrepancies over time in the percentage of councilors having a degree as well as in their years of education.

Table 7: Descriptive statistics of the years of education of Senators, Deputies and Regional councilors in the Legislatures/Elections

Legislature	Senators			Deputies			Elections	Regional		
	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.		Mean	St. Dev.	Obs.
IX (1983)	18.30	3.06	225	17.37	3.51	471	2 before	15.54	3.55	1,087
X (1987)	17.96	2.33	245	17.44	2.62	518	1 before	15.79	3.36	1,063
XV (2006)	17.13	2.60	309	16.97	2.94	618	1 after	16.04	3.17	1,230
XVI (2008)	17.39	2.70	306	16.91	3.05	619	2 after	15.95	3.18	946

4 Empirical Strategy

As explained above, we expect that the preference voting system is a more effective mechanism of selecting high-quality politicians than closed list voting scheme. In order to identify the effect of the change in the ballot structure, we exploit the electoral reform for the election of Parliamentarians occurred with the electoral Law 270/2005. This represents an exogenous variation in the ballot scheme that allows us to isolate the effect of the reform from any time-specific effect – trends of the education level – which might be the actual driver of the results. Otherwise, the regional electoral law remained unchanged in its ballot structure. Thus, our identification strategy resembles a difference-in-differences framework in which we observe the quality of each politicians before and after the treatment (i.e., the national electoral reform), where the assignment to the treatment (i.e., the timing of reform) is independent of politicians. Indeed, the electoral reform was implemented by Parliamentarians elected under the "Legge Mattarella" that we take out from our analysis. This give further robustness to our DiD identification strategy because it rules out the possibility of endogenous treatment.

Thereby, we identify parliamentary politicians as the treatment group (as being exposed to the change in the ballot structure) and regional politicians as the control group. In the analysis, we compare the quality of Parliamentarians under the *proportional with preferences* and *proportional with no-preferences*; that is, under two ballot structures of a proportional electoral systems in order to purify from confounding factors coming from different electoral rules. More precisely, we compare the change in the politicians' quality across the two groups in two elections before (IX and X Legislatures) and two elections after the introduction of the reform (XV and XVI Legislatures). In this way, we can infer about the effect of the expression of preferences by voters for candidates on the quality of elected politicians. Our key identification assumption is that, without the introduction of the reform, the differences in politicians' quality between the treatment and the control group would have remained constant over time.

We focus on the effects of the electoral reform; we argue that within the time-period under consideration there were no sharp changes in the institutional environment other than the reform, which could have differentially affected the quality of elected politicians. It is

important to underline that, for our purpose, under the “Legge Tatarella” we take only the share of the 80% of the regional council politicians elected under proportional method with one preference. The exogenous shock makes the treatment and the control group unrelated to other unobserved politicians’ characteristics affecting the dependent variable of our analysis, that is, the quality of politicians.

The baseline DiD estimator is of the form:

$$Y_{irt} = \beta_0 Treat_i + \beta_1 Treat_i * AfterLaw_t + \beta_2 \gamma_r D_r + \beta_3 \delta_t B_t + \epsilon_{irt}$$

where Y_{irt} is the outcome of interest which measures the education level of a politician i elected in region r , at Legislature t . $Treat$ is a dummy variable which takes value 1 for Parliamentarians and 0 otherwise and allows us to control for the unobserved time-invariant characteristics that may differ across politicians in the two groups. $AfterLaw$ is a dummy variable for elections taking place after the introduction of the reform. $Treat * AfterLaw$ is the interaction term between the two dummies and measures the treatment effect of our interest, i.e. the difference in the politicians’ quality between Parliamentarians and regional politicians before and after the reform. D_r are the complete set of dummies for each region and account for the characteristics that are common to politicians in the same region and are constant over time. B_t are the complete set of dummy variables for each Legislature. Finally, ϵ_{it} is the idiosyncratic error term.

5 Baseline Results

Table 8 presents the OLS estimation results of our main specification. Panel A focuses on the effect of the national electoral reform on the quality of all Parliamentarians; Panel B considers the Senators and Panel C the Deputies. In the first two columns, the dependent variable is *Degree* while in columns 3 and 4 it is *Years of Education*. In all panels, columns 1 and 3 report the estimates of model (1) including the regional FE; in columns 2 and 4 we add legislature FE. The null hypothesis that one of the parameters of the model equals zero is tested using the wild cluster bootstrap methodology proposed by [Cameron et al. \(2008\)](#),¹² where clusters are the Italian regions.¹³ In each of the following tables presenting estimation results, the p-values of the null hypothesis that the parameter equals zero are shown in round brackets.

In all Panels, the coefficient of *Treat* dummy is statistically significant and positive: this indicates that the members Italian Parliament are, on average, more educated than members of regional council. A first look at Panel A shows that the coefficient of the interaction term

¹²Bootstrapped p-values of the t statistic have been calculated using the unofficial STATA command `boottest` by David Roodman ([Roodman et al., 2019](#)).

¹³Given the limited number of clusters (in our case, the 20 regions), the usual cluster-robust standard errors estimates would be downwards biased ([Cameron and Miller, 2015](#)).

$Treat*AfterLaw$ is statistically significant and negative in all columns suggesting that the reform has worsened the quality of elected Parliamentarians. In terms of their graduation, column 1 shows that the introduction of the reform lowers the probability of graduate parliamentarians by 14.6 percentage points more than for regional councilors. This percentage grows to 17.7 when controlling for legislature dummies (column 2).¹⁴ Looking at the years of education of politicians, after the introduction of the reform the average education of Parliamentarians decreased by 0.60 to 1.11 years more than for regional politicians. This corresponds to respectively 7 and 13 months of education less, approximately.

Table 8: Baseline OLS estimations

Dep.Var.	(1) Degree	(2) Degree	(3) Years of Education	(4) Years of Education
Panel A: All Parliamentarians				
Treat	0.241*** (0.00)	0.218*** (0.00)	1.771*** (0.00)	1.874*** (0.00)
Treat*After Law	-0.146*** (0.00)	-0.177*** (0.00)	-0.607*** (0.00)	-1.110*** (0.00)
Constant	0.649***	0.657***	16.32***	16.17
Observations	7,637	7,637	7,637	7,637
R-squared	0.060	0.061	0.081	0.083
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel B: Senators				
Treat	0.299*** (0.00)	0.269*** (0.00)	2.144*** (0.00)	1.967*** (0.00)
Treat*After Law	-0.218*** (0.00)	-0.240*** (0.00)	-0.774*** (0.00)	-1.152*** (0.00)
Constant	0.496***	0.533***	15.29***	15.55
Observations	5,186	5,186	5,186	5,186
R-squared	0.042	0.044	0.066	0.063
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel C: Deputies				
Treat	0.226*** (0.00)	0.206*** (0.00)	1.626*** (0.00)	1.789 (0.00)
Treat*After Law	-0.122*** (0.00)	-0.158*** (0.00)	-0.561*** (0.00)	-1.070*** (0.00)
Constant	0.510***	0.535***	15.34***	15.19***
Observations	6,079	6,079	6,079	6,079
R-squared	0.044	0.046	0.064	0.066
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes

Notes. OLS regressions. Panel A shows the results for all Parliamentarians, Panel B for Senators and Panel C for Deputies. All estimations include regional FE. Columns 2 and 4 add Legislature dummies for elections taking place in 1983, 1985, 1987, 1990, 2005, 2006, 2008, 2010. Coefficients are not reported. p-values of the null hypothesis that the parameter equals zero are shown in round brackets. The following symbols indicate different significance levels: *** - significant at 1 percent, ** - significant at 5 percent, * - significant at 10 percent.

We verify the baseline results by splitting the sample of Parliamentarians into Senators and Deputies. We do that for two reasons: 1) the two sub-groups present different average education levels (as tables 6 and 7 shown); 2) Laws 6/1948 – 29/1948 prescribe two different

¹⁴Results remained unchanged when we estimate probit model; here the AME (average marginal effect) confirms a decrease in the probability of a graduate parliamentarian. Results are not shown and are available upon request.

preference schemes for Parliamentarians (as table 1 clearly summarizes): up to 4 preferences for Deputies and 1 preference for Senators. We check for these aspects in Panels B and C. The reform negatively affected the quality of both Senators and Deputies. Looking at both the measures of politicians' quality, the size of the estimated effect is greater for Senators than Deputies. In the most complete specification in column 2, the reform lowers the probability of having graduate Senators 24 p.p. more than regional councilors, while for Deputies it reduces to 15.8 p.p.

According to our results, the reform lowers the Senators as well as Deputies years of education. The size of the effect is by 0.77 to 1.15 years of education for Senators (approximately, by 9 to 14 months of education) lower than for the regional counterfactual. Instead, after the introduction of the reform the average years of education of Deputies in the treatment group decreases by 0.56 to 1.07 years less than in the control group (approximately, by 7 to 13 months of education).

A first comment on the results concerns the difference in the effect of the reform on Senators and Deputies probably due to the different number of preferences for Deputies and Senators (see Table 1). We have performed a test on the difference in the estimates of the treatment coefficient for Senators and Deputies and we find that it is not significantly different from zero.¹⁵ Indeed, when we test the hypothesis that the difference between the two parameters of interest is equal to zero, in the model where the dependent variable is *Degree* we get a p-value equals to 0.40. Result replicates when we consider the *Years of Education* as dependent variable: we get a p-value of 0.11. Thus, we can claim that there is not effect on the number of preferences that voters could express on the politicians' quality.

5.1 Discussion

In this section we provide further evidence to support our identifying assumptions. Firstly, we add regional-varying control variables; secondly, we present evidence from a placebo regression hypothesizing a fictitious electoral reform in years before the introduction of the Law 270/2005.

Adding control variables. We include in the baseline model regional-varying controls in order to analyse the relative size of the omitted variable bias. That is, if the introduction of controls will produce significant variation in the treatment coefficient, the resulting bias from omitting controls will confound the estimate. If, instead, the inclusion of controls will not affect the estimated coefficient of interest (the impact on its size is limited), we will assert on the causal interpretation of the results.

The control variables we are dealing with are the size of the regional resident population over 18, in natural log (thereafter *Population*), the regional education level defined as

¹⁵We perform the test using the wild cluster bootstrap method.

the ratio between university graduates and resident population over age 18, in natural log (thereafter *Education*) and the regional per capita GDP, in natural log (thereafter *GDP*). Results are in Table 9.

Table 9: Baseline OLS estimations with control variables

Dep.Var.	(1) Degree	(2) Degree	(3) Years of Education	(4) Years of Education
Panel A: All Parliamentarians				
Treat	0.227*** (0.00)	0.230*** (0.00)	1.947*** (0.00)	2.039*** (0.00)
Treat*AfterLaw	-0.121*** (0.00)	-0.182*** (0.00)	-0.901*** (0.00)	-1.208*** (0.00)
Education	0.028 (0.20)	0.040 (0.22)	0.654*** (0.00)	0.728*** (0.00)
Population	-0.124 (0.27)	-0.141 (0.32)	-0.333 (0.73)	-0.193 (0.87)
GDP	-0.097 (0.15)	-0.141 (0.35)	-0.796* (0.06)	-1.730* (0.06)
Constant	3.421	4.140	30.76*	38.27**
Observations	7,637	7,637	7,637	7,637
R-squared	0.060	0.062	0.083	0.083
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel B: Senators				
Treat	0.293*** (0.00)	0.270*** (0.00)	2.385*** (0.00)	2.144*** (0.00)
Treat*AfterLaw	-0.199*** (0.00)	-0.239*** (0.00)	-1.139*** (0.00)	-1.282*** (0.00)
Education	0.024 (0.21)	0.012 (0.46)	0.595*** (0.00)	0.502*** (0.00)
Population	0.078 (0.56)	-0.010 (0.97)	0.411 (0.64)	0.463 (0.71)
GDP	-0.163* (0.08)	-0.047 (0.77)	-0.842 (0.13)	-0.775 (0.44)
Constant	1.270	1.265	20.57***	19.00***
Observations	5,186	5,186	5,186	5,186
R-squared	0.042	0.044	0.068	0.069
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel C: Deputies				
Treat	0.220*** (0.00)	0.209*** (0.00)	1.868*** (0.00)	1.962*** (0.00)
Treat*AfterLaw	-0.105*** (0.00)	-0.157*** (0.00)	-0.916*** (0.00)	-1.177*** (0.00)
Education	0.047 (0.14)	0.031 (0.42)	0.785*** (0.00)	0.739*** (0.00)
Population	-0.260* (0.10)	-0.281* (0.09)	-1.424 (0.39)	-1.312 (0.40)
GDP	-0.111 (0.26)	0.001 (0.98)	-0.831 (0.12)	-1.002 (0.27)
Constant	5.854	4.836	48.73**	48.75**
Observations	6,079	6,079	6,079	6,079
R-squared	0.045	0.046	0.066	0.067
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes

Notes. OLS regressions. Panel A shows the results for all Parliamentarians, Panel B for Senators and Panel C for Deputies. All estimations include regional FE. Columns 2 and 4 add Legislature dummies for elections taking place in 1983, 1985, 1987, 1990, 2005, 2006, 2008, 2010. Coefficients are not reported. p-values of the null hypothesis that the parameter equals zero are shown in round brackets. The following symbols indicate different significance levels: *** - significant at 1 percent, ** - significant at 5 percent, * - significant at 10 percent.

The presentation of results follows that in Table 8. They remain substantially unchanged in sign and significance of the treatment coefficient. Moreover, the inclusion of control variables slightly affects the size of the estimated coefficient of interest supporting the causal interpretation of our results. The estimates of the effect of covariates show that the years of education of politicians increase as regional education level increase. Instead, there is evidence of negative impact of the wealth of the region on politicians' quality. The size of the region seems having no effect.

Placebo test on parallel trend. As usual in the Difference-in-Differences approach, the identification strategy we follow relies on the idea that in the absence of the electoral reform of 2005, treatment and control politicians would have followed the same trends. To investigate the plausibility of this assumption, we undertake a falsification test: we run a placebo regression hypothesizing a fictitious reform occurred in the years before the introduction of the reform. Thus, we consider all the elections which took place from 1983 to 1993, in other words, the elections held in the period before the introduction of the reform. We assume that a fictitious reform was introduced in 1986. We build a dummy variable, *Placebo*, which takes a value of 1 from 1986 to 1993 and 0 otherwise. To implement a DiD technique, we interact this dummy with the treatment one (*Treat*). If the interaction term (*Treat*Placebo*) is statistically insignificant, this would imply that, before treatment, politicians' quality of Parliamentarians follows the same pattern compared to the politicians' quality of regional politicians.

We estimated the baseline specifications as in Table 8 and findings of the placebo test are in Table 10. The coefficient of *Treat*Placebo* is never statistically significant, implying that the probability of having a graduate Parliamentarian (Senator and Deputy) as well as their average years of education follow similar trends in treated and control politicians in the decade 1983-1993.

Table 10: Placebo test

Dep.Var.	(1) Degree	(2) Degree	(3) Years of Education	(4) Years of Education
Panel A: All Parliamentarians				
Treat	0.214*** (0.00)	0.085 (0.62)	1.807*** (0.00)	2.729 (0.63)
Treat*Placebo	-0.012 (0.48)	-0.012 (0.48)	0.0913 (0.60)	0.0917 (0.61)
Constant	0.624***	0.754***	15.89***	14.97***
Observations	2,767	2,767	2,767	2,767
R-squared	0.092	0.092	0.108	0.108
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel B: Senators				
Treat	0.280*** (0.00)	0.083 (0.48)	2.540*** (0.00)	2.860 (0.68)
Treat*Placebo	-0.006 (0.76)	-0.006 (0.76)	-0.171 (0.44)	-0.171 (0.45)
Constant	0.628***	0.821**	16.08***	15.76***
Observations	1,930	1,930	1,930	1,930
R-squared	0.094	0.094	0.119	0.120
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel C: Deputies				
Treat	0.185*** (0.00)	0.085 (0.60)	1.466*** (0.00)	2.674 (0.71)
Treat*Placebo	-0.012 (0.60)	-0.012 (0.60)	0.200 (0.43)	0.200 (0.46)
Constant	0.626***	0.726**	15.92***	14.70***
Observations	2,376	2,376	2,376	2,376
R-squared	0.074	0.074	0.088	0.089
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes

Notes. OLS regressions. Panel A shows the results for all Parliamentarians, Panel B for Senators and Panel C for Deputies. All estimations include regional FE. Columns 2 and 4 add Legislature dummies for elections taking place in 1983, 1985, 1987, 1990, 2005, 2006, 2008, 2010. Coefficients are not reported. p-values of the null hypothesis that the parameter equals zero are shown in round brackets. The following symbols indicate different significance levels: *** - significant at 1 percent, ** - significant at 5 percent, * - significant at 10 percent.

6 Robustness checks

6.1 Treatment group restricted to past-appointed Parliamentarians

We discuss the extent to which regional politicians are a "good" counterfactual for the DiD strategy that we use to estimate the effect of ballot structure on politician' quality. Indeed, one source of potential concern is that the sample of regional politicians differs in some meaningful dimensions from the treatment group (i.e., regional council directs the administrative functions delegated by the State to the Regions; Parliamentarians act at national level). In order to address this concern, we restrict the treatment group to Parliamentarians that experienced past appointment in regional council.

Table 11: OLS estimations. Treatment group restricted to past-appointed Parliamentarians

Dep.Var.	(1)	(2)	(3)	(4)
	Degree	Degree	Years of Education	Years of Education
Panel A: All Parliamentarians				
Treat	0.218*** (0.00)	0.273*** (0.00)	1.531*** (0.00)	2.040*** (0.00)
Treat*After Law	-0.145*** (0.00)	-0.256*** (0.00)	-0.655** (0.02)	-1.381*** (0.00)
Constant	5.063	5.167	43.96**	51.32**
Observations	4,948	4,948	4,948	4,948
R-squared	0.036	0.038	0.051	0.053
Regional FE	Yes	Yes	Yes	Yes
Regional Controls	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel B: Senators				
Treat	0.279*** (0.00)	0.266*** (0.00)	1.959*** (0.00)	1.925*** (0.00)
Treat*After Law	-0.216*** (0.00)	-0.253*** (0.00)	-0.870* (0.06)	-1.024** (0.04)
Constant	2.857*	2.707*	33.88***	31.55***
Observations	4,514	4,514	4,514	4,514
R-squared	0.030	0.030	0.045	0.046
Regional FE	Yes	Yes	Yes	Yes
Regional Controls	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes
Panel C: Deputies				
Treat	0.268*** (0.00)	0.271*** (0.00)	2.033*** (0.00)	2.110 (0.00)
Treat*After Law	-0.184*** (0.00)	-0.244*** (0.00)	-1.225*** (0.00)	-1.487*** (0.00)
Constant	6.915*	5.984	59.38**	58.19**
Observations	4,681	4,681	4,681	4,681
R-squared	0.031	0.033	0.046	0.047
Regional FE	Yes	Yes	Yes	Yes
Regional Controls	Yes	Yes	Yes	Yes
Legislature FE	No	Yes	No	Yes

Notes. OLS regressions. Panel A shows the results for all Parliamentarians, Panel B for Senators and Panel C for Deputies. All estimations include regional FE. Columns 2 and 4 add Legislature dummies for elections taking place in 1983, 1985, 1987, 1990, 2005, 2006, 2008, 2010. Coefficients are not reported. We restrict the treatment group to Parliamentarians with past-appointment in regional council. p-values of the null hypothesis that the parameter equals zero are shown in round brackets. The following symbols indicate different significance levels: *** - significant at 1 percent, ** - significant at 5 percent, * - significant at 10 percent.

See Table 11. Our main results remain substantially unchanged: the impact of the national electoral reform is negative and significant in all the Panels and the size of the estimated effect is slightly larger than the effects estimated when considering the full sample of Parliamentarians (see Table 9, Panel A). Looking at Panel B, the results suggest that the average education level of Senators is approximately one year lower in the period following the reform, *ceteris paribus*, compared to what it would have been in the absence of the reform. Likewise, the percentage of a graduate Senator reduced by 21.6 p.p. to 25.3 p.p. more than for regional councilors. The reduction is lower for Deputies. The reverse happens according to the *Years of Education*. Therefore, we are reassured that the results obtained with the full sample were not driven by comparing groups of politicians that are too heterogeneous.

6.2 Chow test

A possible concern in this analysis deals with the reduction in the number of preferences available for voters (from up to 3 to 1) due to the change in the regional electoral law (the “Legge Tatarella” of 1995). Given that the identification assumption of our empirical strategy implies that the ballot structure of the control group remains unchanged, we check if changes introduced with the ”Legge Tatarella” have affected the education level of regional politicians. We do that by performing a Chow test for the presence of a structural break in the trend of the education level of regional politicians in the two period before and after the “Legge Tatarella”. Thus, we define a dummy variable taking value 0 until 1994 (when law 108/1968 was in force) and 1 from 1995 to the end of the period of analysis (thereafter *Pref*). Then we interact this dummy with the trend variable ($Trend * Pref$) and we run the following regression

$$Y_{it} = \alpha + \gamma Trend_t + \psi Pref_{it} + \beta Trend_t * Pref_{it} + \epsilon_{it}$$

where Y_{it} denotes the years of education of regional politicians and ϵ_{it} is the error term. Estimation results are in Table 12. The coefficient β of the interaction term is not significantly different from zero whatever the measure of politicians’ quality we use. It means that switching from 3 to 1 preference does not affect the trend in the education level of regional politicians. It gives support to our identification assumption and corroborates the previous findings.

Table 12: Chow test

Dep. Var	(1) Degree	(2) Years of Education
Trend*Pref	0.0030 (0.60)	-0.0076 (0.84)
Constant	-0.976	-69.15
Observations	4,326	4,326
R-squared	0.025	0.037
Regional FE	Yes	Yes

Notes. OLS regressions. All estimations include regional FE. Coefficients are not reported. p-values of the null hypothesis that the parameter equals zero are shown in round brackets. The following symbols indicate different significance levels: *** - significant at 1 percent, ** - significant at 5 percent, * - significant at 10 percent.

6.3 Gender effect

In recent years, at national and international level as well as at central and local level, several measure to increase female participation in politics has been adopted. The aim of such gender reform is the legitimisation of democracy and the improvement of the quality

of institutions (Epstein et al., 2005). On these grounds, a consistent strand of academic researchers in social sciences started to analyze the effectiveness of such reform in increasing female participation in politics and the performance of women as public officials. As an example, for Italy, De Paola et al. (2010) documented that the women’s representation in Italian municipalities after the gender quota reform introduced with law 81/1993 increased significantly. The same effect has had law 215/2012 (introducing the double preference voting conditioned on gender for municipal election) as shown by Baltrunaite et al. (2019). Close to our research, Baltrunaite et al. (2014) found that the introduction of gender quotas reform of 1993 increased the average education level of local elected politicians, primarily by increasing the number of elected women — who are on average more educated than men — and by reducing the number of low - educated elected men.

In this regard, it seems interesting to investigate if the change in the ballot structure we are analysing affected the quality of male/female politicians. Firstly, we present some statistics. Before the reform, women had the 8.7% of seats in Parliament. The percentage of graduate women in Parliament was 74.90, much lower than that of graduate male (84.64); while, the years of education was almost equivalent (17.30 for female and 17.72 for male). After the reform, the gender scenario in the Italian Parliament radically changes. Women doubled reaching the 17.27% of the seats and their education level slightly reduced with respect to that of male. Indeed, the percentage of graduate female Parliamentarians goes to 71.09 and that of male Parliamentarians goes to 68.36. The average years of education is 17.45 and 17.04 respectively for female and male.

Looking at regional councillors, women also doubled in the two period after the national reform with respect to the previous two period before the reform (to 7.41% to 14.81%). We witness to a decrease in the percentage of both male and female graduate councillors before and after the reform (respectively, from 59.14% to 57.11% for male and from 67.70% to 65.25% for female), while the years of education slightly increase (respectively, from 15.63 to 15.95 for male and from 16.03 to 16.33 for female).

In Table 13 we show estimation findings over the sample of politicians split according to their sex. The coefficient of the treatment variable is negative everywhere but it is significant only for male politicians. Here the reform seems to lower the percentage of graduate male Parliamentarians 19.4 p.p. more than for the control group and their years of education of more than one year. On the contrary, we cannot claim that in the treated politicians the education level of elected women evolved differently after the reform compared to the control group.

To conclude, given the gender evolution of the political scenario that sees the entry of a growing number of women with a not significantly different level of education and a decrease in men less and less educated, our results show that the introduction of open list of candidates decreased the average education level of Parliamentarians due to the election of low educated men.

Table 13: OLS estimation. Sample divided by gender

VARIABLES	(1) Degree (Male)	(2) Years of Education (Male)	(3) Degree (Female)	(4) Years of Education (Female)
Treat	0.243*** (0.00)	2.049*** (0.00)	0.000993 (0.99)	1.026 (0.38)
Treat*After Law	-0.194*** (0.00)	-1.347*** (0.00)	-0.0368 (0.72)	-0.743 (0.39)
Constant	2.079	8.014***	16.88**	140.9**
Observations	6,756	6,756	879	879
R-squared	0.072	0.083	0.030	0.049
Regional FE	Yes	Yes	Yes	Yes
Legislature FE	Yes	Yes	Yes	Yes
Regional Controls	Yes	Yes	Yes	Yes

Notes. OLS regressions. All estimations include regional FE. Coefficients are not reported. p-values of the null hypothesis that the parameter equals zero are shown in round brackets. The following symbols indicate different significance levels: *** - significant at 1 percent, ** - significant at 5 percent, * - significant at 10 percent.

We advance a possible explanation linked to the presence of negative stereotypes about the ability of women in politics. This is one of the reasons of the under-representation of women in politics, that is still widespread. When anti-female prejudices are based on the idea that women are "less-able" policy makers than men, in order to increase the female involvement in politics, women must be "perceived", by voters and by political leaders, of higher quality than male competitors. Thus, women must enter the political arena always with a constant higher standard (in terms of education level) that reflects into no significant variation in the female level of education before and after the reform.

7 Conclusions

This work investigated the effect of the change in the ballot structure introduced by the national electoral reform occurred with the Law n. 270/2005 on the quality of politicians. We compare the change in the education level of politicians across the treatment (parliamentarians) and the control (regional) group of politicians before and after the reform. More in detail, we compare the quality of parliamentary politicians under the proportional system with open lists of candidates and that under the proportional system with blocked lists of candidates. We provide evidence that the introduction of closed list ballot scheme lowered the education level of elected national politicians. Results are strong: the reform lowered the probability of having graduate Parliamentarians as well as their years of education. Reform negatively affected Senators as well as Deputies, and results driven by male politicians. We justify the absence of the effect of the reform for female politicians recalling the presence of negative stereotypes about the ability of women in politics. Our findings may be an argument in favor of the re-introduction, in the electoral law, of preference voting schemes

as an effective mechanism to have more educated politicians. Therefore, as long as we expect that more educated politicians perform better, preference voting system may be welfare improving.

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8 Appendix

Italian national electoral laws. Italy is a parliamentary democracy with a perfect bicameral structure, where the House of Representatives (“Camera dei Deputati”) and the Senate (“Senato della Repubblica”) have symmetric legislative power. The House is composed of 630 members, and the Senate has 315 members.¹⁶ The constitutionally mandated duration of a parliamentary term (Legislature) is five years. Within seventy days before the end of a Legislature new elections have to take place to nominate the members of the new Parliament. Early elections may however take place before the regular end of the Legislature.¹⁷

The President of the Republic can dissolve Parliament and call early elections. The active electorate for the House is composed of all Italian citizens who have reached 18 years of age, whereas the voting age for the Senate is 25 years. Laws 6/1948 and 29/1948 disciplined election of Parliamentarians under an open-list proportional system with large districts. The House of Representatives was divided in 32 large districts with 3 to 54 seats per district depending on the population; each voter could express up to four preferences for candidates.¹⁸ For the election of Senate the territory was divided in 21 large district, with 1 to 47 single-member district.¹⁹ After the referendum of 1991, the parliamentary electoral rule was disciplined by Laws 276/1993 and 277/1993, known as “Legge Mattarella” or “Mattarellum”, that introduced a mixed electoral system. According to that Law, members of Parliament were elected with a two-tier system (25% proportional and 75% majoritarian). The House of Representative’s election was slightly different from the one enacted for the Senate’s election. In the House of Representatives voters received two ballots on Election Day: one to cast a vote for a candidate in their single-member district, and another to cast a vote for a party list in their larger proportional district. 75% of House members were elected with plurality voting in 475 single-member districts, while 25% were elected using proportional representation with closed party lists in 26 multiple-member districts (2 to 12 seats per district).²⁰ In the Senate voters received one ballot to cast their vote for a candidate in a single-member district, and the best losers in the 232 majoritarian districts were assigned to the remaining

¹⁶All the 630 members of the House are chosen during political elections. The majority of the 315 members of Senate are elected during political elections and a minority is made of non-elected members that are the past Italian Presidents (“Senatori di diritto a vita”) and citizens who have been declared Senators for life (“Senatori a vita”) by the Italian Presidents, due to the highest national recognition for exceptional achievements in science, art or social life.

¹⁷Early elections have been relatively frequent in Italy. Indeed, in 18 Legislatures from 1948 until now, 8 experienced untimely end.

¹⁸Each voter could express up to three preferences in constituencies up to 15 seats and up to four preferences in constituencies beyond 15 seats.

¹⁹In 1953 the government led by De Gasperi tried to introduce a majoritarian premium (the so called “legge truffa”). This premium was never set because no political parties passed the threshold of 50% of votes. The next year it was abrogated.

²⁰In line with what was established by the law, any Italian region was considered a primary constituency and it was divided in a number of single seat district (“collegi”).

83 seats according to the proportional rule.²¹

The macro districts common to House and Senate members are the Italian Regions. Laws of 1993 were in force up to 2005 when Law no. 270/2005, known as “Legge Calderoli” or “Porcellum” was introduced. The major aim of the new electoral law was to bring back the proportional system. However, the law not only implemented a pure proportional system, but introduced a majority bonus and a threshold of votes, in order to avoid the dispersion of votes. The way the majority bonus was granted is the main difference between House and the Senate. Looking at the House, the electoral law prescribed that the national territory had to be divided into 27 constituencies. Single parties or party coalitions were able to run for office. Parties had to present their own list of candidates but voters were not able to express any preference (blocked lists). According to the number of the seats allocated to the party, new candidates were elected given the order of the list. The allocation of the seats took place at a national level. Each party had to reach a threshold of 4 percent (10% for coalitions) of national votes in order to gain seats. Each party obtained a number of seats proportional to the number of votes received. If none of them was able to reach 55% of the seats, the most voted coalition was entitled to receive a majority bonus, that is, 340 parliamentary seats. The majority bonus was allocated between the parties of the coalition according to the number of votes achieved by each list. Looking at the Senate, the allocation of the seats took place at a regional level. Thus, in each region, the party or the coalition who won the majority, without achieving the 55% of the seats, was entitled to receive a majority bonus in order to reach this percentage. Thresholds required were 8% for a single party, 20% for the coalition and 3% for each list of the coalition.

Italian Regional electoral law. Regions, with municipalities, provinces, metropolitan cities and the State are one of the five constituent element of the Italian Republic. According to the article 114 of the Constitution, it is possible to define regions as “autonomous entities having their own statutes, powers and functions in accordance with the principles laid down in the Constitution”.²² The Regional Council (“Consiglio Regionale”), the Regional Executive (“Giunta Regionale”) and the President are the body who governs the Region. The Region is represented by the President who is directly elected by all the citizens within the Region (if nothing different is provided for the regional Statute). The Regional Council, who exercises the legislative power, is elected by all the citizens living in the Region and

²¹At the Senate, after the electorate has nominated a Senator for any single-seat district, the remaining seats were assigned with a *repechage* mechanism. This mechanism, known as “*scorporo totale*”, implemented the *repechage* of all the candidates who were not elected but received the highest number of votes. Here, no threshold was planned. The reason behind this choice was that the number of the remaining seats for the Senate was small enough to avoid the election of candidates who gained less than 10% of the votes cast.

²²The Constitution distinguishes between two main categories: the Special Status regions (*regioni a statuto speciale*) that are Valle d’Aosta, Trentino Alto Adige, Friuli Venezia Giulia Sicilia and Saregna; the ordinary status regions (*regioni a statuto ordinario*) that are Abruzzo, Basilicata, Calabria, Campania, Emilia Romagna, Lazio, Liguria, Lombardia, Marche, Molise, Piemonte, Puglia, Toscana, Umbria, Veneto.

it is composed by Regional Councilors. The executive body of the Region is the Regional Executive; it is made of the Regional Councilors designed by the President. Law n. 108/1968 disciplined a proportional electoral system for the ordinary status regions: seats are assigned on provincial basis using the Hagenbach-Bischoff method; the residual seats was attributed to a single-regional district and assigned with the method of the highest remains. Voters could express up to three preferences. Law No. 43/1995, known as “Legge Tatarella” or “Tatarellum” (modified by the Constitutional Law No 1/1999) have substituted the previous Law 108/1968 in the regulation of regional elections. The “Legge Tatarella” implemented a proportional system with a majority bonus for the winning coalition, and provided the direct election of the Regional President. According to the mixed system, in order to elect the Regional Council, the elector casts two votes: the first to elect the 4/5 (80%) of the councilors with proportional method based on the lists presented at the provincial level (voters can express the preference over candidates within the list); the second, that is the remaining 1/5 (20%), represents the majority bonus that is awarded with a majority multi-member system to a “listino bloccato” at the regional level (in which it is not possible, therefore, to express preferences), linked to the candidate President of the region.²³ Party lists that obtain less than 3% of votes do not receive any seats if they are not linked with a presidential candidate who reached a threshold of 5% of votes. The coalition supporting the winning candidate for president is awarded with a bonus of seats, thus ensuring a majority in the regional assembly. The bonus is then redistributed amongst the parties of the winning coalition. Law 43/1995 gives to the elector the possibility to express only one preference.²⁴

²³The regional territory is divided into a number of multi-seat districts corresponding to the provinces. In every district the seats are allocated in accordance with the previous Law 108/1968: by the Hagenbach-Bischoff method, first, and by the Hare method, for the residual seats.

²⁴This is the direct consequence of the referendum held in 1991.

Table 14: Table of conversion of the level of education into years of education

Categories	Degrees	Years of education
University	Specialization Schools that enable to practice chosen professions and to use the title of specialist. In this case, admission requires students to obtain a specific degree and to pass a selective examination. Other qualifications officially recognized as equivalent	23
University	University Researcher, Phd, Other post-graduate's degree, Other qualifications officially recognised as equivalent	21
University	Bachelor of Medicine, Bachelor of Surgery. Master Degree, Other qualifications officially recognised as equivalent	19
University	Bachelor Degree, Other qualifications officially recognised as equivalent	18
Higher Secondary	High School Degree, Professional Diploma, Other qualifications officially recognised as equivalent	13
Lower Secondary	Middle School Degree, Other qualifications officially recognised as equivalent	8
Primary Education	Elementary School Diploma	5
No education	No Diploma/Degree	0

Notes: In case no education level is specified, we use the variables "job" to derive an estimation of years of education according to the minimum level of education that the Italian law prescribes to attain that job. Instead, in case where is not possible to infer directly the years of education from the variable "job", we assign an average value. The latter is equal to 15.5 years of education if the job of the politician can be exercise with both a university degree and a high school degree. Moreover, we assign a value of 10.5 when the job requires either a high school degree or a middle school degree.

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