Electoral rules and voter turnout[•]

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Abstract
The paper investigates the effect of electoral rules on voter turnout. It focuses on Italian municipalities, where voting schemes are differentiated by the size of the city: a single ballot system applies to municipalities with less than 15,000 inhabitants, while a dual ballot system is in place above that threshold. By exploiting this discontinuity, the paper finds that the dual ballot increases participation at the local polls, with an estimated effect of about 1 percentage point. The increase in voter turnout is associated with a wider political representation, politicians of higher quality, greater fiscal discipline, and more robust local development. Finally, the higher political participation triggered by local electoral rules extends to nationwide voting contexts.
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1. Introduction

Voter participation has far-reaching political and economic consequences. Political scientists look at participation as a relevant indicator of the strength of citizens' engagement in the life of the community. Thus, low participation determines the lack of representativeness of democratic institutions and undermines the quality of the democratic process.[1] The economic effects are very relevant too. For instance, democratic participation shapes income distribution and government size (Mueller and Stratmann, 2003) as well as it increases public sector efficiency (Borge et al., 2008).

For a long time economists have devoted a large effort to understand voter participation by using the expected utility maximization framework. A general conclusion is that from the rational, self-interested voter's perspective, the costs of voting usually exceed the benefits. Thus, theory predicts very low voter turnout but this prediction is far from being confirmed by the data. This discrepancy between theoretical predictions and empirical evidence is usually known as the "voting paradox" (Downs, 1957). Scholars tried to solve this puzzle by changing the basic model in various ways, ranging from the objective function to the rationality notion, etc. (for a survey, see Dhillon and Peralta, 2002).[2] Paralleling the theoretical literature, empirical researchers examined a number of socio-economic, political and institutional variables that potentially affect voting (for a review, see Geys, 2006). Here, few aspects have to be noted. First, the electoral system ("the means by which votes are translated into seats in the process of electing politicians into office"; Farrell, 2001, p. 4) is generally believed to have an effect on the number of people turning out. Notwithstanding, the studies focused mainly on comparisons between proportional systems and majoritarian ones and no general agreement emerged (see also Katz, 1997).[3] Second, the size of the population involved in voting is considered to be a first-order explanatory factor for turnout (see, for instance, Owen and Grofman, 1984, or Mueller, 2003). For instance, smaller-scale elections are likely to display an higher turnout because voters: better know candidates and local issues, so face lower information costs; are more likely to be affected by future policies; and are more exposed to social pressure. This implies that the effect of the population size for turnout has to be carefully differentiated out to gauge the role of different explanatory factors, such as the electoral rules. However, the existing empirical work usually draws conclusion on the base of simple correlations (most of the

[1] Voter turnout has declined in the US and in many other established democracies over the last decades. Italy is no exception: abstentionism at the Parliamentary elections, which was slightly above 5 percent at the beginning of the 1970s, steadily increased up to almost 20 percent in the 2008 election.

[2] One way to reconcile theory and data is to assume that the voting act as such enters positively the utility function because, for example, of civic values that individuals have internalized. In this sense voter participation is strictly related to the concepts of social capital and civic engagement that, in turn, are associated with more successful economic outcomes (Guiso et al., 2010, Hall and Jones, 1999, and Knack and Kiefer, 1997).

[3] For instance, majoritarian systems might deter participation because supporters of the smaller parties are lead to believe that their vote is of no importance (Ladner and Miller, 1999). However, proportional systems might also discourage participation, insofar they are more likely to produce multiparty (coalition) governments, which reflects not only the will of the voters but also the result of political deal-making (see Blais and Carty, 1990).

times, cross-countries; in few instances, cross-districts: Geys, 2006); therefore it struggles to identify the causal link that goes from voting schemes to turnout.

In this paper, we add on the empirical literature on the determinants of voter turnout by investigating the role of the dual ballot system (as opposed to the single ballot one) in a quasi-experimental setting.[4] Under a dual ballot (or runoff) scheme, voters cast two sequential votes. First, they vote on who stands for election. The two candidates who obtain more voters are then allowed to compete again in a second round, which defines the winner. By contrast, under a single ballot rule the winning candidate is selected in the first round, where she competes with several other contenders.[5] The institutional setup that characterizes Italy's municipalities is ideal to test whether the dual ballot rule shapes voter turnout: since 1993 there are two different electoral schemes according to the size of the city. A single ballot applies to municipalities with less than 15,000 inhabitants, while a dual ballot is in place above that threshold. This allows us to exploit a sharp change in the exposure to the electoral rules to identify a causal effect trough a Regression Discontinuity Design (RDD).

There exist many reasons why the difference between single round and runoff elections are likely to matter for voter turnout. The two systems have different implications with respect to the number of parties/participants in the political competition. This idea can be traced back to the Duverger's (1954) conjecture according to which simple-majority single-ballot rules tends to favour the emergence of a two party system while simple majority with a second ballot (or proportional representation) supports multipartyism. Osborne and Silvinsky (1996), and Wright and Riker (1989), emphasize that because it weakens the incentives for political entities to merge, the dual ballot should be featured by a higher number of parties compared to the single ballot.[6] The higher number of parties, in turn, might foster the voter participation trough a higher representativeness but, at the same time, there might be a negative effect because the dual ballot could also encourage the formation of governments away from the will of the electorate (and decrease its salience). Therefore, the net effect is unknown on an *a priori* ground.

The literature of political science also suggests that the dual ballot might shift the voters' focus from parties/lists' views and ideologies to the personal qualities of the candidates. As only two candidates run

[4] Other papers that make use of quasi-randomized empirical strategies, are: Gerber et al. (2000), Gentzkow (2006), Hastings et al. (2007); and Funk (forthcoming). However, they do not focus on the role of electoral rules.
[5] The single ballot and the dual ballot are electoral schemes widely implemented all over the world - both at the national (for instance, the French president is elected with a dual ballot) and sub-national level (see: Cox, 1997).
[6] This can be illustrated with the help of a simple example, taken from Chamon et al. (2008). Consider a single ballot and suppose that 60% of the electorate is left-leaning. If there is only one left-leaning and one right-leaning party contesting the election, the former should easily win. If there are, however, two competing left-leaning parties, the right-leaning one may be able to achieve a relative majority. In this case, under the single ballot the two left-leaning parties should get together and support a single candidate. Under a dual ballot, conversely, the presence of two left-leaning candidates should not affect the final outcome and therefore a higher supply of candidates is warranted.

for office, voters are granted a more effective right of choice. In turn, political parties are stimulated to support good candidates (even picked outside their ranks) to attract in the second round also the votes of those who in the first round preferred a different runner. Once in the office, the focus on individuals rather than parties makes it easier for the voters to judge politicians on the basis of their performance, thus reinforcing the link between performance and reappointment (Seabright, 1996).[7] In sum, to the extent that the dual ballot favors the rise of a more capable class of politicians and more effective mechanisms of transparency and accountability, people might feel less distant from politics and participation might benefit. By the same token, the impact of electoral rules on voter turnout might be a consequence of the perceived contribution of a given set of rules for the effectiveness of the policies implemented by the elected bodies. Since the seminal work by Persson and Tabellini (2000) electoral systems have been mainly contrasted with respect to their fiscal implications (see, for instance, Milesi-Ferretti et al. 2002). In particular, the dual ballot has been associated with greater fiscal prudence (see: Chamon et al., 2008; Bordignon et al., 2010). To the extent that a better performance of local governments is spurred by a certain electoral scheme, turnout can increase because better managed municipalities enhance the sense of civic duty of the residents, along the lines suggested by Barone and Mocetti (2011).

Our results show that, compared with the single ballot, the dual ballot does increase the political participation of the residents. The estimated magnitude of the effect is non-negligible: it is roughly equal to 1 percentage point. We also document that the increase in turnout is associated with a number of occurrences at the local level: the runoff rule leads to a wider political representation, politicians of higher quality, a greater fiscal discipline (notwithstanding higher expenditure fragmentation), and more robust local development, as measured by population and nontradable price growth. Finally, our results suggest that the impact on voter turnout is not limited to local elections: dual ballot municipalities exhibit higher voting participation also at the Parliamentary elections. Thus, they provide some support for the idea that turnout reflects civic duty values (and that those values can be spurred). Overall, and also in light of the concerns about the widespread reduction of voter turnout in many countries, we believe that our findings might have some implications for the design of institutions.

The rest of the paper is structured as follows. The next Section describes the electoral systems in Italy's municipalities. Section 3 explains the methodology used to identify the causal effect of electoral rules. Section 4 illustrates the data. Section 5 presents the empirical evidence: first it substantiates the empirical design, then it provides the results. Section 6 concludes.

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[7] Taking stocks of the 2001 Italy's municipal elections in the 103 province capitals, Baldini (2002, p. xx) observes that "the dual ballot resulted in voters having more influence and mayors getting more power becoming at the same time more accountable."

2. Municipal electoral systems in Italy

Up to 1993, Italy's municipalities had a system of proportional representation, which at that time also featured electoral rules at the national level.[8] People voted for local parties/lists and councillors. Both the mayor and the members of the mayor's cabinet (*assessori*) were selected by the council from their own ranks. As highlighted by many scholars (see, for instance, Agosta, 1999 and Vandelli, 1997) the system of proportional representation was a major impediment for the good governance of Italy's municipalities. To overcome these difficulties, on 25 March 1993 the Italian Parliament approved Law 81, also known as the *Law for the direct election of the mayors*. Irrespective of the size of the municipality, the new framework envisaged that (*i*) residents vote directly for who they want to be mayor; (*ii*) the mayor can appoint and dismiss the *assessori*, who can also be recruited from outside the council. Crucially, the reform envisaged different electoral rules according to the *size* of the municipality:

- *Below the threshold of 15,000 inhabitants*, a single ballot applies. The candidate who wins the relative majority in the single election is appointed mayor. Under this scheme, each candidate for the seat of mayor can be backed by one list only and there is a substantial victory bonus: the list supporting the winner gets two-thirds of the seats in the council, while the rest of the seats are assigned to the remaining lists according to a criterion of proportionality.

- *Above the threshold of 15,000 inhabitants*, a dual ballot applies. Under this scheme, each candidate can be backed by a number of lists instead of just one. There is no direct link between lists and mayoral candidates: voters can split their vote by opting for one mayoral candidate and a list associated with a different candidate (disjoint vote).[9] If a candidate obtains an absolute majority (that is, over 50% of the votes cast) he or she become the mayor; if no candidate wins an absolute majority, then those ranked first and second in the vote go to a second round, in which they can seek the support of lists whose candidates have been eliminated. After the mayor has been appointed, the council is elected. If the lists supporting the wining candidate have received over 50% but less than 60% of the votes, then they receive 60% of the seats in the Council; otherwise, seats are assigned by the criterion of proportionality.[10]

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[8] However, very small municipalities (with less than 5,000 residents) had a majoritarian system.

[9] Voters can also abstain in the election for the council, voting only for the mayoral candidate. However, voting only one list automatically implies a preference for the mayoral candidate supported by that list.

[10] For a mayoral candidate who is elected in the second round, the 60% bonus is only granted if no other coalition got at least 50% of the votes in the first round. Since there is the option of a disjoint vote, in principle this possibility could arise.

The establishment of two different municipal electoral systems is explained by budgetary reasons. Compared to the single ballot, the dual ballot entails substantial extra outlays, as the fixed costs for the polls and the counting process basically double. Therefore, in an effort to minimize the impact on public finance for small towns, it was decided to apply a single ballot scheme to municipalities with less than 15,000 inhabitants. After the approval of the reform in March 1993, the new rules began to be implemented gradually, according to the schedule for the new elections envisaged at the local level.

3. Methodology

Our goal is to evaluate whether variations in local electoral rules make a difference to the participation of citizens at elections. As explained above, Italian municipal electoral rules are differentiated by the size of the city: a single ballot applies to municipalities of below 15,000 inhabitants, while a dual ballot system is in place above that cutoff. We exploit this discontinuity to investigate the causal impact of local electoral rules on voter turnout. In principle, different sized municipalities can vary in terms of many observed and unobserved characteristics that can be correlated with measures of political participation. For instance, the literature on turnout highlights that the size of the voting context negatively affects voter behaviour, because it increases transaction costs and waters down social pressure (see, however, Glaeser, 2004, for a different perspective). By applying a regression discontinuity design (RDD), we are able to differentiate out all the characteristics related to size that may confound the identification of the causal effect of local electoral rules.

The main idea behind this research design (Angrist and Lavy, 1999; Black, 1999; and Van der Klaauw, 2002) is that municipalities just below the cutoff size (with a single ballot) make good comparisons with those just above the cutoff (where the dual ballot applies). This strategy is deemed preferable to other non-experimental methods because (see Lee, 2008) if the units of the analysis (in our case the Italian municipalities) are unable to manipulate precisely the forcing variable (their size), the variation in treatment (changes in local electoral rules) around the threshold is randomized as though in a randomized experiment (as if the municipalities had been randomly drawn just below or just above the threshold).

One implication of the local randomized result is that RDD can be tested like randomized experiments. If the variation in the treatment near the threshold is approximately randomized, it follows that all "baseline covariates" – all those variables determined prior to the realization of the forcing variable – should have about the same distribution just above and just below the cutoff. Section 5.1 presents a test for the absence of discontinuity in baseline characteristics around the threshold that substantiates the empirical strategy. It also shows that beyond the move from single to dual ballot, no other policy variation occurs

at the cutoff. Therefore, our results can be attributed to the sole effect of the changes in the local electoral rules documented in Section 2.

The causal effect of the local electoral rules is assessed by allowing the outcome variable to be function of the size of the city and testing the existence of a discontinuity in the intercept at the threshold. Operationally, we adopt a parametric approach fitting a highly flexible functional form. We will be running regressions of the following type:

$$Y_m = \beta T_m + g(Z_m) + \varepsilon_m \tag{1}$$

where Y_m is our measure of political participation in municipality m; $Z_m = POP_m - 15{,}000$ represents the forcing variable; T_m is a treatment dummy that takes on the value of 1 if $Z_m \geq 0$ and 0 otherwise;[11] $g(\cdot)$ is a higher order polynomial function in the forcing variable; and ε_m is the random error. β is the average treatment effect of electoral rules on voter turnout and can be interpreted as the jump between the two regression lines at the threshold. The estimated average treatment effect at the threshold can be represented as:

$$\hat{\beta} = \lim_{Z \to 0^+} \hat{Y} - \lim_{Z \to 0^-} \hat{Y}$$

that is, the difference at the limit of the estimated outcome, as the forcing variable approaches the cutoff from the right and the left, respectively. As is well known, RDD estimates can be highly sensitive to the specification of the functional form of $g(\cdot)$. In the empirical section, an extensive robustness analysis will deal with this issue.

4. Data

Our main dependent variable is voter turnout, defined as the percentage of eligible voters who cast a vote in the unique turn (for the municipalities below the population treshold) or the first turn (for those above the treshold, with a dual ballot in place). Statistical units are the Italian municipalities, for the most part of which turnout data available from the Minister of internal affairs.[12] For each municipality we consider 7-year average turnout after the introduction of the 1993 reform (in this period an average of 1.x local

[11] Two regions with a special status adopted different thresholds: 5,000 inhabitants for Friuli-Venezia Giulia and 10,000 inhabitants for Sicily: in these cases Z is accordingly defined.

[12] Data for the 340 municipalities located in Trentino-Alto Adige are provided by the regional electoral office, which we want to thank here. Data for Valle d'Aosta and Friuli-Venezia Giulia – two other northern Italian regions – are not available. Overall, our sample includes local turnout data for xxx out of yyy Italy's municipalities.

elections was held). We decided to focus on 7-year averages because the adoption of the new rules by each municipality was scattered overtime (it depended on the expiration date of the administration in office at the time of the approval of the 1993 reform; in a number of cases, however, the ruling local government ended its mandate before the due date and the new elections were held with the new rules). Therefore, focusing on a more restricted time span would have unduly reduced the number of observations, making the RDD approach unfeasible.[13]

The information on the size distribution if the cities is taken from Census. To substantiate the empirical design (Section 5.1) we make use of data on the activity rates and the share of employees in the non-profit sector. They refer to last year of availability before the reform and are taken, respectively form xxxx and xxxx. To interpret the results on turnout (Section 5.2) we also use a number of additional outcomes: political outcomes are taken from xxxx; fiscal outcomes are derived from xxxx; local development outcomes are taken from xxxx. Finally, turnout at the Parliamentary elections (Section 5.4) is available from the Minister of internal affairs too.

[Table 1]

Table 1 reports the descriptive statistics. The average turnout at the local election (across the 7,590 Italian municipalities in the sample) is xx per cent (with a standard deviation of xx percent). [further comments on descriptives]

5. Results

In this section, we first present the empirical evidence that substantiates the validity of our identification strategy. Then, we provide the estimation results for the effect of local electoral rules on voter turnout. Moreover, we try to interpret the results we obtain on turnout by estimating the impact of electoral rules on a wider set of additional outcomes. Finally, we analyze whether the impact of electoral schemes goes beyond that on participation at the municipality elections and overflows on different voting contexts.

5.1. Substantiating the empirical design

The RDD framework relies on the fact that municipalities cannot manipulate their size in order to get a preferred electoral rule applied to them. In our case this requirement is trivially verified: the threshold was decided in 1993; at that time it was also decided that the reference population was the one resulting

[13] As we make clear in Section 5.3, this choice has the consequence that we are not in a position to infer causality between turnout and the additional outcomes.

from the 1991 Census. Moreover, the Census is independently run by the National Statistical Office. Finally, even if one accepts that manipulation was feasible, it is not clear why this should have occurred as there was no identifiable advantage from the municipality's perspective. In any case, we investigate the smoothness of our forcing variable (population size) around the 15,000 threshold. Figure 1 plots the frequency of municipalities whose distance from the cutoff is less than 10,000 inhabitants, using different bin sizes (250 and 500 inhabitants). The distribution is positively skewed and a visual inspection reveals a small positive increase in the probability mass after the threshold. At any rate, the hypothesis of non-random sorting around the cutoff is rejected on the basis of the McCray (2008) test.[14]

[Fig. 1]

Discontinuities in the outcomes at the threshold can be unambiguously attributed to the role of local electoral rules only if no other policy variations occur at the cutoff. This is a reason for concern, as many other regulatory changes for the Italian municipal institutions are implemented as a function of the size of the city.[15] Table 2 shows the changes occurring at various thresholds. They mainly refer to the remunerations of the representatives (mayor, members of the cabinet, members of the council) and the size of the political bodies. Crucially, at the threshold of 15,000 inhabitants no other change occurs beyond that of local electoral rules.

[Table 2]

To substantiate the idea that the assignment of the treatment near the cutoff is approximately randomized, we examine whether observed baseline covariates are locally balanced on either side of the cutoff. The regression discontinuity framework provides a natural framework to check whether some confounding factor is driving some spurious correlation. It suffices to run RDD regressions (of the type in equation (1) above) using as dependent variables those factors that the researcher suspects could be driving the results. If no effect is detected then that variable can be considered as controlled for in the RDD exercise. We focus on three characteristics that should capture most of the municipality heterogeneity: the 1991 activity rate (defined as, employees and those searching for a job over population), which measures socio-economic development; the 1991 share of employees in the non-profit sector, which proxies for pre-treatment civicness; and a dummy variable equal to one if the municipality is located in a special status region, which have a peculiar institutional set-up that might confound the effects of local electoral rules (regional-level governments also provides generous funding to municipality-level governments). The results (which are derived from a degree 3 polynomial specification, see Section 5.2) are shown in

[14] Results are available from the authors.
[15] They were mostly introduced in the second half of the 1990s.

Table 3: no jump occurs at the threshold as to the activity rate (Column 1) and the chere of non-profit employeses (Column 2). However, we find evidence that the probability of being located in a special status region is not randomized around the threshold (Column 3). As explained by Lee and Lemieux (2009), some of the differences in covariates across the threshold might be statistically significant by random chance. To check for this possibility, we combine the multiple tests into a single test statistic that measure whether data are broadly consistent with the random treatment hypothesis around the cutoff. Table 4 presents the results we obtain by estimating Seemingly Unrelated Regressions (SUR) where each equation represents a different baseline covariate. A χ^2 test for discontinuity gaps in all the equations being zero is strongly supported by data for both samples.

[Table 3]

[Table 4]

5.2. Baseline findings: the effect of dual ballot on voter turnout

We start by presenting some graphical evidence for the discontinuity of voter turnout at the 15,000 cutoff. Figure 2 we show the mean of the outcome variable for municipalities whose distance from the cutoff is less than 10,000 inhabitants, using different binsizes (250 and 500 inhabitants). The figure superimposes the fit of a linear regression allowing for a discontinuity at the cutoff. The figure strongly suggests that dual ballot elections induce a larger voter turnout.

[Fig. 2]

Next, we turn to more formal measures of the effect of the electoral rules. Table 5 presents the RDD impact of the change in electoral rules at the threshold on voter turnout. The reported coefficient represents the average treatment effect of the dual ballot rule compared with the single ballot one (standard errors are robust to unknown heteroskedasticity). Column 1 reports the raw mean differences (estimated by fitting a polynomial of order 0) at the cutoff for the voter turnout in the full sample of 7,590 municipalities. There is a statistically significant positive jump amounting to 0.9 percent. Then, we present the results from polynomial specifications of increasing order (from Column 2 to Column 4). In all the specifications we find a positive and significant effect, with an economic magnitude of roughly 1 percent, which amounts to 1/10 of the standard deviation of the dependent variable.

[Table 5]

Table 6 presents a number of robustness checks. Column 1 reports the results we obtain by allowing the degree-3 polynomial of Table 5, Column 4 to have different slopes on the two sides of the cutoff. Results

remain undisputed. Column 2 augments the same specification with a number of covariates (we include the variables depicted in Tables 3 and 4 above). As discussed by Lee and Lemieux (2009), because of its local randomized experiment nature it is not necessary to include in a RDD setting additional controls to obtain consistent estimates. However, doing so might reduce the sample variability in the estimator. As a matter of fact, our results show that the inclusion of the additional controls has little consequences, thus validating the identification strategy. Column 3 restricts the estimation sample by about one half of the full sample (we trim the observation outside the bandwidth of ± 12,800 inhabitants around the cutoff). While remaining highly significant, the point estimate increases to 1.6 percent. Column 4 trims the sample to rule out the very big municipalities, which have additional local elected bodies (*circoscrizioni*) at a finer level of geographic detail. We exclude all the cities with a population above xxxx inhabitants. Results are still confirmed. Finally, we estimate the effect of local electoral rules at fake thresholds. These are placebo experiments, as no treatment takes place at fake thresholds. Following Imbens and Lemieux (2008) in Column 5 we consider the sub-sample with a population of less than 15,000 and test for a jump at the median of the forcing variable (2,049 inhabitants). Column 6 shows the result of the analogous exercise using the sub-sample to the right of the cutoff point (median = 27,036). In both cases, treatment effects are never significantly different from zero.

[Table 6]

5.3 Interpreting the results

The results of the previous Section documents that one set of electoral rules – the dual ballot – increases the political participation of citizens. This Section shows that the boost in participation comes hand in hand with a number of occurrences at the local level. We focus on political, public finance, and local development outcomes. These effects should be interpreted as caused by local electoral rules simultaneously with that on political participation. That is, our evidence can be consistent either with a channel that goes from the higher participation to those outcomes (for instance, greater citizen participation imposes tighter controls on politicians therefore positively affecting the quality of local public services; see: Giordano e Tommasino, 2011) or a channel that goes the other way around (for instance, better managed municipalities are likely to spur the sense of civic duty of the residents; see: Barone e Mocetti, 2011).

5.3.1 Political outcomes

We start by testing whether differences in local electoral rules cause differences at the political level. Since the source of variation we exploit is one of political nature, it will be unconvincing to attribute effects outside the political sphere if we do not first document that changes indeed occurred in the political arena. One prediction from the political science literature (Section 2) is that single and dual ballot should bear different implications as for the number of parties/lists in the political competition;

namely, the dual ballot should be featured by a higher number of political groups and fractions, thus allowing greater representation. Table 7, Panel A shows the results we obtain by using, in a RDD framework as those of Table 5 and Table 6, the number of parties lists at the (unique round and the first round, respectively for single and dual ballot) municipality elections. The prediction is nicely confirmed, Column 1 shows that there is an increase of almost 4 parties/lists at the threshold (specification is a degree-3 polynomial). The estimate is confirmed when we take only the regions that were part of the sample of Table 5 and Table 6 (Column 2; municipalities from Valle d'Aosta and Friuli-Venezia Giulia are excluded); allow for varying slopes at the sides of threshold (Column 3); and introduce the additional controls (Column 4).[16]

[Table 7]

Another prediction from the political science literature (Section 2) is that the dual ballot should have the effect of stimulating voters to give more weight to the personal qualities of the candidates (and political parties to support high-quality candidates).[17] Clearly, the personal attributes of the politicians in the local executive and the local legislation are mostly unobserved. At the end of the day, having politicians of higher quality should be reflected in better policies and this will be the focus of the paragraphs below. We do have, however, some observable personal attributes that can tested. Table 7, Panel B uses as outcomes the schooling of the major, the members of its cabinet, and the members of the council. Table 7, Panel C looks at age for the same sample of officials. We find that dual ballot politicians are featured by a higher schooling (almost one more year) and are more experienced. Anecdotal evidence seems in line with our findings. For instance, De Cecco and Romanelli (1995) argues that as a consequence of the dual ballot a new elite of local leaders emerged.[18]

5.3.2 Public finance outcomes

The point that dual ballot cities are characterized by a more careful management of public money has already been made by Chamon et al.(2008) and Bordignon et al. (2010). The finding is also supported with our data. In Table 8, Panel A we use the share of wage and salary expenditures (over total outlays) as the outcome for fiscal prudence (EXPLAIN WHY THIS OUTCOME IS THE RELEVANT ONE). Based on our estimates, savings on personnel costs are (GIVE A SENSE OF MAGNITUDE HERE). As explained in the previous paragraph, dual ballot administrations are featured by both a higher number of parties and local politicians of higher quality. These two aspects might have different implications for the

[16] To save space, we are not showing the additional robustness checks, analogues to those presented in Table 5 and Table 6, that were generally supportive. Results are available from the authors.
[17] The possibility of a disjoint vote (see Section 2) could have enhanced this mechanism.
[18] "The first elections with the new scheme in some large cities – among the firsts, Milano, Genova, Venezia, Roma, Napoli and Palermo – have, in effect, experienced the raise of personalities outside the political circles, in some cases with a nationwide prestigious." (De Cecco and Romanelli, 1995, p. 185).

fiscal stance: greater representation is associated with a higher fragmentation of public expenditures (Milesi-Ferretti et al., 2002); higher-quality administrators with fiscal moderation (Baqir, 2002). Table 8, Panel B shows that the fragmentation in expenditure (measured as XXXX) is indeed higher under the dual ballot (coherently with the results for the number of parties/lists). Therefore, the effect of the dual ballot on public finance outcomes is likely to be that of an overall consolidation, notwithstanding a more dispersed pattern for expenditures.

[Table 8]

5.3.3 Local development outcomes

Better functioning local institutions should positively impact on the development of the area. A prudent fiscal stance, documented in the previous paragraph, can be an important ingredient. Additional mechanisms, however, might also be at work. For instance, a good local government might spur growth by efficiently providing public goods, such as infrastructures, to firms. It could also facilitate firms' activities by agreeing and implementing pro-development regulations (see: Schivardi e Viviano, xxxx). By the same token, a good local government might enhance the provision of high-quality services to households, and this might spur inwards population flows. Since data on the wide arrays of local services provided and regulations implemented at the local level are not available, we turn to (reduced-form) estimates of the impact of the dual ballot on the overall economic activity of the area.

As underscored by the literature of regional science and urban economics, residential choices as motivated by the benefits accruing to mobile households.[19] Moreover, Roback-type models of spatial equilibrium (see: Glaeser, 2008) underscore that location-specific factors that positively affect both the productivity of the firms and the welfare of the households will result in higher prices for non-tradable factors, such as houses. In Table 9 we test whether the positive effect of the dual ballot translates in higher population (Panel A) and house price (Panel B) growth rates. We find that for both outcomes this is indeed the case. The effect of the dual ballot is that of increasing the attractiveness of the municipality and boosting real-estate evaluations.

[Table 9]

5.4. Beyond local elections

We have showed that the dual ballot causes grater participation at the elections where this system is in place. In this section we document that the effect of local electoral rules on participation goes beyond

[19] The usual assumption is that individuals care about the local labor market conditions and the prices of a bundle of other location-specific amenities, which can include the provision of public goods.

that that materializes at the municipal elections. We focus on turnover at a nationwide context: the Parliamentary elections. To the extent that electoral rules have a *persistent* effect on voters' behaviour, that is an effect that survives in a different voting context (with different electoral rules), the case for turnout being a measure of the strength of civic engagement is made stronger.[20] Moreover, it also provide some support for the idea that the sense of civic duty can permanently be enhanced by appropriate institutional mechanisms.

Table 10 shows the results we obtain from using as outcome the turnout at the Parliamentary (Camera dei Deputati) elections of 2001. This elections are run [explain the electoral rules for parliamentary elections]. We find a positive effect on turnout, which is highly significant and has a magnitude that is roughly in line with that found for municipality elections.

[Table 10]

6. Conclusions

By focusing on the Italian case, where single and dual ballot schemes are differently applied to municipalities according to their size, this paper investigates the effect of voting schemes at the local level on the political participation of the residents.

The results show that one set of electoral rules – the dual ballot – increases the political participation of citizens. The estimated impact on voter turnout has a magnitude of roughly 1 percent. The exact mechanism thorough which this effect has materialized goes beyond the scope of this paper. However, we document that the positive implications of the dual ballot for involving residents in issues of general relevance is associated with a wider political representation, an elite of local politicians more skilled and experienced, a more conservative attitude in local public finance (even thought public expenditures are more dispersed), positive impacts on reduced form proxies for economic development, such as population and house-price growth. We also show that the higher political participation triggered by local electoral rules extends to nationwide voting contexts.

[20] Local elections are competitions in which the potential for patronage-driven voting is maximized, given the proximity between voters and elected officials. At the Parliamentary elections the scope for corruption-driven voting is reduced, both because the wider distance between voters and candidates and the abolition since 1993 of preference voting for this electoral context (citizens cannot pick candidates). Therefore, finding an effect of the dual ballot in the nationwide elections also supports the idea that turnout is a good measure of the interest in the common good and it is contaminated by personal patronage benefits issues.

[Here, we should elaborate a little more on why our paper is interesting and what are the main implications]

A major caveat is in order. Our identification strategy delivers a highly credible effect of local electoral rules for the sub-population of municipalities close to the threshold. Away from the threshold, the RDD identification can be much less informative. Needless to say, the possibility of extrapolating our results in other contexts (say, for different levels of government or other countries) should be attempt *cum grano salis*.

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Table 1. Descriptive statistics

Variable	Source	Obs	Mean	Std. Dev.	Min.	Max.
Voter turnout at local elections	Ministry of the Interior (1)					
Population	National Stat. Inst.					
Activity rate						
Share of employees in the non-profit sector						
Special status region						
Number of parties/lists						
Schooling of local politicians						
Age of local politicains						
Wage and salary expenditures						
Populaion growth						
House price growth						
Voter turnout at the Parliament elections	Ministry of Interior					

Notes. (1) explain TAA

Table 2. Changes in local institutions as functions of the size of the municipality

Size	Changes
1,000	Mayor's and cabinet members' wages
3,000	Mayor's and cabinet members' wages / size of the council
5,000	Mayor's and cabinet members' wages / inclusion in the Domestic Stability Pact
10,000	Mayor's, cabinet members' and council members' wages / size of the council / size of the cabinet
15,000	Local electoral rules
30,000	Mayor's, cabinet members' and council members' wages / within-city neighborhood councils allowed
50,000	Mayor's and cabinet members' wages
100,000	Mayor's and cabinet members' wages / size of the council / size of the cabinet / within-city neighbourhood councils compulsory
250,000	Mayor's and cabinet members' wages / size of the council / size of the cabinet
500,000	Mayor's and cabinet members' wages / size of the council / size of the cabinet

Notes. Quote the relevant laws or refer to the ANCI website.

Table 3. Balancing properties for the baseline covariates: single equation estimates

Dep. Var.:	(1) Activity rate	(3) Share of employees in the non-profit sector	(5) Special status region
Treatment	0.301	0.026	0.043+
	(0.238)	*(0.037)*	*(0.024)*
Constant	41.385**	1.441**	1.182**
	(0.079)	*(0.012)*	*(0.008)*
Observations	8,100	8,100	8,100
R-squared	0.00	0.00	0.01

Notes. Results are from a specification […], as the one in Table xx, Column yy. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 4. Balancing properties for the baseline covariates: SUR estimates

	(1)
Activity rate	-0.023
	(0.267)
Share of employees in the non-profit sector	0.055
	(0.047)
Special status region	-0.002
	(0.021)
Observations	8,091
χ^2	1.68
p-value	0.641

Notes. Results are from a specification […], as the one in Table xx, Column yy. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 5. The effect of electoral rules on voter turnout at the local elections: baseline results

Polynomial of:	(1) Degree 0	(2) Degree 1	(3) Degree 2	(4) Degree 3
Treatment	0.009**	0.011**	0.012**	0.009**
	(0.002)	*(0.002)*	*(0.003)*	*(0.003)*
Constant	0.743**	0.742**	0.742**	0.743**
	(0.008)	*(0.008)*	*(0.008)*	*(0.008)*
Observations	7,590	7,585	7,585	7,585
R-squared	0.04	0.04	0.04	0.04

Notes. […] Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 6. The effect of electoral rules on voter turnout at the local elections: robustness

Action:	(1) Variable slopes	(2) Controls included	(3) Restricted sample	(4) Upper trimmed sample	(5) Lower fake threshold	(6) Upper fake threshold
Treatment	0.009+	0.009**	0.016*	0.012+	-0.002	0.000
	(0.005)	*(0.003)*	*(0.007)*	*(0.006)*	*(0.005)*	*(0.005)*
Constant	0.746**	0.646**	0.744**	0.748**	0.747**	0.739**
	(0.009)	*(0.015)*	*(0.010)*	*(0.009)*	*(0.010)*	*(0.010)*
Observations	7,585	7,575	3,765	7,313	6,945	640
R-squared	0.05	0.15	0.08	0.05	0.05	0.16

Notes. In this table the results are from the same specification as in Table 5, Column 4. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 7. The effect of electoral rules on political outcomes

Action:	(1) Baseline	(2) Same regions	(3) Variable slopes	(4) Controls included
	Panel A. Outcome: number of parties/lists at the local elections			
Treatment	3.867**	4.098**	3.697**	3.841**
	(0.127)	*(0.127)*	*(0.132)*	*(0.121)*
Constant	2.535**	2.533**	2.936**	1.728**
	(0.047)	*(0.048)*	*(0.102)*	*(0.131)*
Observations	8,096	7,803	8,096	8,096
R-squared	0.68	0.69	0.71	0.69
	Panel B. Outcome: schooling of local politicians			
Treatment	0.806**	0.774**	1.428**	0.759**
	(0.101)	*(0.112)*	*(0.089)*	*(0.095)*
Constant	12.268**	12.299**	12.037**	10.490**
	(0.044)	*(0.047)*	*(0.080)*	*(0.170)*
Observations	8,096	7,803	8,096	8,096
R-squared	0.17	0.17	0.40	0.28
	Panel C. Outcome: age of local politicians			
Treatment	0.649**	0.644**	0.408+	0.849**
	(0.127)	*(0.135)*	*(0.220)*	*(0.130)*
Constant	51.152**	51.180**	51.361**	55.131**
	(0.046)	*(0.048)*	*(0.193)*	*(0.402)*
Observations	8,096	7,803	8,096	8,096
R-squared	0.02	0.02	0.02	0.12

Notes. In this table the results are from the same specification as in Table 5, Column 4. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 8. The effect of electoral rules on public finance outcomes

Action:	(1) Baseline	(2) Same regions	(3) Variable slopes	(4) Controls included
		Panel A. Outcome : wage and salary expenditures		
Treatment	-0.010**	-0.008*	-0.017**	-0.013**
	(0.003)	(0.004)	(0.006)	(0.003)
Constant	0.335**	0.336**	0.342**	0.438**
	(0.001)	(0.001)	(0.005)	(0.009)
Observations	8,083	7,790	8,083	8,083
R-squared	0.00	0.00	0.00	0.22
		Panel B. Outcome: expenditure fragmentation		
Treatment	0.030**	0.027**	0.089**	0.028**
	(0.004)	*(0.005)*	*(0.005)*	*(0.004)*
Constant	0.738**	0.740**	0.698**	0.572**
	(0.002)	*(0.002)*	*(0.005)*	*(0.010)*
Observations	8,010	7,790	8,010	8,010
R-squared	0.08	0.08	0.30	0.14

Notes. In this table the results are from the same specification as in Table 5, Column 4. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 9. The effect of electoral rules on local development outcomes

Action:	(1) Baseline	(2) Same regions	(3) Variable slopes	(4) Controls included
		Panel A. Outcome : population growth		
Treatment	0.001*	0.001	0.005**	0.001*
	(0.000)	*(0.000)*	*(0.001)*	*(0.000)*
Constant	0.002**	0.002**	-0.001	-0.037**
	(0.000)	*(0.000)*	*(0.001)*	*(0.002)*
Observations	8,091	7,798	8,091	8,091
R-squared	0.00	0.00	0.01	0.09
		Panel B. Outcome: house price growth		
Treatment	0.018**	0.021**	0.016**	0.020**
	(0.003)	*(0.003)*	*(0.004)*	*(0.003)*
Constant	0.053**	0.053**	0.055**	0.094**
	(0.001)	*(0.001)*	*(0.003)*	*(0.006)*
Observations	6,342	6,049	6,342	6,342
R-squared	0.02	0.02	0.02	0.05

Notes. In this table the results are from the same specification as in Table 5, Column 4. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Table 10. The effect of electoral rules on turnout at the Parliamentary election

Action:	(1) Baseline	(2) Same regions	(3) Variable slopes	(4) Controls included
Treatment	0.014**	0.010*	0.056**	0.019**
	(0.005)	*(0.005)*	*(0.009)*	*(0.004)*
Constant	0.799**	0.803**	0.759**	0.541**
	(0.002)	*(0.002)*	*(0.009)*	*(0.012)*
Observations	8,062	7,783	8,062	8,062
R-squared	0.00	0.00	0.01	0.40

Notes. In this table the results are from the same specification as in Table 5, Column 4. Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Something more on the dependent variable Check number of observations that differ across tables

Figure 1. Population density around the threshold

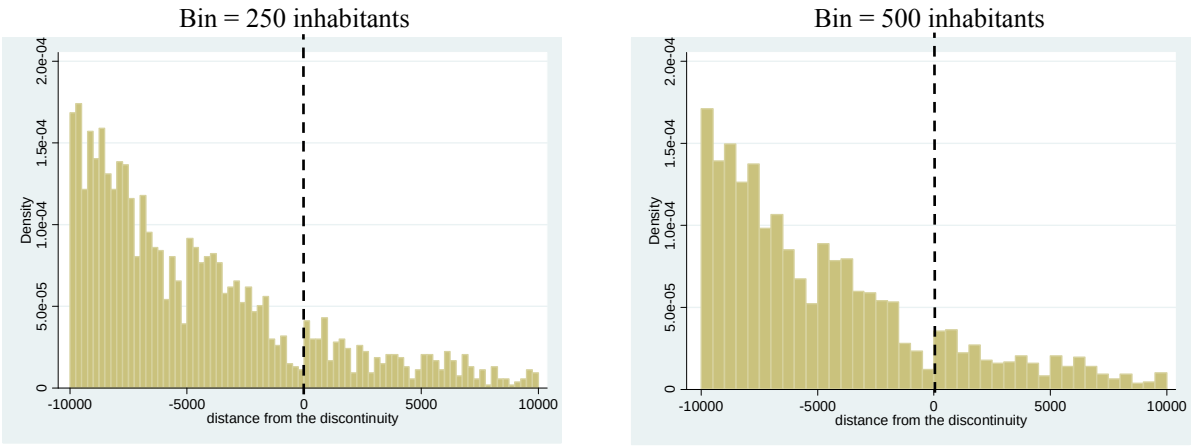
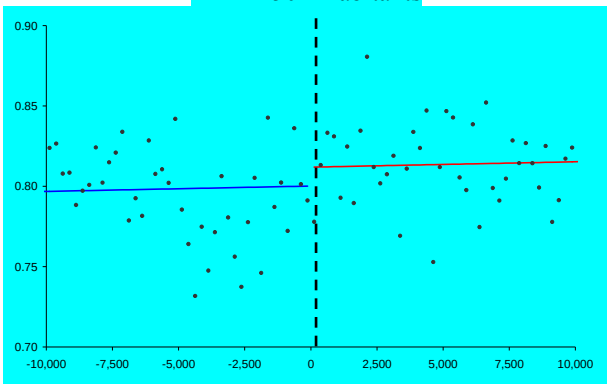


Figure 2. The effect of local electoral rules on voter turnout

Bin = 250 inhabitants



Bin = 500 inhabitants