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By Francesco Armillei and Enrico Cavallotti

Università Bocconi
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Concurrent elections and voting behaviour: evidence from an Italian referendum

Francesco Armillei* Enrico Cavallotti†

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Abstract

In September 2020 Italy held a constitutional referendum. On the same election days, many municipalities and some regions held municipal and regional elections. We exploit this unique occasion, caused by the unexpected Covid-19 crisis, to obtain a causal estimate of the effects of the overlap of concurrent elections on the referendum results. When the referendum overlaps with either municipal or regional elections, we find a positive effect on turnout and on the proportion of blank and null votes. We also find a quantitatively small but statistically significant effect on the referendum preferences. We interpret the results through the use of the calculus of voting model, exploiting a slightly modified version of the most widespread one in the literature. Our findings are relevant from a policy-making standpoint, with respect to both fostering turnout and reducing election organizational costs.

*Fondazione Ing. Rodolfo Debenedetti and think-tank Tortuga. Email: *francesco.armillei@frdb.org*

†Bocconi University and think-tank Tortuga. Email: *enrico.cavallotti@unibocconi.it*

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1 Introduction

On 20 and 21 September 2020 Italy held a constitutional referendum concerning the reduction of the size of the national Parliament. The referendum took place concurrently with administrative elections in 962 municipalities and regional elections in 9 regions. This overlap of a constitutional referendum with political elections was a first in the history of the Italian Republic, in which all the (rare) constitutional reviews have been previously held singularly[1]. This concomitance was due to exogenous reasons, as the different elections were originally planned to take place in different dates in the spring of 2020 but were postponed and overlapped because of the Covid-19 pandemic. In this work we exploit this quasi-natural experiment to shed light on the effects of concurrent elections on referendum results. We reconnect to a rich stream of the literature which studies the determinants of voting and the possible effects of concurrent elections. We want to understand whether the overlap of political elections had an effect on the referendum outcomes, in terms of both turnout and preferences expressed. This question has important policy implications, given that whether and how to increase turnout and whether this can distort voters' preferences are very much debated issues in western democracies. These aspects are even more relevant when it comes to constitutional referenda, given the peculiar nature of the propositions to be voted.

We find that having concurrent municipal and regional elections on average increased the referendum turnout by 24.3 and 13.8 percentage points respectively, a result broadly in line with the literature so far produced, but quantitatively more important than the existing estimates. We also find a large positive effect on the share of blank votes over the total votes cast and a smaller one on the share of null votes. This is a relevant result on which existing evidence is particularly scarce. The overlap of municipal and regional elections seems to also have had an effect on the preferences expressed, as we estimate on average respectively a 0.96 and 2.5 p.p. decrease in the share of *Yes* preferences, in contrast with the *ex ante* perception of several Italian opinion makers. Lastly, we find some interesting heterogeneities: in particular, our estimated coefficients are larger for municipalities smaller in size and located in Southern Italy.

[1] In Italy, there have been 67 recall referendum (i.e. *referendum abrogativi*) held in 17 different election days, 4 constitutional referendum and 2 special referendum. Overall, there have been only 5 cases of concurrent elections: i) the 1946 institutional referendum and the Constitutional Assembly elections; ii) the 1989 European referendum and the European Parliamentary Elections; iii) the 2006 constitutional referendum and the run-off of municipal elections in Sicily; iv) the 2009 recall referendum and the run-off of local (municipal and provincial) elections; v) the 2011 recall referendum and the run-off of municipal elections in Sicily. The first two cases clearly represent extraordinary occasions, while for the remaining ones the number of municipalities and voters involved was negligible.

Our analysis contributes to what has been produced in the literature so far along several dimensions. First, it focuses for the first time on an overlap between a referendum and other political and administrative elections in the Italian institutional context. Second, our analysis exploits the exogenous shock due to the Covid-19 pandemic emergency. A similar setting is as unusual as particularly promising to exploit for causal inference: with some *caveats*, we can claim that the locations with and without the overlap were not different, a part from the overlaps themselves. Third, we use different types of overlapping and correspondingly different identification strategies to infer the effect of concurrent elections, and this improves the internal validity of our findings. Lastly, we contribute to the literature on voting behavior by introducing a slightly modified version of the standard *calculus of voting* model. We posit that when confronted with the choice of voting in multiple concurrent elections, voters first decide on each election separately. Once the decision to turnout is made (because voting in at least one of the elections will deliver positive utility to the individual), the cost-and-benefit evaluation of the other elections changes, as some costs and some benefits become full-fledged sunk costs and sunk benefits. This gives us the opportunity to further elaborate on the effects of concurrent elections, in particular on its effect on the proportions of valid and invalid ballots.

The remainder of this work is structured as follows: Section 2 reviews the existing literature; Section 3 summarizes the relevant institutional framework; Section 4 presents the analysis and the results relative to the concurrent municipal elections; Section 5 focuses on the effects of the concurrent regional elections; Section 6 introduces our model and discusses the empirical results in light of it; Section 7 concludes.

2 Literature review

The idea that concurrent elections may increase turnout had been suggested since at least the 1980s under the name of "ballot attractiveness hypothesis" (Boyd, 1989). However, for our theoretical setting we consider as main reference the "calculus of voting" model by Downs (1957), extended and tested by Riker and Ordershook (1968). In this decision-theoretic models, people vote in an election only if the benefits of voting are larger than the costs. The determinants of turnout are the benefits that may derive from voting - namely the instrumental value of voting, related to the victory of the favourite candidate, and the expressive or consumption value of voting, related to the act of voting itself (Degan and Merlo, 2011) - and the costs of participation - the transportation cost of going to the polling station and

the information cost. These models clearly elaborate on the possibility of only one election at a time. For concurrent elections, Aldrich (1993) proposes two intuitive solutions to model turnout: either the voter will go to the polls and express a preference if the benefits are larger than the costs in any of the two contests (however, this does not imply that this person will vote for all contests taking place), or the voter will calculate a summary value for voting in all contests; the agent will then vote if the summary value is high enough, even if this is not true for any contest considered in isolation. Fauvelle-Aymar and François (2015) present the relationship between the cost of voting and simultaneous elections as a sum of fixed and variable costs. The fixed part represents transportation costs that are paid only once (Carter, 1984; Filer and Kenny, 1980), including not only transportation costs strictly speaking (public transport fees) but also the opportunity cost of the time spent. The variable part mainly represents information costs whose marginal cost is decreasing due to information spillover effects across simultaneous elections; Fauvelle-Aymar and François (2015) justify this with mobilization activities, since concurrent elections should provide scale economies to the mobilization force of campaign activities (Cox and Munger, 1989).

Despite the reported arguments in favor of a positive effect of concurrent elections on turnout, the developments of the theoretical literature have not been able to present a clear-cut solution, often leaving the question *ex ante* ambiguous. That is why empirical tests have proved necessary to answer this question satisfactorily. Moreover, not only is higher turnout not clearly predicted by the theoretical literature, but also this effect crucially varies depending on the type of elections (Garmann, 2016). Even less developed is the theoretical framework that regards the influence of concurrent elections on the voting outcomes. As stated in Leininger and Rudolph (2019), this stream of analysis, since it focuses on the influence on the voting outcomes, relies on the not so obvious assumption that concurrency does increase turnout; the crucial question is then who are the additionally mobilized voters, and the answer is probably very dependent on the institutional setting.

As for the empirical literature on this subject, Geys (2006) presents a survey of all the early empirical evidence on the effect of concurrent elections on turnout. All the 22 studies considered use the technique of a dummy variable indicating the presence of concurrent elections, whose coefficient was expected to be positive and significant (Barzel and Silberberg, 1973; Crain and Deaton, 1977; Dawson and Zinser, 1976; Hill and Leighley, 1993). Only 12 analyses find that turnout significantly increases when there are concurrent elections, while the others fail to corroborate this theoretical expectation. As argued by Fauvelle-Aymar and François (2015), this failure can be explained by the chosen methodology, prone to selec-

tion and omitted variable bias: the insertion of a simple dummy variable does not always allow to distinguish the effects related to the number of ballots from the effect related to the particular electoral context. Revelli (2017) and Bracco and Revelli (2018) provide more recent evidence based on the same methodology. They find, respectively, that turnout in municipal elections is higher when they concur with high-salience national elections, and that concurrent municipal elections increase voter turnout in less-salient provincial elections. In addition, the expected variation in turnout due to the concurrence of the elections according to Leininger and Rudolph (2019) creates strategic elections timing incentives, making the election calendar correlated with preferences of the electorate (Hartney and Nickerson, 2012) and possibly leading to endogeneity issues.

A growing number of recent contributions studies the effects of concurrent elections on turnout using quasi-experimental design. Fauvelle-Aymar and François (2015) exploit the French electoral calendar that provides several occasions of concurrent elections that are not held in all voting districts, thus creating the conditions for a natural experiment. They find that the average level of turnout at the regional level is higher in the case of concurrent elections and the magnitude of this effect seems to be large. Similar results are found at the departmental level but with a higher variance. Garmann (2016) uses a quasi-experiment and a difference-in-difference estimation approach at the German municipality-level to provide evidence that concurrent elections increase turnout. Even when combining two low-salience elections, turnout is significantly increased. Leininger, Rudolph and Zittlau (2016) use a quasi-experimental setting in Lower Saxony and a difference-in-difference design to show that concurrent mayoral elections increase turnout. Cantoni and Gazzè (2019) exploit the fact that there are two distinct voting ages for the two Houses of the Italian Parliament (18 and 25) to implement a regression discontinuity design. However, they do not detect any impact on turnout. This surprising result according to the authors provides evidence that turnout responds to the overall salience of an election, constant through the discontinuity due to the lack of sophistication of the electoral campaign. In a sense, the voters consider the two elections as being a single election. Additionally, Cantoni and Gazzè (2019) combine a difference-in-difference design with the quasi-random variation in the calendars of Italian local and national elections to analyze the effects of concurrent elections of different salience. They find that concurrent municipal elections increase turnout for provincial, European, and regional elections, but that this also translates in an increase in valid ballot casts. However, they find that turnout effects of concurrent low-salience elections are generally heterogenous and lower in magnitude.

The effects of the overlap on voting outcomes are far less studied than the turnover effects. According to Fowler (2015), previous studies of the effects of higher turnout on electoral outcomes are conflicted and suffer from methodological limitations. As reviewed in Fowler (2015), some studies present a large correlation between turnout and partisan election results (Fisher, 2007; Hill, 2010; McAlister and Mughan, 1986,8; Pacek and Radcliff, 1995; Radcliff, 1994), others present a small correlation (Grofman, 1999; Martinez, 2007; Nagel, 1996), while others find no correlation (DeNardo, 1980; Erikson, 1995). Again, the use of experimental and quasi-experimental research design can be useful in solving these issues, even if every different institutional setting will probably mobilize a different subset of marginal voters. Schmid (2015) studies the effect of the overlap of a referendum with elections in Switzerland. He exploits a quasi-natural experiment in which all citizens vote on the referendum question, but only a fraction of voters face on the same day a concurrent high salience cantonal election. Schmid (2015) finds that there is a substantial increase in turnout in federal referenda, but the voting decision seems to be harder since there is an increase in information search efforts and the referendum propositions are less well-known. In addition, there is an increase in the share of blank ballots casts.

Regarding instead the electoral outcomes, the literature shows how voters who are exogenously mobilized by concurrent elections (marginal voters) tend to follow the recommendation of the government in close and important propositions. Fowler (2015) exploits the US elections timing to study the behavior of marginal voters. Concurrency with presidential elections is found to increase turnout in gubernatorial elections and the Democrat vote share. Additionally, since most gubernatorial races are competitive, the author finds that this increase in the Democrat vote share is enough to increase the probability of Democratic victory by 45.4 percentage points. Leininger and Rudolph (2019) use a difference-in-difference approach over multiple periods to study the quasi-random variation in the concurrency of local executive and legislative elections. They show that the concurrency increases turnout, and that concurrency leads to an increase in council votes for the incumbent mayor's party and for centrist party more generally.

3 Institutional framework

The constitutional referendum was originally planned for the 29th March 2020, as indicated in the Presidential Decree of January 28. However, due to the upsurge of Covid-19 cases, on the 5th March 2020 the Council of Ministers decided to postpone the referendum. This postponement – that did not contextually present another date for the referendum – opened the possibility of a pairing of the constitutional referendum with regional or administrative

elections, whose dates were not fixed yet. Subsequently, a debate opened up in the Italian jurisprudence around the question of whether there is a ban on merging the constitutional referendum with political and administrative elections.

For the constitutional referendum, the discipline does not provide an explicit prohibition regarding the pairing with elections. However, this is in contrast with the discipline relative to the recall referendum as stated in Article 34 of the Law no. 352/1970, that prohibits the merge between a recall referendum and national parliamentary elections[2]:

In the case of early dissolution of the Chamber of Deputies and the Senate - or one of two - the already called referendum is automatically suspended at the moment of the publication in the Official Gazette of the Presidential Decree with the calling of the electoral speeches for the election of the new Chambers or of one of the two. The terms of procedure for the referendum are effective as from the 365th day following the election day.

Even if the rationale's details of the norm are not very clear, it appears evident that the 365 days postponement of the recall referendum is meant to provide a systemic guarantee. According to Plutino (2020), it is not unambiguous why there is this different treatment between the recall referendum and the constitutional referendum. Historically, before 1970 no referendum had been held (exception made for the institutional referendum of 1946); then 67 recall referenda took place, even if the quorum was reached only 39 times, while only 4 constitutional referenda occurred (2001, 2006, 2016 and 2020). By definition, the constitutional referendum regards "the rules of the game", something above the political direction of a country, hence it is a matter even more delicate than the ones related to a recall referendum. It then comes to no surprise that in March 2020 some jurists wondered whether avoiding the overlap of a constitutional referendum with the elections was in line with the constitutional interests, even if there is no explicit prohibition in the existing rules[3].

Finally, on the 17th July the constitutional referendum was fixed with a Presidential Decree for the 20th and 21st September. The Presidential Decree also ratified Art.1-bis, paragraph 3, decree law no. 26 of 2020, that explicitly mentioned that to the regional, administrative, and

[2]Translation by the authors.

[3]In particular, Plutino (2020) states that (the translation is our): *It seems to pertain to the (institutional) logic of the constitutional consultation to avoid the merging of the constitutional consultation with the elections. It is in the logic of the constitutional revision function to be placed on a higher level with respect to the formation of primary legislative bodies, also to preserve the non-plebiscitary character of the referendum, often reaffirmed by the doctrine. [...] De jure condendo, unless a constitutional law to that regard is considered to be already existing, it would be surely appropriate to provide for an explicit ban on the merging of the constitutional referendum with other types of elections.*

by-elections that were postponed due to the Covid-19 pandemic, and to the constitutional referendum applied the principle of concentration of electoral consultations (111/2011), that is commonly known as "election day".

Few days later, on the 23rd July, the Committee promoter of the referendum appealed to the Constitutional Court, arguing the lack of appropriateness in applying the election day principle to a constitutional consultation. According to the Committee, the pairing of a constitutional referendum with political, regional, administrative or by-elections could lead to a contamination of the institute of direct democracy (the referendum) with the electoral consultations that are instead designed to exercise representative democracy. In fact, they claimed that the constitutional referendum should be free from party conditioning and should be based only on technical and legal assessments. Since the campaign for regional and administrative elections was by its own nature very politicized, the pairing with a constitutional referendum would have probably led to a political evaluation also of the latter, in particular given the fact that the constitutional reform was one of the main points of one of the majority's parties political program - the 5 Stars Movement. In addition, they argued that the turnout would have been inevitably higher in the regions and municipalities involved in, respectively, regional, and administrative elections, leading to an unsustainable territorial asymmetry in the constitutional referendum. Finally, due to the pairing, information regarding the constitutional question would have been penalized with respect to information regarding the parties' campaign, affecting the electors' opinion.

On the 12th August the Constitutional Court declared the inadmissibility of the appeal, stating the functionality of the extension of the election day principle due to the Covid-19 pandemic - even if it precised that it was initially introduced to reduce the costs. In addition, the Constitutional Court thereby considered that the higher turnout where regional and administrative elections were held did not undermine the referendum results, and that there would have not been necessarily a penalization of the information regarding the constitutional consultation because of the pairing.

4 The effect of municipal elections

4.1 Data and methodology

In order to investigate the effect of the overlap between municipal elections and referendum we collect data from two different sources:

- Official electoral results from the Italian Ministry of Interior, both for the 2020 elections and for the previous 2019 European Elections;
- Control variables from Italian National Statistical Institute (ISTAT) (information on population size, population density, and altitude[4]).

We merge all these data sources exploiting a uniquely identifying municipal ID provided by ISTAT. In our final dataset we observe all the 7903 Italian municipalities existing in 2020, 962 of which (12%) held municipal elections. In our analysis we consider 4 different outcomes: turnout (votes cast over the total number of eligible voters), share of *Yes* preferences (over total valid votes), share of blank votes and share of null votes (over the total number of votes cast). It is important to note that these figures refer to the votes cast in the referendum ballot, and may not correspond to those relative to municipal elections ballot (in the treated municipalities). Differences might arise in terms of blank and null votes (voters are given two different ballots), but also in terms of turnout (as the eligible voting population differs between the two elections). It is also worth noticing that, according to the Italian law, when multiple elections take place voters are given one ballot for each election. In theory, they can refuse to take one of them, or more than one. Anecdotal evidence suggests that this almost never happens in practice.

Figure 1 shows a map of the municipalities which held municipal elections on the same election day of the referendum, while Table 1 provides summary statistics of the observed municipalities. At an aggregate level both the turnout and the share of *Yes* votes are higher in municipalities with overlapping elections. These municipalities are smaller and less densely populated than those holding only the referendum.

[4]Following the approach of Durante, Pinotti and Tesei (2019) we include altitude as a relevant explanatory variable of voting behaviour in the Italian context.

Figure 1: Municipalities holding municipal elections on September the 20th

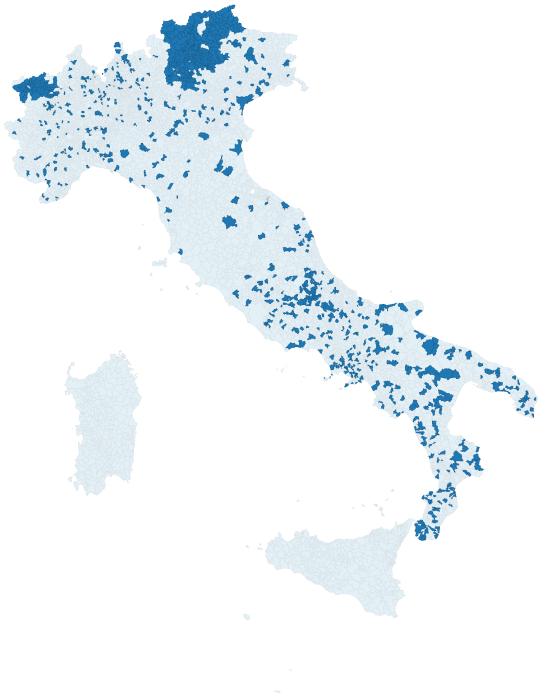


Table 1: Descriptive statistics for Italian municipalities

	No municipal elections	*With municipal elections*
N.	6941	962
Turnout	52.3 (11.1)	76.9 (7.8)
% Yes	71.9 (7.0)	72.8 (7.6)
% Blank	0.6 (0.8)	3.1 (2.4)
% Null	0.6 (0.5)	0.9 (0.6)
Population	7718 (45276)	6941 (16104)
Altitude	333 (274)	514 (388)
Density	301 (607)	326 (900)
Turnout (2019 European elections)	59.6 (15.4)	52.4 (12.0)

Notes. The sample includes all the Italian municipalities registered in 2020. Standard deviations in parentheses. Altitude is expressed in meters above sea level; density in inhabitants per squared kilometers. Turnout, *Yes* preferences, blank and null votes refer to the referendum when not otherwise specified.

To obtain a quantitative estimate of the effect of municipal elections on the referendum results we specify and estimate through OLS the following model:

$$Y_i = \alpha + \beta D_i + \gamma X_i + \delta E_i + \zeta A_i + \eta R_i + \varepsilon_i \tag{1}$$

where Y is our outcome of interest for every municipality i, α is a constant, D is a dummy taking value 1 if the municipality held municipal election on 20th September together with the referendum and 0 otherwise, X is a vector of municipal features controls (including population, density and altitude), E a vector of political controls (containing the turnout at the 2019 European Elections and the voting shares obtained by the six main Italian parties: Lega Nord, Movimento 5 Stelle, Partito Democratico, Fratelli d'Italia, Forza Italia, +Europa), A is a dummy taking value 1 if the municipality held anticipated elections, R is a regional fixed effect (which captures not only structural differences between regions, but also the effects of the concomitant regional elections)[5] and ε is an idiosyncratic error normally distributed.

Our coefficient of interest is then β, which estimates the average effect of the overlapping municipal election on our outcomes of interest. We believe that this estimate can be interpreted in a causal way, as the presence of municipal election can be considered to be independent from the outcomes after controlling for the other variables we add in the model. In other words, our assumption is that the overlap of municipal elections was *randomly* assigned (conditional on observables). The staggered local election calendar in Italy reinforces our idea that the treatment assignment was exogenous with respect to referendum outcomes. The most convincing source of exogeneity however derives from the institutional context of this peculiar election: as mentioned in Section 3, the constitutional referendum was not originally planned to overlap with the other elections and the concurrency was a consequence of the exogenous shock of the Covid-19 pandemics. In contrast with much of the literature so far produced, we are hence able to exploit a proper quasi-natural experiment.

4.2 Results

Table 2 sums up the results of the estimation of the model for each of the four outcomes of interest. The Table includes only the main coefficients of interest for visual clarity. Table A.1 in the Appendix shows the coefficients for all the control variables as well.

[5] Results are robust to the use of provincial level fixed effects.

Table 2: Municipal elections - Regression results - All sample

	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
Municipal elections	24.25***	1.990***	0.304***	-0.964***
	(0.529)	(0.0828)	(0.0276)	(0.219)
Constant	38.65***	3.161***	0.957***	54.81***
	(3.188)	(0.609)	(0.238)	(3.353)
Observations	7,903	7,903	7,903	7,903
R^2	0.797	0.683	0.134	0.534
Region fixed-effect	Yes	Yes	Yes	Yes
Municipal controls	Yes	Yes	Yes	Yes
European elections controls	Yes	Yes	Yes	Yes
Control mean	52.30	0.600	0.600	71.90

Notes. The table shows the estimated average effect of the presence of municipal elections on referendum turnout and results. Municipal controls include population, density and altitude. European elections controls include the turnout at the 2019 European Elections and the voting shares obtained by the six main Italian parties, i.e. Lega Nord, Movimento 5 Stelle, Partito Democratico, Fratelli d'Italia, Forza Italia, +Europa. The control means are computed as the averages for those municipalities not holding municipal elections. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Our first important finding is a large and positive effect on turnout: *ceteris paribus*, those municipalities which held municipal elections showed a turnout on average higher by 24.3 percentage points. This is a quantitatively large result - an increase by almost a half. We also find a very large effect on the share of blank votes over the total votes cast and and a small but strongly statistically significant effect on the share of null votes. Lastly, we find an effect on the preferences expressed by voters, namely a lower share of *Yes*. This effect, however, is quantitatively small.

We find large heterogeneities in the magnitudes of effects of concurrent municipal elections on referendum results. First, we consider geographical heterogeneities: Table 3 reports the coefficients of the effect of concurrent municipal elections on referendum results estimated on three different sub-samples of municipalities: Northern Italy; Central Italy and Southern Italy. The effect on turnout appears to be systematically higher in Southern Italy than in the rest of the country. A similar pattern can be observed also on the effect on blank votes, while the magnitude of the effect on the share of null votes seems constant across the different areas of the country. The effect on the share of *Yes* votes is stronger in the South than it is in the North, while in the Center the estimated coefficient is not statistically different from zero. This last result is probably driven by the low number of municipalities holding

municipal elections in this part of Italy (only 68 out of 968), which reduces the statistical power of our estimation procedure.

Table 3: Municipal elections - Heterogeneities - Geography

	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
Northern Italy	17.01***	1.220***	0.313***	-0.946***
	(0.622)	(0.103)	(0.0400)	(0.335)
Central Italy	23.28***	1.461***	0.373***	-0.489
	(1.724)	(0.166)	(0.0888)	(0.590)
Southern Italy	28.67***	2.875***	0.296***	-1.246***
	(0.760)	(0.129)	(0.0418)	(0.308)

Notes. The table shows estimated coefficients of the effect of concurrent municipal elections on referendum result on three different sub-samples of municipalities: Northern Italy (including Aosta Valley, Piedmont, Liguria, Lombardy, Emilia-Romagna, Veneto, Trent, South Tyrol, Friuli-Venezia Giulia); Central Italy (Tuscany, Umbria, Marche, Lazio); Southern Italy (Abruzzi, Campania, Molise, Apulia, Calabria, Basilicata, Sicily, Sardinia). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

We then consider heterogeneities related to municipalities' population size. Table 4 shows the coefficients estimated on five different sub-samples of municipalities, based on their 2019 population. What emerges is a clear pattern, with smaller municipalities showing far stronger effects than bigger ones. This holds true for the turnout (an average increase of 26.9 p.p. in municipalities below 1,000 inhabitants with respect to one of 16.4 p.p. in those above 30,000 inhabitants), for the share of blank votes (for which the effect in smaller municipalities is almost 4 times that of bigger urban centers), for the share of null votes (for which the ratio of the coefficients is close to 5) and for the share of *Yes* votes. In the latter case, the trend holds in municipalities below 30,000 inhabitants, while the coefficient associated to cities above 30,000 inhabitants is larger than for cities with 1,000 to 30,000 inhabitants.

Table 4: Municipal elections - Heterogeneities - Population

Number of inhabitants	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
< 1000	26.86***	2.715***	0.465***	-1.991***
	(1.034)	(0.215)	(0.0849)	(0.570)
1001-5000	25.89***	2.099***	0.356***	-0.655**
	(0.837)	(0.118)	(0.0361)	(0.293)
5001-15000	21.92***	1.620***	0.173***	-0.480
	(1.002)	(0.125)	(0.0280)	(0.399)
15001-30000	18.43***	1.153***	0.0908**	-0.407
	(1.810)	(0.167)	(0.0376)	(0.591)
> 30000	16.39***	0.752***	0.0935***	-1.099**
	(1.188)	(0.0846)	(0.0237)	(0.480)

Notes. The table shows estimated coefficients of the effect of concurrent municipal elections on referendum result on 5 different sub-samples of municipalities, based on their 2019 population. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5 The effect of regional elections

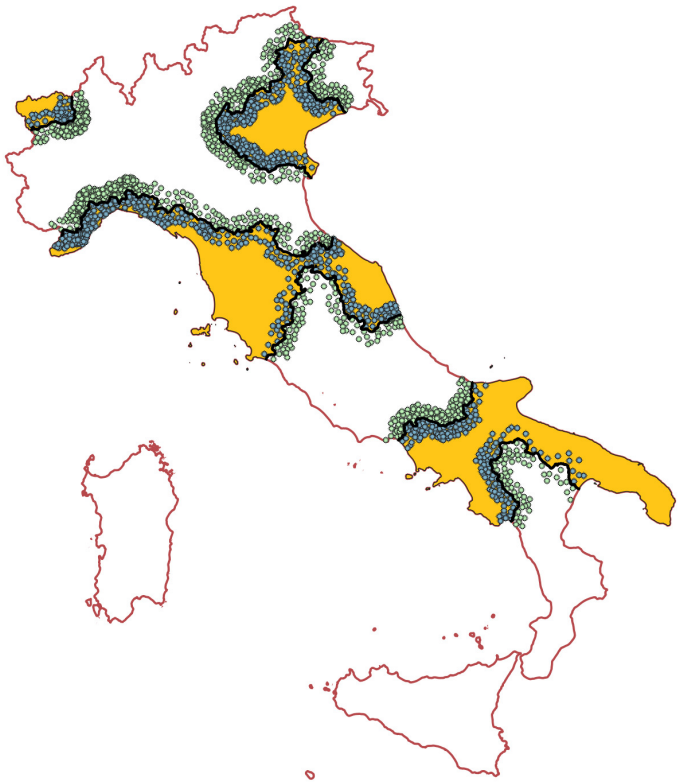
5.1 Methodology: a spatial RDD approach

To further investigate the impact of the overlapping of a referendary consultation with other elections, we exploit the overlapping of the presented referendum with regional elections in Italy on September 20th and 21st. Only seven regions had to cope with this specific overlap, namely Aosta Valley, Veneto, Liguria, Tuscany, Marche, Campania and Apulia.

A simple and intuitive approach could just compare these and the rest of the Italian regions to measure the impact of the overlapping. However, we claim that this is not a proper way to proceed: for such a small sample (twenty regions), despite the "random" nature of the overlap under analysis, the region-specific characteristics would likely bias the results of the comparison. We have thus decided to analyze the impact of the overlap between referendum and regional elections with a spatial regression discontinuity design (RDD): we compare the municipalities that lie at the border between regions that had both the referendum and the regional elections (to which we will refer as treatment regions) and regions that only

had the former (control regions). The key assumption is that municipalities just before and just after these borders are comparable and, controlling for some observable characteristics, only differ in being part of a treatment or a control region. Figure 2 provides an intuition of this approach, with treated municipalities in blue (inside the highlighted regions) and control municipalities in green. For illustrative purposes, here we have taken an arbitrary bandwidth of 20km around the threshold. The actual empirical analysis is based on a more formal definition of the bandwidth, described later.

Figure 2: Treated (blue) vs control (green) municipalities around the borders



Notes. The map shows treated (blue) versus control (green) municipalities around the borders in treated (yellow) versus control (white) regions. For illustrative purposes, an arbitrary bandwidth of 20km around the threshold is used in this map.

Table 5 shows descriptive statistics for these treatment and control municipalities. At an aggregate level the average turnout was higher in treated municipalities, as well as the share of blank and null votes, while the percentage of *Yes* preferences was lower. There seems to be some slight differences in the other observable characteristics, an issue that will be later addressed.

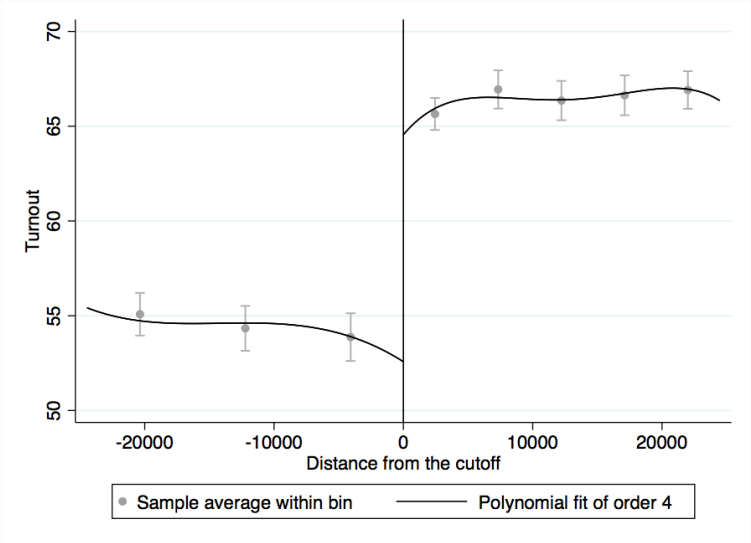
Table 5: Descriptive statistics for municipalities around the borders (20-km)

	Control regions	*Treated regions*
N.	982	895
Turnout	54.3 (12.4)	66.3 (7.3)
% Yes	71.9 (7.7)	68.7 (7.2)
% Blank	0.7 (1.2)	1.6 (1.4)
% Null	0.7 (0.7)	0.8 (0.5)
Population	4192 (9837)	5430 (20951)
Altitude	467 (316)	383 (328)
Density	120 (203)	139 (217)
Turnout (2019 European elections)	61.7 (13.5)	59.9 (13.8)

Notes. The sample includes municipalities located within an arbitrary 20-km large bandwidth around the regional borders of interest showed in Figure 2. Treated regions are: Aosta Valley, Veneto, Liguria, Tuscany, Marche, Campania and Apulia. Control regions are all the others. Standard deviations in parentheses. Altitude is expressed in meters above sea level. Density is expressed in inhabitants per square kilometers.

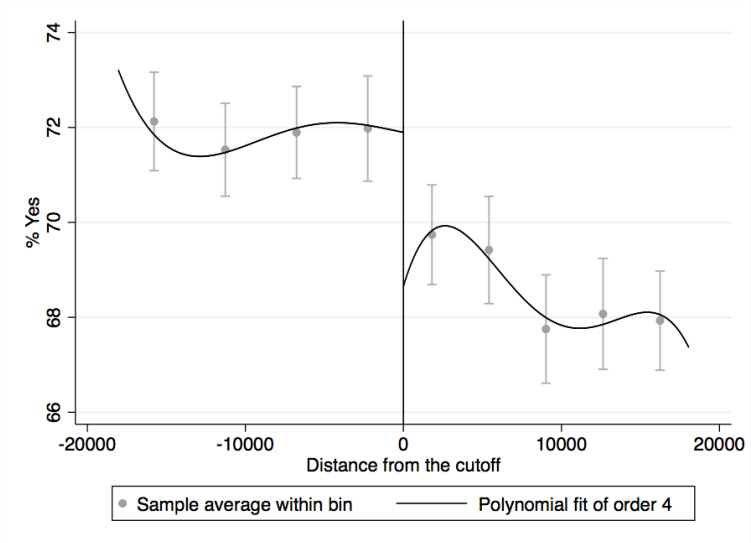
Figure 3 and Figure 4 show the jump around the cutoff of turnout and percentage of *Yes* preferences expressed over total valid ballots. In this case, the bandwidth is based on an optimal bandwidth estimation procedure that will be used in the following empirical analysis. On the horizontal axis we plot the municipalities' distance from the regional border. We distinguish control municipalities by assigning them a negative distance and treatment municipalities by assigning a positive distance. At the threshold (corresponding to the regional border) the two variables show a clear jump: as one crosses the regional border, the turnout increases in treated regions, while the share of *Yes* preferences decreases. Under the aforementioned assumptions, these jumps are causally determined by our treatment, that is, the overlapping of regional elections with the referendum.

Figure 3: Turnout discontinuity around the cutoff



Notes. The graph plots the municipal level turnout at the referendum as a function of the distance from the closest regional border. On the right side, with a positive distance, we show municipalities in treated regions. Viceversa on the left side. Binned scatter-plot (with a IMSE-optimal evenly-spaced bin selection method using spacings estimators), 95% confidence intervals and a polynomial fit of order 4 are used.

Figure 4: *Yes* preferences discontinuity around the cutoff



Notes. The graph plots the municipal level share of *Yes* preferences at the referendum as a function of the distance from the closest regional border. On the right side, with a positive distance, we show municipalities in treated regions. Viceversa on the left side. Binned scatter-plot (with a IMSE-optimal evenly-spaced bin selection method using spacings estimators), 95% confidence intervals and a polynomial fit of order 4 are used.

In order to get a proper quantitative estimate of the effect of the overlap on the outcomes

of interest, we exploit a regression discontinuity design with a nonparametric approach, implementing local linear regressions according to the following specification:

$$Y_i = \alpha + \beta D_i + f(distance_i) + \gamma X_i \ + \zeta M_i + \delta E_i + \eta R_i + \varepsilon_i \tag{2}$$

where Y is the outcome variable of interest observed in municipality i (turnout, blank votes, null votes, *Yes* preferences), D is a dummy for treated municipalities, f is a function of distance and ε an error. The assumption is that f is a function continuous around the threshold. In this setting, the coefficient β identifies the effect of the overlap between referendum and regional elections on the variable of interest Y. We also add a vector of municipal characteristics X (including population, density and altitude), a dummy M_i equal to 1 if municipal elections also took place in the same weekend in municipality i, and a vector of controls E relative to the 2019 European elections. Finally, we include NUTS 1-level fixed effects R to control for systematic differences across different Italian macro-areas.

To choose how many municipalities around the threshold to include in our analysis, we opt for one common MSE-optimal bandwidth selector for the RD treatment-effect estimator (Calonico, Cattaneo, Farrell and Titiunik, 2017): we thus define one different bandwidth for each regression, going from around 20 kilometers up to 30 kilometers depending on the outcome variable (Imbens and Kalyanaraman, 2012). Section 5.3 will then prove the robustness of our estimates to the use of different bandwidth selection procedures.

5.2 Results

Table 7 sums up the results for the RDD analysis of regional elections. As in the previous tables, we only report the coefficients of interest.

Table 7: Regional elections - Regression results - All sample

VARIABLES	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
Overlap	13.76***	1.229***	0.161***	-2.519***
	(0.591)	(0.0902)	(0.0456)	(0.611)
NUTS 1 fixed effects	Yes	Yes	Yes	Yes
Municipal controls	Yes	Yes	Yes	Yes
European elections controls	Yes	Yes	Yes	Yes
Municipal elections	Yes	Yes	Yes	Yes
Control observations	1150	1065	1547	984
Treatment observations	1027	964	1329	899
Bandwidth (km)	23.16	21.57	30.81	20.09

Notes. The table shows the estimated average effect of the presence of regional elections on referendum turnout and results. Municipal controls include population, density and altitude. European elections controls include the turnout at the 2019 European Elections and the voting shares obtained by the six main Italian parties, i.e. Lega Nord, Movimento 5 Stelle, Partito Democratico, Fratelli d'Italia, Forza Italia, +Europa. Municipal elections is a dummy for also having municipal elections in the same days. Bandwidth selection (and the relative number of control/treated observations) depends on the outcome variable. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The number of observations for each analysis depends on each bandwidth selection process.

The coefficients quantify the jump at the cutoff for each variable around the regional border. We can see that having overlapping regional elections and referendum meant a higher turnout. Also, more people opted for a blank or a null ballot at the polling booth when they also had to vote for regional elections. Lastly, we detect a strong negative effect on the share of *Yes* preferences expressed. These results are perfectly in line with what we found in the municipal elections analysis. We will discuss the results and their possible interpretations more in detail later.

As in the previous section, in Table 8 we explore heterogeneities in terms of municipal size. In this case, we opted for broader categories, as our sample is smaller than in the municipal election analysis. Results are only partially in line with those previously obtained: the effect on turnout, as well as that on null votes, does not seem to vary significantly. The larger the municipality size, the smaller the treatment effect on blank votes, as it was with municipal elections, while, in contrast with what showed for municipal elections, the effect on the share of *Yes* preferences increases in magnitude for larger municipalities. In Table 9 we explore geographical heterogeneities: here the results on turnout, blank and null votes are in line with those of municipal elections, with a stronger effect in the Southern regions. The effect

on *Yes* preferences seems instead to slightly decrease in magnitude going from North to South.

Table 8: Regional elections - Heterogeneities - Population

Number of inhabitants	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
< 5000	13.56***	1.238***	0.160***	-2.544***
	(0.712)	(0.0994)	(0.0548)	(0.685)
5001-15000	14.13***	0.967***	0.178***	-2.932***
	(0.829)	(0.102)	(0.0302)	(0.750)
> 15000	14.46***	0.773***	0.170***	-3.505**
	(1.618)	(0.0937)	(0.0428)	(1.517)

Notes. The table shows estimated coefficients of the RDD model for the effect of concurrent regional elections on referendum result on three different sub-samples of municipalities, based on their 2019 population. The model is the same as in previous specifications, with municipal controls, European and municipal election controls and NUTS 1 fixed effects. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Regional elections - Heterogeneities - Geography

	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
Northern Italy	11.61***	0.908***	0.157**	-2.648***
	(0.840)	(0.148)	(0.0776)	(0.973)
Central Italy	17.38***	0.885***	0.0344	-2.478***
	(1.379)	(0.0905)	(0.0634)	(0.885)
Southern Italy	16.93***	2.546***	0.257***	-2.024***
	(1.010)	(0.221)	(0.0857)	(0.683)

Notes. The table shows estimated coefficients of the RDD model for the effect of concurrent regional elections on referendum result on three different sub-samples of municipalities: Northern Italy (including Valle d'Aosta, Piemonte, Liguria, Lombardia, Emilia-Romagna, Veneto, PA Trento, PA Bolzano, Friuli-Venezia Giulia); Central Italy (Toscana, Umbria, Marche, Lazio); Southern Italy (Abruzzo, Campania, Molise, Puglia, Calabria, Basilicata, Sicilia, Sardegna). The model is the same as in previous specifications, with municipal controls, European and municipal election controls and NUTS 1 fixed effects. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

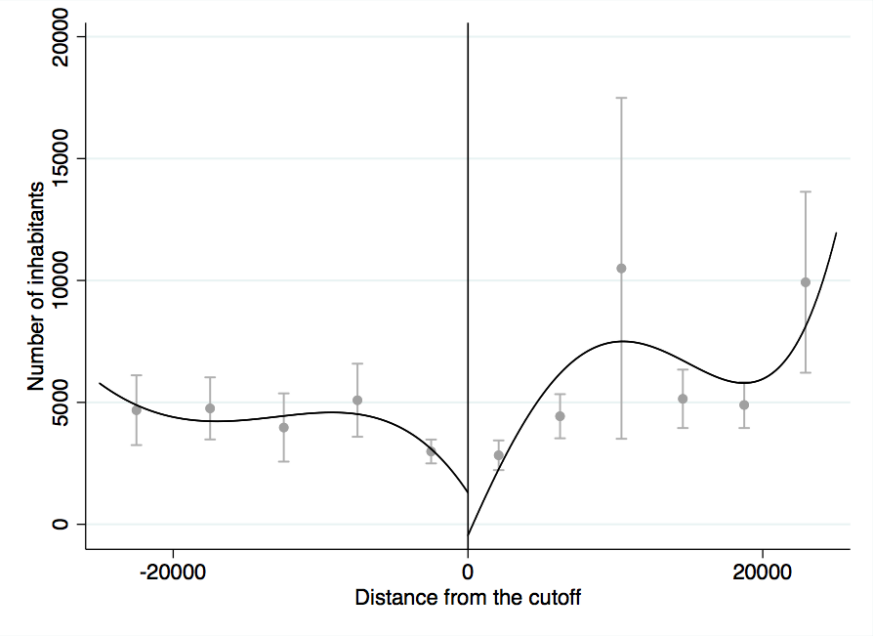
5.3 Robustness checks

In order to reinforce the credibility of our spatial RDD analysis, we provide here some robustness checks.

As a first check, we plot the density of municipalities around the threshold. The density should not show any jump at the threshold. Otherwise, we could be in presence of sorting. The issue of sorting - particularly critical for a RD design framework - obviously gives less cause for concern in our specific case, as it's hard to claim that municipalities systematically decided to move their city centre around to switch from the area of competence of one region to the other, in order to benefit from this relocation. Figure A.1 in the Appendix shows this distribution. From the Figure we can see a drop in the density of municipalities whose center is very close to the border. This can be easily explained by issues related to districting decisions. In other words, by issues related to urban planning, that make it hard to find a municipality with a city centre distinguished by a distance from a regional border very close to zero. We claim that the drop in the density graph is due to this issue and not to any kind of sorting.

As a second robustness check, we look at how observable variables vary around the cutoff of interest. Figure 5 presents an example for population size, which does not show any jump around the cutoff of interest. Figures A.2-A.6 in the Appendix present the same analysis for other observables, namely altitude, density, and vote shares for some major parties (such as Lega, PD and Movimento 5 Stelle) at the 2019 European elections. In this graphs we resort to an arbitrary 25-km large bandwidth for illustrative purposes. No jump seems to occur.

Figure 5: Continuity around the threshold for population size, 25-km bandwidth



Notes. The graph plots the municipal population as a function of the distance from the closest regional border. On the right side, with a positive distance, we show municipalities in treated regions. Viceversa on the left side. Binned scatter-plot (with a IMSE-optimal evenly-spaced bin selection method using spacings estimators), 95% confidence intervals and a polynomial fit of order 4 are used.

A more rigorous econometric regression-based analysis partially corroborates the graphical findings, in line with the absence of jumps in the observables. Table A.3 presents the discussed results. However, the coefficient for Lega vote share turns out significant and positive. We claim that this result is driven by the Veneto region, where the preferences for Lega have been historically high for years. We have repeated the empirical exercise without the municipalities at the Veneto regional border and, as expected, the resulting jump was not significant anymore. At the same time, the main results hold excluding these municipalities, showing the validity of our strategy[6].

As a third check, we replicate the analysis presented in the previous section using the same regional boundaries, but with the votes from the last European elections that took place in 2019. This second analysis is a placebo analysis. In other words, if we find the same jump found for the September 2020 elections, that would mean that the effect that we found was not due to the overlap of elections, but to the very transition from treated to control regions. Here we limit the analysis to turnout. Table A.2 in the Appendix presents the results for this specification. As expected, the coefficient attached to the cutoff dummy is not statistically

[6]These results are not included in the paper for sake of simplicity, but can be requested to the authors.

different from zero. This supports the idea that there is not a structural jump at the borders we used as a cutoff.

As a final check, we repeat the analysis for Table 7 with different kernel functions and bandwidth selection procedures. The main analysis is carried out with a triangle kernel function and one common MSE-optimal bandwidth selector for the RD treatment effect estimator. We replicate the same regressions with uniform or Epanechnikov kernel functions and the results are not significantly different. We also repeat the analysis with two different MSE-optimal bandwidth selectors (below and above the cutoff) for the RD treatment effect estimator, with one common CER-optimal bandwidth selector for the RD treatment effect estimator and with two different CER-optimal bandwidth selectors (below and above the cutoff) for the RD treatment effect estimator. Again, our results don't show significantly different changes.

6 Model and discussion

In order to interpret our empirical results we develop a simple model of voting behavior in a context of concurrent elections, building on those used in Leininger et al. (2016) and in Fauvelle-Aymar and François (2015). We consider only two overlapping elections, but our approach can be extended to situations with more concurrent elections. As in the previous framework, the decision of the voter to turn out and vote is the result of a cost-and-benefit calculation. Crucially, however, we suggest that the two elections are considered separately by the voter, building on the intuition of Aldrich (1993). We then assume that a voter's total utility in the case of two overlapping elections is given by the following equation:

$$R_{tot} = \max\{R_1, R_2\}$$

Where R_1 and R_2 are the utilities associated with the two single elections. The structure of each single election i pay-off is the same as in previous works, and reads as follows:

$$R_i = p_i B_i + D - F - v_i \quad \forall i = 1, 2$$

where p_i is the probability for the voter of being the decisive one in the election i, B_i the benefit from the victory of the preferred candidate/proposition in election i, D the general utility derived from the act of voting, F the fixed costs of voting (e.g. transportation costs) and v_i the variable costs of voting (e.g. collecting information, but more in general the cost

of taking a stance in the election i). A voter turns out and vote if and only if $R_{tot} > 0$. This can happen if one or both R_i are positive. The case in which both R_i are positive (or negative) is not interesting for the scope of this work. Without loss of generality, we will now focus on the case in which $R_1 > 0$ and $R_2 < 0$. In this case the voter decides to turn out and vote, because she gets a positive utility from participating to election 1. Following the intuition of Garmann (2016), we argue that having decided to turn out, however, makes the fixed cost of voting F and the general utility from the act of voting D in election 2 a full-fledged sunk cost (and a sunk benefit). The calculus for the voting decision in election 2 then becomes simply

$$R_2^* = p_2 B_2 - v_2$$

If $R_2^* > 0$, then the voter pays the variable cost v_2 and ultimately expresses her vote also in election 2; if instead $R_2^* < 0$, then she does not pay the variable cost for collecting information and taking a stance and she is not willing to express a vote. This behaviour has to be considered within the Italian institutional setting, in which every voter is given all ballots in case of multiple elections and has to cast each of them. In this case, not being willing to express a vote in the second election translates into a blank or null vote.

We now move to the interpretation of our empirical results in light of this theoretical framework. We find it very reassuring that both municipal and regional elections had a positive effect on referendum turnout, share of blank votes and share of null votes, and a negative effect on the share *Yes* preferences. Our result on turnout sides with those works that find a clear effect of concurrent elections and corroborates the findings of recent empirical literature (Bracco and Revelli, 2018; Cantoni and Gazzè, 2019; Fauvelle-Aymar and François, 2015; Garmann, 2016; Leininger et al., 2016). Our estimates, however, are significantly larger in magnitude than what was found by the existing literature. This larger share of additional voters can be explained by assuming that the share of voters who had negative utility in voting in one of the elections and positive utility in voting in the other is greater than in the cases analyzed by the existing literature. We find it reasonable in particular to assume that many voters had a negative utility in voting in the referendum and a positive utility in voting in the municipal or regional elections. This could be because the constitutional referendum was an election with a low utility associated to the victory of the favourite option. However, this does not seem to be the case: a constitutional referendum is intrinsically an election in which the "rules of the game" are at stake and, hence, a high-salience vote. We believe instead that the explanation lies in the low probability of being decisive for a single voter in the national referendum. Firstly, if we consider this probability as inversely related to the dimension of the eligible voters pool, the referendum was somehow a single district national

election, in which one's vote is "diluted" among millions of other voters. Secondly, and more convincingly, the victory of the *Yes* proposition was expected to be extremely likely in the weeks previous to the referendum: all major parties had declared their support for the *Yes* proposition and all opinion polls predicted a large victory for this proposition. In Table A.4 we report evidence of these facts from one of the main opinion polls conducted at the time[7]: a majority of voters thought that the referendum was an important election, and it was clear that the *Yes* proposition was very likely to prevail. Hence, the probability of being decisive was so low that the cost of voting was higher than its benefit for many voters. This line of argument seems consistent with the findings on the importance and on the effects of polls release on voters' turnout by Bursztyn, Cantoni, Funk, Schönenberger and Yuchtman (2017). Municipal or regional elections, instead, were associated to positive voting pay-off for a larger share of voters, *inter alia* because of the smaller eligible voters pool and the higher probability of being decisive. As a consequence, the total benefit from voting switched to positive for many voters in treated municipalities or regions.

Our results on blank and null votes, consistent with those of Cantoni and Gazzè (2019) and of Schmid (2015), enrich our understanding of the nature of the additionally mobilised voters. As a first consideration, in this setting we think about both blank and null votes as equivalent expressions of a deliberate choice of voters. In the Italian scenario, Aldashev and Mastrobuoni (2016) show a strongly robust negative relationship between the margin of victory of the leading candidate over the nearest rival and the share of invalid ballots: they explain this with the rational allocation of effort by election officers and party representatives, with higher rates of detection of invalid ballots in close elections. However, in our case the referendum ballot was so simple that we consider negligible the probability that a voter expresses a vote whose interpretation by election officers is subject to doubt and thus considered null against the will of the voter. Besides, being the referendum somehow a single district national election, the argument of effort allocation by election officers and party representatives does not apply. We consider the positive effect on blank and null votes as the consequence of voters for whom $R_{municipal/regional} > 0$ but $R^*_{referendum} < 0$: these voters were not willing to pay the variable cost to express a vote in the referendum even with F becoming a sunk cost, and this ultimately resulted in a blank or null ballot cast.

We then observe a negative effect on the *Yes* preferences, even if of small magnitude. These results further improve our comprehension of the behaviour of the additionally mobilised

[7]The reader might visit the official opinion polls website of the Italian government for further details on this point: http://www.sondaggipoliticoelettorali.it/.

voters as it seems that, conditional on expressing a valid vote, they tended more towards the *No* preference. We interpret this result as the consequence of heterogeneities across voters in the utility associated with the victory of the favourite proposition and in the perceived probability of being decisive. Following Riker and Ordershook (1968), we consider these two parameters as heterogeneously distributed in the population and we speculate that the increased benefits of voting due to other concurrent elections affected a part of the distribution of *No* supporters denser than the affected part of the distribution of *Yes* supporters.

As far as municipality dimension heterogeneities are concerned, our findings are consistent with those of Leininger et al. (2016). In the Italian scenario, this phenomenon might be also related to the different electoral rules that govern municipal elections: since 1993 municipalities below 15,000 inhabitants adopt a single round system, while a runoff system is in place above this threshold. This difference has several implications: for example, as shown by Bordignon, Nannicini and Tabellini (2016), the number of candidates for mayor is greater under the runoff system, compared to the single round, and this system moderates political extremism. Unfortunately, our setting does not provide us with enough treated and control observations above and below the 15,000 inhabitants threshold to study this potential mechanism more in-depth. Nonetheless, regardless of the institutional context, it can be said that smaller electorate size implies larger pivotal probabilities, as also noted by Garmann (2016). Still, it is interesting to note that for regional elections, where there is no institutional difference between smaller and bigger municipality, we observe a different pattern.

Lastly, concerning geographical heterogeneities, a first explanation might be found in the historically lower turnouts in southern regions, which can be interpreted as a lower utility from the act of voting (D). However, such an explanation does not appear to be sufficient to account for heterogeneities in the differences between the outcomes in municipalities holding only the referendum and in those holding also other elections: if southern regions were characterized just by a different level of D, this would influence the level of turnout both in treated and control municipalities (as D is a variable considered to be not election specific) and we would not find heterogeneities in the treatment effect. We believe that this might stem from North-South heterogeneities in the perceived probability of being decisive and in the utility associated with the victory of the favourite proposition in the referendum. An additional explanation might be found in the heterogeneous shock of the Covid-19 pandemics, which hit harder in the North of the country. This might have had heterogeneous negative effects on the turnout of those regions as voters were somehow afraid to go to vote (a mechanism already highlighted in the literature, see for example Fernandez-Navia, Polo-

Muro and Tercero-Lucas (2021)), thus depressing the share of voters willing to take part in municipal or regional elections and therefore reducing the share of voters in the North for whom $R*_{referendum} < 0$ and $R_{municipal/regional} > 0$ which, as said before, is the share of voters responsible for the positive effect on turnout in our model.

7 Conclusions

In this work we have empirically answered the question of whether concurrent elections have a reciprocal effect on turnout and preferences by exploiting the unique occasion of overlapping elections due to Covid-19 in the Italian institutional context. We found that the overlap of municipal and regional elections had a positive effect on referendum turnout, share of blank votes and share of null votes, and a negative effect on the share of *Yes* preferences. We believe that our work contributes to the existing literature in multiple ways. First, we were able to exploit a plausibly exogenous shock because of Covid-19 and this strengthens the causal interpretation of our analysis. Second, we have studied the effects of concurrent local elections on a referendum, a case rarely considered in the literature. Third, we have interpreted our findings in light of a slightly modified version of the classic model on the calculus of voting, accounting especially for the results on shares of blank and null votes. We acknowledge that our results are quite specific to a case where the result of the referendum was very predictable and we speculate that a more uncertain outcome would have most likely changed the magnitude of our results. We believe that further research is needed to assess this kind of setting and, in general, to deepen our understanding of voting behaviour with multiple elections.

We believe that our results are also highly relevant from a policy-making standpoint, in light of the existing debate on whether and how to maximize turnout and on the consequences of such a policy (see for example Kohler and Rose (2010)). The decision of letting two or more elections overlap with each other has been traditionally at the center of a heated debate in Italy. In 2011, in a moment of serious financial distress for the country, the Italian government made it mandatory to have in a single election day all the possible national and local elections in a given year[8]. This decision was motivated mainly by budgetary reasons, saving around 300 million euros for each election that was not held singularly. The reduction of days of school closure and a lower level of political conflict throughout the year were also among the motivations for this reform. Notably, however, constitutional referenda were not

[8]See the Governmental Decree July 6th 2011, n. 98.

included in the list of elections to be taken in the same day, as their content is considered to be of particular importance. We argue that there are two channels through which referendum results can be affected by the overlapping of other elections. One channel can be called the *behavioral* channel, the other one the *mechanical* channel. The former consists in the change of incentives for individual voters to collect information about the upcoming election, to form their own opinion and ultimately to go to the polls and express their preferences. The latter, instead, is the mechanism through which country-level results are influenced by the fact that the affected localities (municipalities or regions) are differently populated than unaffected ones and have specific political preferences. Take for instance two regions, X and Y, where the voting population of X is double that of Y. Even in the absence of heterogeneities in the political preferences of voters in the two region, and also in the absence of behavioural effects, an overlapping-induced turnout boost in region X would influence the country-level results much more than one in region Y. This is even more true in the presence of preferences heterogeneities across regions and in the presence of behavioural effects.

The findings of this paper enrich the normative discussion on this issue, by showing that the behavioural channel has a mild effect on the share of *Yes* votes, while the mechanical channel seems to be more relevant. Our policy prescription stemming from this analysis is thus that the Italian government should consider only overlapping constitutional referenda with other country-level elections, such us Parliamentary elections or elections for the European Parliament. This would help increasing participation by citizens, while minimizing possible distorting effects.

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Appendix

Table A.1: Municipal elections - Complete table

VARIABLES	(1) Turnout	(2) % Blank votes	(3) % Null votes	(4) % Yes
Municipal elections	24.30***	1.997***	0.309***	-0.932***
	(0.525)	(0.0823)	(0.0275)	(0.219)
Population	-5.26e-05***	-5.70e-06***	-2.57e-06***	-4.07e-05***
	(6.79e-06)	(7.62e-07)	(2.80e-07)	(4.31e-06)
Density	-0.000795***	-0.000140***		3.51e-05
	(0.000132)	(1.69e-05)		(7.10e-05)
Altitude	0.000990***	0.000191***	0.000184***	0.000169
	(0.000354)	(4.52e-05)	(3.16e-05)	(0.000283)
Share Lega	-0.0214	-0.0230***	-0.000340	0.233***
	(0.0317)	(0.00605)	(0.00228)	(0.0332)
Share PD	0.159***	-0.0222***	-0.00564**	0.0922**
	(0.0356)	(0.00691)	(0.00267)	(0.0370)
Share M5S	0.0504	-0.0463***	-0.0117***	0.453***
	(0.0363)	(0.00661)	(0.00284)	(0.0364)
Share FI	-0.0230	-0.0201***	0.00220	0.149***
	(0.0368)	(0.00625)	(0.00279)	(0.0367)
Share FdI	0.0484	-0.0211***	-0.00486	0.0845**
	(0.0387)	(0.00694)	(0.00297)	(0.0392)
Share PE	0.149**	-0.0381***	-0.00166	-0.135**
	(0.0693)	(0.0117)	(0.00700)	(0.0640)
2019 Turnout	0.141***	-0.00286***	-0.000922	-0.00198
	(0.00755)	(0.000996)	(0.000637)	(0.00601)
Non-ordinary elections	1.468	0.0199	0.0718	-0.209
	(0.913)	(0.135)	(0.0583)	(0.374)
Constant	39.21***	3.222***	0.977***	55.25***
	(3.145)	(0.600)	(0.239)	(3.285)
Observations	7,892	7,892	7,892	7,892
R^2	0.799	0.686	0.138	0.537
Region fixed-effect	Yes	Yes	Yes	Yes

Notes. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.2: European elections placebo

VARIABLES	(1) Turnout	(2) Turnout	(3) Turnout
Overlap	-0.0194	-0.0770	-0.223
	(1.129)	(1.180)	(1.223)
Observations	7,903	7,903	7,903
NUTS 1 fixed effects	No	No	Yes
Municipal controls	No	Yes	Yes
Control observations	1712	1471	1154
Treated observations	1421	1283	1031
Bandwidth (km)	33.91	29.26	23.23

Notes. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The number of observations for each analysis depends on each bandwidth selection process.

Table A.3: Covariates discontinuities around the threshold

VARIABLES	(1) Population	(2) Altitude	(3) Density	(4) % Lega	(5) % PD	(6) % M5S
Overlap	-518.5	-26.74	-10.75	2.421***	-0.856	-0.610
	(501.6)	(31.68)	(21.43)	(0.840)	(0.643)	(0.500)
NUTS 1 fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Control observations	1092	1092	1092	1092	1092	1092
Treated observations	975	975	975	975	975	975
Bandwidth (km)	22	22	22	22	22	22

Notes. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The number of observations for each analysis depends on each bandwidth selection process.

Figure A.1: Density of municipalities around the threshold, 25-km bandwidth

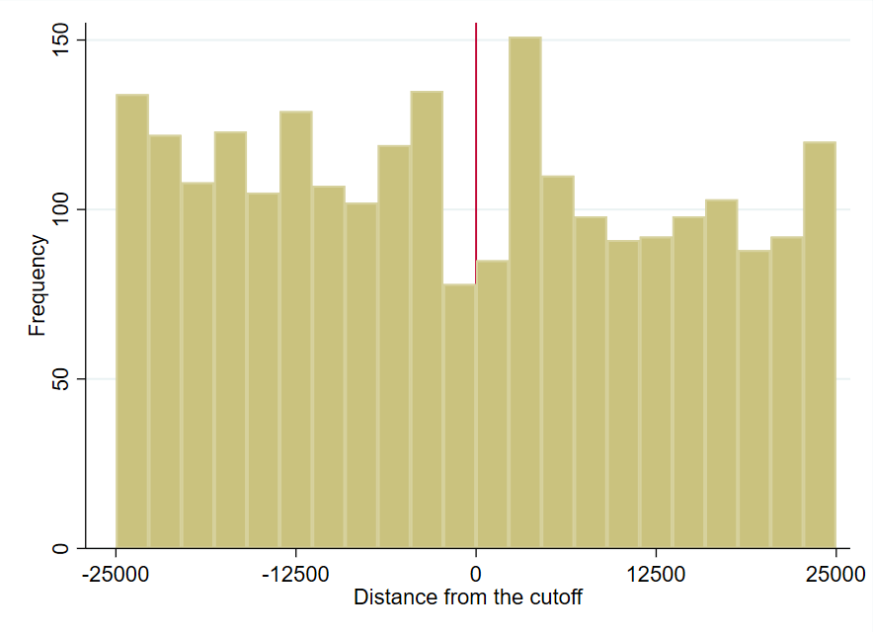

Figure A.2: Continuity around the threshold for altitude, 25-km bandwidth

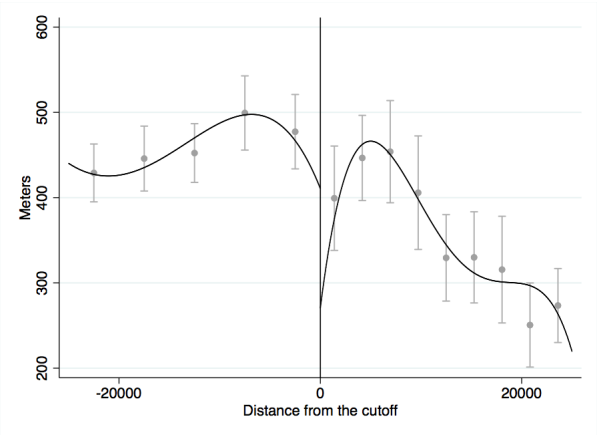

Figure A.3: Continuity around the threshold for density, 25-km bandwidth

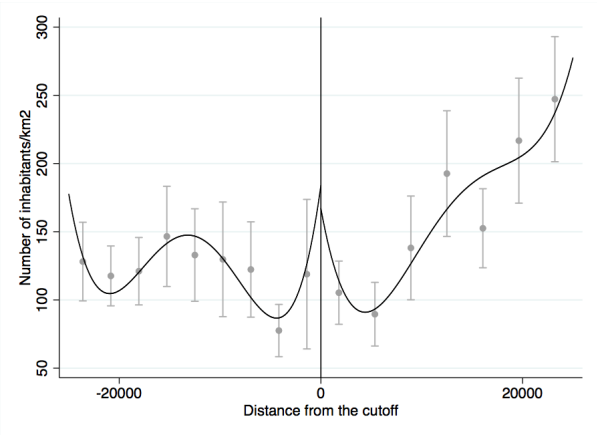

Figure A.4: Continuity around the threshold for Lega vote share at European 2019 elections, 25-km bandwidth

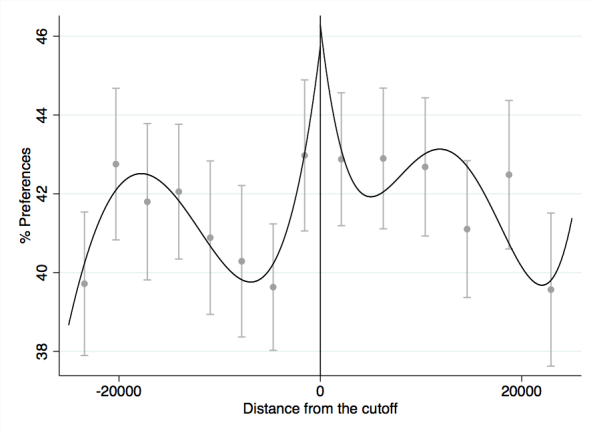

Figure A.5: Continuity around the threshold for PD vote share at European 2019 elections, 25-km bandwidth

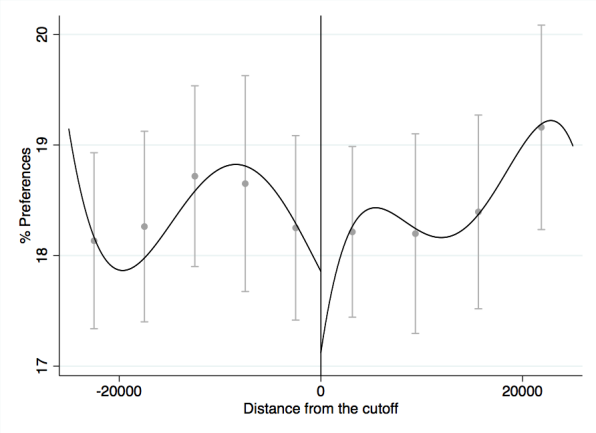

Figure A.6: Continuity around the threshold for M5S vote share at European 2019 elections, 25-km bandwidth

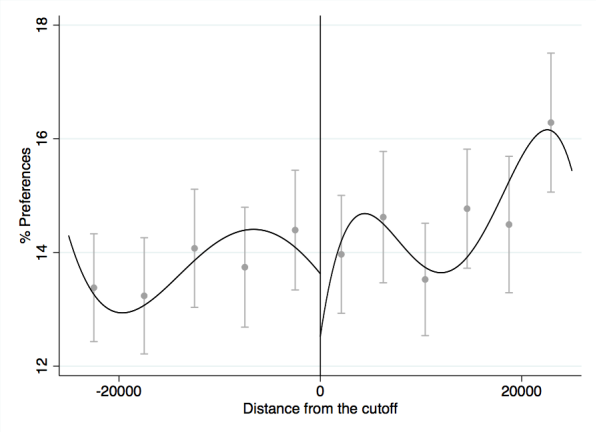

Table A.4: Opinion polls

	01/09/2020	23/07/2020	25/06/2020
Are you aware there will be a referendum?			
Yes	81%	35%	28%
No	4%	19%	15%
Does not know/Does not answer	15%	46%	57%
Is this referendum important?			
A lot	51%	51%	44%
Somewhat	21%	21%	23%
Not that much	8%	9%	10%
No	10%	6%	10%
Does not know/Does not answer	10%	13%	13%
What will you vote for			
Yes	71%	86%	82%
No	29%	14%	18%
Who will win			
Yes will win	55%	48%	42%
No will win	14%	12%	13%
Does not know/Does not answer	31%	40%	45%

Notes. The table reports the results of opinion polls conducted by the Italian polls provider Ipsos Srl for the Italian journal Corriere della Sera. Representative random sample of the adult population residing in Italy stratified by gender, age, level of education, geographical area of residence, size of the municipality of residence. 850 answers. Confidence intervals between +/-0.6% and +/-3.1%.