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SINGLE VS DOUBLE BALLOT AND PARTY COALITIONS: THE IMPACT ON FISCAL POLICY. EVIDENCE FROM ITALY*

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ABSTRACT: We use data for all Italian municipalities, from 2001-2006, to empirically test the extent to which two electoral rules, which hold, for small and large municipalities, affect fiscal policy decisions. Municipalities with fewer than 15,000 inhabitants elect their mayors in accordance with a single ballot plurality rule while the rest of the municipalities uses a run-off plurality rule. Per capita total taxes, charges and current expenditure in large municipalities are lower than in small ones if the mayor of the large municipality does not need a broad coalition to be elected.

JEL Codes: H3, H21, H77

Keywords: Federal budget, double ballot, coalition, list, taxes, expenditure.

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1. Introduction

Electoral systems play a crucial role in shaping electoral incentives within which public policies are established. Political economy literature comprises a substantial body of work devoted to the task of exploring the impact on public expenditure of plurality versus proportional electoral rules, and of the size of electoral districts. However, almost no attention has been paid, except in a recent work by Bordignon et al. (2011), to the possibility that elections do not take place in a one-shot game, but in a two-stage process as characterised by certain current electoral systems (i.e. double ballot systems or run-off systems).

We will focus our attention on the Italian case, which is very interesting from the point of view of the impact of different electoral systems on fiscal policies, since it includes municipalities which adopt the single ballot system, and others that adopt the double ballot system, depending on the size of their respective populations. If a municipality's population is less than 15,000, the mayor is elected by means of a single ballot system, otherwise the election is conducted according to a double ballot system.

By using a data set on the financial and electoral characteristics of Italian municipalities, we find evidence that, as a result of different electoral rules, per capita total taxes and charges in large municipalities are lower than in small ones. Moreover, if only one party supports the mayor in a large municipality, then current expenditure also falls, albeit to a lesser extent than total taxes and charges. However, if the mayor of a large municipality has been elected by a broad coalition, then he/she will behave similarly to the mayor of a small municipality.

The remainder of the paper is organized as follows. The next Section outlines the financial and electoral characteristics of Italy's municipalities. Section 3 reviews the relevant literature. The dataset is illustrated in Section 4. In Section 5 we develop the empirical approach to testing the impact of electoral systems on fiscal policies; while Section 6 presents the results. Section 7 discusses the role of party coalitions. Section 8 concludes.

2. Institutional framework

The Italian Constitution provides for five layers of government: central government, the regions (ordinary statute regions and special statute regions), the provinces, the local municipalities, and the metropolitan authorities (which are yet to be constituted). More specifically, local government currently comprises 8,094 municipalities (2012), ranging in size from small villages to large towns.

As regards their share of the overall government budget, municipalities account for about 8.6% of total public expenditure in Italy. They are responsible for a large array of important public programmes in the field of welfare services, territorial development, local transport, infant school education, sports and cultural facilities, local police services, as well as most infrastructural spending. On the revenue side, as a result of a lengthy process of fiscal devolution, municipalities can presently rely on own-source taxes for about 30% of their total revenue. The main municipal taxes are a property tax, a tax on urban waste disposal, a tax on the occupation of public space, and a surtax on the personal income tax levied by central government. With regard to these taxes, municipalities have some degree of freedom to set rates and to establish other basic elements of the tax bases. Other revenue derives from various charges for public utilities and for services such as refuse collection, or the provision of public infrastructures, as well as taking the form of transfers from central government which account for a quite considerable share (about 30%) of the municipal budget.[1]

As for the municipal-level electoral system, since 1993 Italy has opted for a mayor-council system: the municipal council members and the mayor are separately elected directly by citizens in elections normally held every 5 years. The mechanism of direct election implies that the mayor is endowed with strong powers over municipal politics (a basic feature of presidential government), even though the council retains the power to dismiss the mayor by means of a vote of no confidence in him/her (a basic

[1] The financing mechanism applying to municipalities located in the Special Statute Regions greatly differs from the abovementioned standard arrangements, since in the former case, transfers from the corresponding regions contribute considerably towards municipal revenues.

feature of parliamentary government).[2]The council performs this task through the discussion and approval of the executive's courses of action as set out in the programme that the mayor has to submit to the council together with his/her budget proposals. If a vote of approval is not passed, then two different scenarios may ensue: either the government continues with its action without the council exercising its extreme power; or else the council does in fact exercise said power by voting a motion of no confidence, which if approved leads to new elections for both the council and the mayor (Scarciglia, 1993).

There are two different systems for the election of the mayor, and of the municipal council, depending on the number of inhabitants in the municipality. The first applies to municipalities with up to 15,000 inhabitants (referred to herein as "small" municipalities), while the second applies to those with more than 15,000 inhabitants ("large" municipalities). According to the 2001 census, the small municipalities number 7,430 (that is, the vast majority of Italian municipalities), whereas there are 664 large ones.

In small municipalities, the electoral system is quite simple: each mayoral candidate is associated with a list of candidates for councillors. Voters are entitled to vote for a mayoral candidate and may cast, if they wish, a preference vote for a specific candidate for councillor. The mayoral candidate who gains the largest number of votes is elected mayor, and two-thirds of council seats are attributed to the list supporting the winning mayoral candidate. The remaining seats are attributed proportionally among the other lists. Hence, small municipalities will never be faced with a "divided" government, that is, a mayor and a council majority of different political colours.

A double-ballot majoritarian electoral mechanism is applied in the case of large municipalities. Each mayoral candidate is associated with one list, or coalition of lists, of candidates for the post of councillor; in the first ballot, voters are entitled to vote for a mayoral candidate and, if they wish, for one list associated, or otherwise, with said candidate (that is, a split vote is permitted). Each mayoral candidate must officially declare his/her affiliation to one or more lists running for election to the council. This

[2] This system of government is referred to by Fabbrini (2001) as a case of semi-parliamentarism.

declaration shall only be deemed valid if it coincides with similar declarations made by the candidates featured on the lists in question. In other words, a coalition of parties is offered to electors. The mayoral candidate who receives the absolute majority of votes is elected mayor in the first ballot; the lists for the municipal council linked with the elected mayor are assigned a majority premium of 60% of all council seats provided they obtain at least 40% of votes cast; otherwise, the council seats are assigned proportionately among those lists receiving votes, with no majority premium being assigned in this case.

If the mayoral candidate does not receive the absolute majority of votes in the first ballot, then a second ballot is held between the two candidates collecting the largest number of votes in the first round. In the period between the first and second ballots, the lists excluded during the first round can now join those that are backing one of the two candidates in the second round, thus creating a sort of band-wagoning effect. During the second ballot, voters are entitled to vote for a mayoral candidate, whereas votes for lists are precluded. The candidate who ultimately obtains the absolute majority of votes is elected mayor. As in the case of a mayor elected to office in the first ballot, if those lists of candidates for council members associated with the elected mayor receive more than 40% of votes in the first ballot (and no other group of lists associated with a rival mayoral candidate obtains the absolute majority), then they are entitled to the majority premium (60% of the total number of seats); the seats of the coalition of lists receiving said majority premium are distributed in proportion to the votes received by each candidate and by the list supporting that candidate. If the coalition of lists supporting the mayor fails to get the majority premium, then the council seats are assigned in proportion to the votes received by each list during the first round of voting. Therefore in this case, the elected mayor may belong to a party that is not part of the political majority controlling the council. In practice, this happens very rarely due to the fact that political parties tend to form larger alliances than they do under the single ballot system, in order to avoid ending up with divided governments.

3. Related literature

As mentioned above, the literature on political economy has thoroughly explored the impact on public spending of the type of electoral system - plurality versus proportional electoral rules - and of the size of electoral districts (Austen-Smith, 2000; Lizzeri and Persico, 2001; Mayerson, 1993; Persson and Tabellini, 2000). Apart from a recent work by Bordignon et al. (2011), no-one has given much thought to the fact that an election may not necessarily involve a "one-shot" game, but may consist in a two-stage process as happens in the so-called double ballot system. Broadly speaking, during the first round, voters select a subset of candidates from those standing for election, and then vote again from said subset during the second round of voting. The best known example of this system is the one adopted in France for the Presidential elections, where the two candidates who receive the greatest number of votes in the first ballot, go on to a second, final round. Other examples of this double-ballot system are to be found in Latin America, in the USA for the gubernatorial elections, and, as described above, in Italy for the election of municipal mayors.

Previous literature comparing single versus double ballot systems looked mainly at the equilibrium number of competing parties. As a matter of fact, according to Duverger's Law (1954) ''simple-majority single-ballot favors the two party system'' whereas ''simple majority with a second ballot or proportional representation favors multipartyism." This intuition has been formalized (Cox, 1997; Mayerson, 1999) as the M+1 rule: if M is the number of seats available, M+1 turns to be the number of candidates on whom the voters have an incentive, given the strategic behavior favored by the voting mechanism, to concentrate their votes. As a matter of fact, in a single ballot plurality rule election, if a citizen believes that candidates 1 and 2 have the greatest chances of winning the election, even if said citizen's preferred candidate is candidate 3, he/she strategically chooses to vote for 1 or 2 in order to maximize his/her chances of being a pivotal voter. As all voters vote according to a similar logic, candidate 3 is deserted by his/her supporters, who all vote for candidates 1 or 2.

Similarly, in the first round of a double ballot plurality rule election, given that two seats are at stake in this case, three candidates remain in the running for the second round of voting (Cox 1997, Martinelli 2002). Note, however, that this holds when there is no risk of the unexpected victory of the minority candidate during the first round, that is, when the share of electors backing said candidate is very small (Bouton, 2010).

Recently Fujiwara (2011) uses figures for mayoral elections held in Brazil in 1996-2004, to provide evidence that a transition from the single to the dual ballot system leads to an increase in the number of votes cast for third-placed candidates, and a reduction not only in the gap between the votes cast for the second and third-placed candidates, but also in that between the winning candidate and the third-placed candidate. Bordignon et al. (2011), using data on mayoral elections in Italy during the period 1985-2007, found that the dual ballot leads to a larger number of candidates than the single ballot. However, they also found that in the presence of a highly polarized electorate, the dual-ballot system reduces the influence of extremist groups on political policies. The dual-ballot system allows moderate parties to run on their own platforms, without being forced to reach a compromise with such extremist parties, while given the same level of polarization, the single-ballot system favours coalitions of moderates and extremists. However, it should be pointed out that if the share of voters attached to extremist parties is high enough, there will be no substantial difference in the results obtained by the single- and double-ballot systems, and in the case of the double-ballot system, two coalitions of moderates and extremists will emerge, replicating the outcome of the single ballot.

The relevance of the diverse impact of the two electoral rules is clearly an empirical question. The aim of this paper is exactly that of testing the effect of the two different electoral rules on fiscal policies, using political and financial data from Italian municipalities.

4. Data

The empirical analysis is based on a data-set for Italy's municipalities resulting from a combination of different archives publicly available from the Italian Ministry of the Interior, the Italian Ministry of the Economy and the Italian Statistical Office. This panel data set covers all Italian municipalities for the period 2001-2006. It comprises a full array of information organized into four different sections: 1) fiscal data on spending and revenue items; 2) institutional data on the main political and personal features of municipal bodies (mayor, municipal executive, municipal council), as recorded at the end of each year; 3) electoral data covering the results of elections in which the mayor and the council members in office during the period covered by the data-set, were elected; 4) municipal demographic and socio-economic data such as population size, population age structure, and the average income of inhabitants.

4.1 Dependent variables

As previously mentioned, we are interested in checking if, and how, the electoral system affects those budgetary decisions taken at municipal level. Therefore, as our dependent variables we have adopted information on own revenue, subdivided into taxes and charges, and information on municipal expenditure. Moreover, the peculiarities of municipal funding in Italy's Special Statute Regions (see note 3), suggest that we limit the sample used in this analysis to those municipalities situated in the country's Ordinary Statute Regions (numbering 6,702 in 2010).

4.2 The municipal electoral rule and other political variables

As we have already seen, the municipal electoral rule prescribes two different electoral systems for small and large municipalities. This variation in the electoral mechanism is

possibly exogenous with respect to policy-makers' decisional area: we set a dummy (*large*) equal to one when the mayor of a municipality, who held office in a certain year during the period 2001-2006, was elected according to the large-municipality rule, or to zero when, on the contrary, he/she was elected according to the small-municipality rule. The result is that our sample includes both those municipalities where the mayor(s) in office each single year over the period 2001-2006 was (were) elected by means of one single electoral system, and those where mayors in office in different years were elected under both electoral rules.

In this regard, it should be pointed out that the 15,000-inhabitant threshold for the choice of electoral system to be applied in a given municipality/election year, is not measured with reference to the actual resident population that year, but rather to the "certified" population as recorded by the census carried out during the first year of each decade by the Italian Statistical Office (e.g. for all those elections held during the decade 1991-2000, the "reference" population is the one recorded in the census carried out in 1991, and so on). This prevents information about population size being misreported by local authorities in order to endogenously select the electoral mechanism to be applied in a given election year. Moreover, given these operational arrangements, the electoral rule may only lead to a change in the electoral system adopted in a given municipality if an increase/decrease in the "certified" population over and above the discontinuity threshold of 15,000 inhabitants (which, as already mentioned, may occur once a decade) actually applies in the election years that fall, as a rule every 5 years, during that decade.[3]

Finally, with regard to the data set, each treatment is generally associated with more than one observation, since the term of office is, as mentioned, normally 5 years, while the panel is built on an annual basis.

[3] This means that the actual population of a given municipality between election years may fluctuate below or above the threshold, without this automatically triggering a change in the electoral mechanism: the treatment variable of the regression discontinuity design is, from 2003 onwards (the year starting from which the 2001 census was used to redefine municipalities' election rules), the population of the 2001 census, and before 2003 the population of the 1991 census.

We measure the political power of the mayor by using the number of votes (*voteshare*) cast in the first ballot. Moreover, a categorical variable (*list*) accounts for the number of lists associated, in the first round, with the mayoral candidate running under the double-ballot rule. Since Italian law establishes a limit of no more than two consecutive mandates for the office of mayor, a dummy variable (*termlimit*) has been created to indicate whether a mayor in office in a given year is in his/her second consecutive term of office, and thus ineligible for a further term: the impossibility of further re-election may significantly bias the budgetary decisions of a municipality (Besley and Case 1995; List and Sturm 2006).

4.3. Socio-economic and demographic controls

We include a set of time-varying variables that characterize a municipality's economic and demographic situation, namely: the population of the municipality (*population*); per capita income proxied by the personal income tax base (*income*); the proportion of citizens aged between 0 and 14 (*child*); and the proportion aged over 65 (*aged*). Finally, there are certain time-constant characteristics of a municipality that are likely to affect fiscal policies, such as climate and geography. We take these characteristics into account by including a dichotomous variable for each municipality. Changes in the macroeconomic situation may also affect the fiscal policies of all municipalities in certain specific years. To account for this, we include a set of time dummies controlling for common yearly shocks.

5. Empirical strategy

We test the impact on revenue of being elected on the basis of the large-municipality electoral-rule, by estimating the following reduced form equation:

$$taxtot_{mt} = \alpha_m + \beta_t + \gamma_1 large_{mt} + \boldsymbol{\gamma_2 Z}_{mt} + \varepsilon_{mt}, \quad (1)$$

where $taxtot_{mt}$ is the real per capita current revenue, net of received transfers in municipality m at time t, which corresponds to taxes + charges We estimate also taxes (*tax*) and charges (*charge*) separately. As mentioned before, the dummy $large_{mt}$ equals 1 if the municipality falls within the large municipality electoral system, and zero otherwise.

As in all subsequent regressions, we include municipality-fixed effects (α_m) and year dummies (β_t). $\boldsymbol{Z}_{mt}$ is a vector including a dummy equal to one if the mayor cannot run for re-election (*termlimit*), real income per capita (*income*), population size (*pop*), the square of population size (*popsquare*) and the other population controls to the power of three and four, the percentage of citizens aged 65 or over (*aged*), the percentage of citizens between 0 and 14 years of age (*child*), the number of citizens per area (*density*), the percentage of votes (*voteshare*) obtained by the mayor when elected (in particular, in the first round of voting in the case of double-ballot municipalities), and a dummy equal to one (*ballot*) if the mayor of the municipality has been elected at the run-off. We maintain these explanatory variables in all the regressions performed, as standard economic, political and demographic controls.

As long as γ_1 is statistically significant, we can confirm that being in a large electoral regime will affect the tax decisions made by municipalities, and the size of the coefficient measures the impact on the level of taxes + charges set by the mayor when he/she is elected according to the large-municipality electoral mechanism.

Symmetrically, we estimate a reduced form for real per capita expenditure by using the following equation:

$$exp_{mt} = \gamma_s + \delta_t + \theta_1 large_{mt} + \boldsymbol{\theta_2 Z}_{mt} + \varepsilon_{mt}, \quad (2)$$

where exp_{mt} is the real per capita current expenditure in municipality m at time t; γ_m are municipalities' fixed effects, and δ_t are year dummies. As long as θ_1 is statistically significant, we can confirm that being in a double-ballot system affects, for reasons of

electoral convenience, the spending decisions made by the municipality. The coefficient θ_1 measures the impact on the level of current expenditure set by the mayor, when he/she is elected by means of the large municipality electoral mechanism.

5.1 Empirical analysis

The financial variables we are interested in are very likely related to actual population, due to scale economies for expenditure, or to agglomeration economies for revenues; actual population is, by year, closely correlated to the certified population, thus implying that treatment could be determined solely by the level of population: *pop* must be controlled to assess the effect of *large* on the dependent variable. However, in our case there is no overlap in *pop* values across the small and large electoral groups; in fact, the threshold for being in one or other electoral regime is given by *pop*=15,000. We thus need to use a regression discontinuity design: in this case, the direct effect of *pop* on the dependent variable is in fact negligible compared to the effect of *pop* on *large* when *pop* is near the threshold τ=15,000. Let us re-write (1) in the following form:

$$taxtot=\alpha+\beta+\gamma_1 large+g(pop)+\boldsymbol{\gamma_2 Q}+\boldsymbol{\varepsilon} \qquad large=0,1$$

where we assume that:

$$\lim_{POP\to\tau} E(\boldsymbol{\varepsilon}^o|\boldsymbol{S}) = \lim_{POP\to\tau} E(\boldsymbol{\varepsilon}^1|\boldsymbol{S}) \tag{3}$$

$g(.)$ unknown function at $pop = \tau$ (4)

where α is the municipality fixed effect, β is the year fixed effect, $\boldsymbol{Q}$ is the vector of all exogenous controls excluding population, $\boldsymbol{S}$ is the vector including all the exogenous variables (those in $\boldsymbol{Q}$ and *pop*), ε^o is the random error component for municipalities

belonging to the small municipality group, ε^1 is the random error component for municipalities belonging to the large municipality group and $g(pop)$ is an unknown function linking the dependent variable to pop. Assumptions (3) and (4) are for borderline randomization: those subjects near the threshold are likely to be similar in all aspects except in the treatment: (3) is for the similarities between the non-observables and (4) for the similarities between the observables.

Note that:

$$\lim_{pop\downarrow\tau} E(large|pop)=1 \quad \text{and} \quad \lim_{pop\uparrow\tau} E(large|pop)=0 \qquad (5)$$

and:

$$\lim_{pop\downarrow\tau} E(taxtot|pop) = \alpha+\beta+\gamma_1+ \lim_{pop\downarrow\tau} g(pop)+\lim_{pop\downarrow\tau} E(\varepsilon^1|pop)$$

$$\lim_{pop\uparrow\tau} E(taxtot|pop) = \alpha+\beta+\lim_{pop\uparrow\tau} g(pop)+\lim_{pop\uparrow\tau} E(\varepsilon^0|pop)$$

$$\Rightarrow \quad \lim_{pop\downarrow\tau} E(taxtot|pop) - \lim_{pop\uparrow\tau} E(taxtot|pop) = \gamma_1$$

γ_1 is identified with the difference between the right and left limits of $E(taxtot|pop)$ at pop=15,000. Of course, the same would hold true for (2).

The econometric strategy adopted here results in a difference-in-difference estimate of (1) and (2) through the adoption of a regression discontinuity (DID-RD) approach (Egger and Koethenburgen, 2010). The traditional RD, while allowing treatment-specific parameters, would assume identical coefficients for all the other parameters, since the regressions would be run on the pooled dataset. However, if municipalities are heterogeneous in terms of the time-invariant variables correlated with the treatment dummy, then the estimate of the treatment effect would be biased. If a panel dataset is available, the approach combining the regression discontinuity design

with the difference-in-difference technique, enables us to control for fixed effects and to overcome the problem of bias.[4]

We estimate the limit of the two regression functions on both side of the threshold using two methods: a polynomial approximation, and a local linear regression (see Imbens and Lemieux, 2008). We normalize *pop* to 0 when it equals 15,000, since we control not only for the polynomial functional form of the population, but we also interact the same function with the dummy *large*: the normalization enables us to consistently estimate average effect of local treatment γ_1, otherwise it would be biased by the interaction with *pop*. When adopting the first approach we use the entire sample of municipalities with a population of between 10,000 and 20,000[5], and choose a polynomial functional form to fit the relationship between the dependent variable and *pop*: we provide estimates by using a second, third and fourth degree polynomial function. The second method fits linear regression functions to the observations distributed within a certain distance *h* either side of the threshold; we also control for population and its interaction with the dummy *large*, as in the previous case. We provide estimates by choosing different bandwidths around the threshold, namely *h*=1000, 2h and *h*/2.

[4] Another way around the problem is to compare the outcome of the same subject under two different treatments, given that the values of the variable related to the treatment, before and after the change, are close to one another. This method (Pettersson-Lidbom, 2012), instead of using the difference-in-difference approach to control for the municipality fixed effect, thus also taking advantage of the comparison between those municipalities not experiencing any switch from one electoral system to the other, excludes all municipalities that do not switch systems. The obvious drawback of this approach is that removing all such municipalities leaves us with a limited number of observations, and this in turn reduces the efficiency of the estimate.

[5] In this population interval there is no other institutional break apart from that at 15,000 inhabitants with regard to the electoral rule. For a detailed list of Italian institutional breaks at various population levels, see Gagliarducci and Nannicini (2013).

6. Results

We ran two sets of regressions respectively for taxes and current expenditure, using a regression discontinuity design.[6] Panel A of Table 2 gives the baseline results, while in panel B we also add control variables as a robustness check.[7] The coefficient (column 1) of the dummy *large* in the taxes + charges (*taxtot*) estimate is always negative and statistically significant at the 5% level in all three polynomial specifications, thus meaning that the election of a mayor in a double-ballot voting system reduces fiscal pressure compared to the election of a mayor in a single ballot system. Moreover, in the 4th degree polynomial specification, the coefficient in the current expenditure estimate (*exp*) is also negative and 5% significant, but it is only half the size of that in the *taxtot* equation. These results are confirmed when we use the specifications including covariates.

If we look at the estimates using the local linear specifications, the previous results on *taxtot* and *exp* are confirmed within all three bandwidths, except in the case of current expenditure when we use the 2*h* bandwidth (see Table 2, panel A, column 4).

These results are also evident in Fig. 1, panels A and B, where taxes + charges and current expenditure (we take the average for each period after an election in the sample with a population ranging from 10,000 to 20,000) are related to a quadratic polynomial function of the certified population of those municipalities switching from one regime to the other, normalized at 15,000.

Finally, we made a robustness check of our results by running a placebo test for both the polynomial and the local linear regressions. We used the sample of municipalities with populations of between 10,000 and 20,000, and in the sub-sample of the small municipalities we set a threshold corresponding to the median population (12,154), and did likewise for the sample of large municipalities, which gave a median population of 17,130. We ran the same regressions that we had run with the 15,000

[6] In the sample of municipalities with populations of between 10,000 and 20,000, covering the period 2001-2006, we eliminated 40 observations pertaining to municipalities whose financial data were clearly misreported.

[7] As long as the RDD identifying assumptions (Imbens and Lemieux, 2008) are met, the inclusion of additional covariates should not affect the estimates, but simply increase accuracy.

threshold, but the coefficient that accounts for the threshold effect was never significant (Table 3).

7. The role of party coalitions

Bordignon et al. (2011) explain the different fiscal policies observed in the two systems, such as those obtained in the case of our own estimates, by pointing out that the double ballot system allows moderate parties to run on their own platform, without them being forced to reach compromises with extremist parties, whereas the single ballot favours coalitions of moderates and extremists. However, certain interesting caveats apply to their model when evaluating this result. If a sufficient share of voters pledge their votes to extremists, then no difference between the single and double ballot systems will emerge, and two coalitions of moderates and extremists will form, replicating the single ballot: moderates always prefer allying with extremists, as the latter retain important bargaining power. If the share of extremist votes is small, on the other hand, then each candidate will run alone since the bargaining power of the extremists is entirely wiped out. The reason for this behaviour lies in the fact that under the double ballot system, what matters is not winning the first round but getting through to the second round and then going on to win the election. A centrist party that manages to get through the first round, has a greater chance of winning the final election as it can then collect the voters of the excluded extremist parties, provided said extremist parties are not overly ideological.

In the Italian single ballot system, despite the fact that, officially, only one list backs each mayoral candidate, what happens is that very often before the election, parties bargain and converge towards a single list backing just one candidate. Parties can also do the same in the double ballot system without any need to create a single list, simply by proposing a coalition of lists backing a given mayoral candidate.

7.1 The test

We run two sets of regressions - one for taxes + charges (*taxtot*), and one for current expenditure - where we interact the dummy *large* with the categorical variable *list* accounting for the number of lists supporting the successful mayoral candidate.

Panel A of Table 4 shows that the double ballot system negatively affects *taxtot* compared to the single ballot system, but that this effect becomes smoother the greater the number of lists supporting the successful mayoral candidate (in the 2nd degree polynomial specification, the coefficient of *large* interacted with the variable *list* is +7.02 and 1% significant). This result is almost entirely due to revenue from charges (Column 3 Table 4, panel A). The revenue from taxes, in fact, is always lower than in the single ballot system, regardless of the number of lists supporting the winning candidate. The impact of the electoral system on current expenditure is also affected by the number of lists supporting the candidate who is elected mayor (Column 4). All these results are confirmed when we use the third and fourth degree polynomial functions. Moreover, all the results obtained in the polynomial specifications are more robust if we control for covariates (Table 4, panel B).

If we look at the estimates obtained using the local linear specifications, they confirm the previous results (Table 4, panel A) with the exception of those regarding taxes, which are not significant for the *h* and 2*h* bandwidth specifications or for current expenditure (not significant in the 2*h* bandwidth specification). When we control for covariates (Table 4, panel B), the result for *taxtot*, and for *charge* when we use the h/2 bandwidth, no longer hold. Finally, it should be pointed out that the results for *charge* and *exp* do not pass all the placebo tests (Table 5, panel B) for the local linear approximation specifications, whereas the results for *taxtot* are very robust to all the placebo tests.[8]

[8] The placebo samples are built, as in the previous section, by double-splitting the whole sample at the median population. However, it is not easy to falsify the effect of the lists for the right-hand sample. We decided to use the true value of the lists for municipalities in the sample that had populations greater than the median, but at the same time belonging to the single ballot group. This may be one of the reasons why the test is not very robust. Note, in fact, that the placebo test for populations lower than the median, where there is no problem in choosing

All in all it seems that, as with previous estimates, the double-ballot electoral rule leads to a lower level of public economic activity (a reduction in public spending and taxes+charges); however, the more lists supporting the mayor, the closer the fiscal policies of single and double-ballot municipalities will be.

8. Conclusions

We have studied the impact of two different electoral systems on fiscal policies, based on the case of Italy's municipal elections. In Italy, municipalities with fewer than 15,000 inhabitants elect their mayor according to a plurality single-ballot system whereby only one list can support the candidate who is eventually elected mayor, and very often this list represents a coalition of parties converging in the one list. In municipalities with more than 15,000 inhabitants, the mayor is elected according to a plurality double-ballot system, whereby an officially-declared coalition of lists may support her/him. We use a 2001-2006 panel dataset of all Italian municipalities comprising financial, socio-economic and political data. We use both the "between" and the "within" dimension of the dataset, by applying the difference-in-difference method to a regression discontinuity analysis.

Our test looks at the effects of the two electoral systems on municipal expenditure and revenue. We find that municipalities under the double-ballot system have lower per capita taxes and charges than those municipalities where a single-ballot system holds. Moreover, current expenditure is also lower, albeit to a much lesser extent than taxes and charges. This difference between the two electoral systems becomes increasingly less robust, the greater the number of lists supporting the successful mayoral candidate in the first round of voting in double-ballot municipalities.

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the list in order to falsify the experiment, given that under the single-ballot system only one list can support the candidate who is eventually elected mayor, is passed comfortably.

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Data Appendix

List of variables

Financial variables: from the Italian Ministry of the Interior

http://finanzalocale.interno.it/sitophp/home_finloc.php?Titolo=Certificati+Consuntivi

- *tax*: total real direct taxes by municipality (year 2006 constant euros per capita).
- *charges*: total real charges and profits (year 2006 constant euros per capita).
- *taxtot*: total real revenue net of borrowing (year 2006 constant euros per capita).
- *exp*: total real public current expenditure (year 2006 constant euros per capita).

Political variables: the authors' processing of data from the Italian Ministry of the Interior

http://amministratori.interno.it/AmmIndex5.htm

http://elezionistorico.interno.it/index.php?tp=G

- *large*: dummy variable equal to one when the municipality has certified population of more than 15,000, and zero otherwise.

- *ballot*: dummy variable equal to one when the mayor of a municipality with a certified population of more than 15,000 is elected at the second ballot.
- *termlimit*: dummy variable equal to one when the mayor of the municipality cannot run for the next election because he/she is already in his/her second term of office, and zero otherwise.
- *voteshare*: percentage of votes obtained by the mayor when elected (the variable refers to the first round of voting for double-ballot municipalities)
- *list*: number of lists supporting (at first ballot) the successful mayoral candidate in a large municipality (with a certified population of more than 15,000).

Demographic and socio-economic variables: from the Italian Ministry of the Interior
http://finanzalocale.interno.it/ser/ispett.html
Italian Institute of Statistics (ISTAT)
www.istat.it/dati/catalogo/20061102_00/

- *income*: real personal income tax base (year 2006 constant euros per capita).
- *pop*: state population divided by 1,000.
- *aged*: share of the population over the age of 65.
- *child*: share of the population aged between 0 and 14.
- *density:* the number of citizens per area.

Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
taxtot	3129	581.1291	245.5408	100.5627	1960.61
tax	3129	415.8	171.3818	69.10942	1686.768
charge	3129	165.3291	127.0001	5.179395	1051.38
exp	3129	677.135	210.2529	138.3801	1814.082
ballot	3129	0.132311	0.338882	0	1
child	3129	0.146038	0.024751	0.081628	0.249248
aged	3129	0.180372	0.04063	0.059914	0.308141
density	3129	689.5929	852.1794	39.19242	8033.668
income	3129	9457.351	3292.929	2221.059	20376.77
voteshare	3129	51.4171	12.01306	16.01187	100
LARGE	3129	0.250879	0.433588	0	1
termlim	3129	0.137744	0.344686	0	1
population	3129	-1303.35	2697.864	-4999	4998
list	3129	1.667625	1.453711	1	7

Note: all financial variables are expressed in per capita and in real terms.

Table 2: The impact of run-off elections on fiscal policy outcome: RDD estimates

	A. Estimations without covariates				B. Estimations with covariates			
	(1) *taxtot*	(2) *tax*	(3) *charge*	(4) *exp*	(1) *taxtot*	(2) *tax*	(3) *charge*	(4) *exp*
Pol. 2nd	-39.9048**	-26.7978*	-13.1069	-15.7450	-48.6335**	-30.6248*	-18.0087	-23.1749
	(18.095)	(14.846)	(10.085)	(14.131)	(19.408)	(15.865)	(12.024)	(15.229)
Pol. 3nd	-37.7691**	-28.2713*	-9.4978	-13.0823	-46.6152**	-32.0307**	-14.5845	-20.6281
	(18.412)	(14.553)	(10.842)	(14.578)	(19.869)	(15.484)	(12.872)	(15.804)
Pol. 4nd	-58.8368***	-36.0745**	-22.7622*	-29.5777*	-68.7402***	-40.6786**	-28.0616*	-36.7551**
	(19.303)	(15.940)	(13.031)	(15.459)	(20.872)	(16.746)	(15.277)	(16.888)
Observations	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**
LLR (h)	-47.6250**	-18.9807	-28.6444**	-31.9915**	-53.2365**	-20.2855	-32.9510*	-27.4175
	(21.532)	(17.633)	(12.488)	(16.207)	(25.855)	(22.320)	(17.916)	(19.531)
Observations	**590**	**590**	**590**	**590**	**590**	**590**	**590**	**590**
LLR (h/2)	-85.0175***	-47.1029*	-37.9146***	-78.8530***	-39.0090	-16.2990	-22.7100	-41.2516
	(29.213)	(26.571)	(11.700)	(17.241)	(33.517)	(31.007)	(19.302)	(30.166)
Observations	**287**	**287**	**287**	**287**	**287**	**287**	**287**	**287**
LLR(2h)	-47.2526**	-24.3840	-22.8686**	-24.2749	-57.9498**	-29.6480	-28.3018**	-19.6241
	(19.542)	(15.892)	(11.216)	(15.131)	(22.554)	(18.375)	(14.390)	(16.985)
Observations	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**

Notes: Period 2001-2006; municipalities with a resident population of between 10,000 and 20,000. Estimation methods: polynomial approximation to the 2nd, 3rd and 4th degrees, local linear regression with bandwidths h=100, h/2 and 2h. All estimates (*impact of the dummy LARGE on dependent variables*) include municipality and year fixed effects. The estimation in panel B also includes the following covariates: mayor's second term dummy, mayor's lame-duck dummy, percentage of votes obtained by the mayor when elected (for the double ballot municipalities this refers to the first round), share of population aged between 0 and 14, share of population over 65 years of age, population density computed as the ratio between area and population, per capita personal income tax base. Robust standard errors are shown in brackets. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3: Placebo tests on fiscal policy outcome: RDD estimates

	A. Mean below (12,154)				B. Mean above (17,130)			
	(1) *taxtot*	(2) *tax*	(3) *charge*	(4) *exp*	(1) *taxtot*	(2) *tax*	(3) *charge*	(4) *exp*
Pol. 2nd	0.0878	-1.3667	1.4545	3.3066	28.2015	19.7755	8.4260	-14.4262
	(17.569)	(10.803)	(14.919)	(14.972)	(22.959)	(15.950)	(17.870)	(21.132)
Pol. 3nd	15.3855	2.2102	13.1753	5.8380	35.9465	21.2807	14.6657	-18.8808
	(22.911)	(13.779)	(19.028)	(18.898)	(29.925)	(19.288)	(22.370)	(26.236)
Pol. 4nd	39.7953	11.5172	28.2782	20.3336	6.8449	-9.5168	16.3618	-9.0436
	(28.273)	(16.034)	(23.462)	(22.982)	(38.311)	(24.707)	(27.660)	(33.021)
Observations	**2,152**	**2,152**	**2,152**	**2,152**	**977**	**977**	**977**	**977**
LLR (h)	4.2607	-3.8060	8.0667	5.2477	26.0114	23.7362	2.2752	-22.7699
	(18.045)	(11.150)	(15.058)	(14.835)	(23.846)	(15.565)	(19.031)	(20.390)
Observations	**867**	**867**	**867**	**867**	**404**	**404**	**404**	**404**
LLR (h/2)	7.3662	3.1296	4.2366	1.2650	-26.0150	-11.7610	-14.2539	-45.4248
	(20.220)	(14.565)	(17.628)	(16.713)	(42.167)	(25.586)	(29.346)	(30.855)
Observations	**437**	**437**	**437**	**437**	**192**	**192**	**192**	**192**
LLR(2h)	-8.8555	1.2381	-10.0937	-11.4471	15.9271	20.3272	-4.4001	-11.2090
	(15.272)	(9.177)	(13.260)	(13.222)	(17.844)	(12.941)	(13.650)	(16.752)
Observations	**1,813**	**1,813**	**1,813**	**1,813**	**833**	**833**	**833**	**833**

Notes: Period 2001-2006; municipalities with a resident population of between 10,000 and 15,000 (Panel A) and municipalities with a resident population of between 15,000 and 20,000 (Panel B). Estimated discontinuities in fiscal policy outcomes at false threshold (mean above and below the true 15,000 threshold). Estimation methods: polynomial approximation to the 2nd, 3rd and 4th degrees, local linear regression with bandwidth h=100, h/2 and 2h. All estimates include municipality and year fixed effects. Robust standard errors are shown in brackets. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 4: Party coalitions' contribution to the impact of run-off elections on fiscal policy outcome: RDD estimates

	A. Estimations without covariates				B. Estimations with covariates			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	taxtot	*tax*	*charge*	*exp*	*taxtot*	*tax*	*charge*	*exp*
Pol. 2nd								
large	-56.8589***	-30.8570**	-26.0019**	-27.3403*	-62.1556***	-31.2949*	-30.8607**	-33.3598**
	(19.330)	(15.729)	(11.103)	(15.297)	(19.884)	(16.221)	(12.145)	(15.838)
large*list	7.0205***	1.6808	5.3397***	4.8015*	7.4841***	0.3709	7.1133***	5.6371**
	(2.559)	(1.846)	(2.071)	(2.720)	(2.722)	(2.002)	(2.177)	(2.845)
Pol. 3nd								
large	-54.9601***	-32.1860**	-22.7740*	-25.0025	-60.2387***	-32.6205**	-27.6183**	-30.9614*
	(19.602)	(15.426)	(11.764)	(15.679)	(20.278)	(15.846)	(12.837)	(16.305)
large*list	7.1400***	1.6259	5.5141***	4.9509*	7.5583***	0.3272	7.2311***	5.7329**
	(2.555)	(1.848)	(2.057)	(2.716)	(2.719)	(2.005)	(2.168)	(2.844)
Pol. 4nd								
large	-76.3384***	-40.2286**	-36.1098**	-41.5333**	-82.0190***	-41.2828**	-40.7363***	-46.7319***
	(20.833)	(16.759)	(14.452)	(17.330)	(21.518)	(17.074)	(15.492)	(17.916)
large*list	7.1660***	1.7009	5.4651***	4.8952*	7.4750***	0.3401	7.1349***	5.6163**
	(2.542)	(1.848)	(2.046)	(2.710)	(2.689)	(2.003)	(2.142)	(2.819)
Observations	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**	**3,129**
LLR (h)								
large	-61.5311**	-26.3800	-35.1510**	-49.2977**	-64.6042**	-24.0110	-40.5932**	-45.8709**
	(25.263)	(20.678)	(14.689)	(21.151)	(28.233)	(23.884)	(18.800)	(22.950)
large*list	6.0057	3.1956	2.8101	7.4742	5.5490	1.8185	3.7305	9.0078*
	(3.865)	(3.302)	(2.201)	(5.305)	(4.057)	(3.632)	(2.599)	(4.785)
Observations	**590**	**590**	**590**	**590**	**590**	**590**	**590**	**590**
LLR (h/2)								
large	-105.6509***	-64.4014**	-41.2495***	-113.4791***	-48.1905	-26.8622	-21.3284	-65.1075*
	(31.986)	(28.820)	(13.901)	(27.873)	(35.157)	(31.316)	(20.519)	(34.565)
large*list	7.5740	6.3499*	1.2242	12.7104*	4.9119	5.6510	-0.7391	12.7622*
	(4.648)	(3.544)	(2.394)	(6.885)	(4.824)	(3.478)	(2.905)	(6.676)
Observations	**287**	**287**	**287**	**287**	**287**	**287**	**287**	**287**
LLR(2h)								
large	-50.6235**	-28.6392	-21.9843*	-26.3596	-59.6418**	-29.8934	-29.7483**	-25.7933
	(21.938)	(17.755)	(13.225)	(18.044)	(23.371)	(18.907)	(14.705)	(18.239)
large*list	1.4874	1.8776	-0.3902	0.9198	1.0510	0.1525	0.8985	3.8323
	(3.595)	(3.071)	(2.295)	(4.052)	(4.042)	(3.383)	(2.605)	(3.922)
Observations	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**	**1,172**

Notes:see Table 2.

Table 5: Placebo tests on fiscal policy outcome affected by run-off elections and party coalitions: RDD estimates

	A. Mean below (12,154)				B. Mean above (17,130)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dependent variables	*taxtot*	*tax*	*charge*	*exp*	*taxtot*	*tax*	*charge*	*exp*
Pol. 2nd								
large	7.0954	5.6214	1.4740	0.0858	4.5840	17.4079	-12.8239	-28.3094
	(20.203)	(12.167)	(17.584)	(17.883)	(23.516)	(17.237)	(17.765)	(20.965)
large*list	-4.9749	-4.9610	-0.0139	2.2865	9.6439***	0.9668	8.6771***	5.6690
	(5.838)	(4.901)	(3.865)	(5.385)	(3.632)	(2.366)	(3.044)	(3.924)
Pol. 3nd								
large	21.7012	8.9878	12.7135	2.5179	11.4865	18.8357	-7.3492	-33.3712
	(24.653)	(14.659)	(20.962)	(21.181)	(30.099)	(20.399)	(21.828)	(26.053)
large*list	-4.6363	-4.9753	0.3390	2.4372	9.6887***	0.9685	8.7202***	5.7397
	(5.844)	(4.925)	(3.872)	(5.352)	(3.648)	(2.373)	(3.055)	(3.946)
Pol. 4nd								
large	46.5287	18.4606	28.0681	17.1480	-16.1830	-11.6383	-4.5447	-23.0575
	(29.745)	(16.871)	(24.950)	(24.868)	(37.985)	(25.362)	(27.003)	(33.063)
large*list	-4.8745	-5.0265	0.1521	2.3062	9.6452***	0.8886	8.7566***	5.8697
	(5.844)	(4.933)	(3.852)	(5.435)	(3.653)	(2.371)	(3.059)	(3.955)
Observations	**2,152**	**2,152**	**2,152**	**2,152**	**977**	**977**	**977**	**977**
LLR (h)								
large	-14.5610	-13.9960	-0.5650	-20.4495	-0.9922	20.1993	-21.1914	-45.5372**
	(31.154)	(18.825)	(26.343)	(26.875)	(26.871)	(19.126)	(21.105)	(22.773)
large*list	13.3971	7.2532	6.1439	18.2910	11.5074**	1.5072	10.0001**	9.7021*
	(16.409)	(12.749)	(10.448)	(13.023)	(5.777)	(4.125)	(5.051)	(5.070)
Observations	**867**	**867**	**867**	**867**	**404**	**404**	**404**	**404**
LLR (h/2)								
large	-17.6532	-2.4268	-15.2263	-52.3958*	-64.9068	-16.9202	-47.9865	-63.3299
	(32.950)	(26.846)	(29.918)	(30.292)	(50.654)	(34.945)	(36.729)	(40.935)
large*list	18.8937	4.1960	14.6977	40.5225**	16.1785	2.1462	14.0323*	7.4483
	(21.442)	(19.606)	(14.610)	(17.995)	(12.591)	(10.028)	(8.407)	(11.723)
Observations	**437**	**437**	**437**	**437**	**192**	**192**	**192**	**192**
LLR(2h)								
large	-11.0019	6.5987	-17.6006	-31.1551*	-12.6627	20.3255	-32.9882**	-35.7112*
	(21.467)	(12.790)	(18.545)	(18.834)	(20.089)	(14.955)	(15.505)	(18.518)
large*list	1.5748	-3.9330	5.5078	14.4596*	11.4977**	0.0007	11.4970***	9.8538**
	(9.525)	(7.476)	(6.217)	(7.816)	(4.490)	(2.856)	(3.770)	(4.791)
Observations	**1,813**	**1,813**	**1,813**	**1,813**	**833**	**833**	**833**	**833**

Notes: see table 3.

Fig. 1

A)
Mean of per capita taxes + charges (*taxtot*) of municipalities switching from the *small* to the *large municipality* electoral regime and vice-versa during the period 2001-2006.

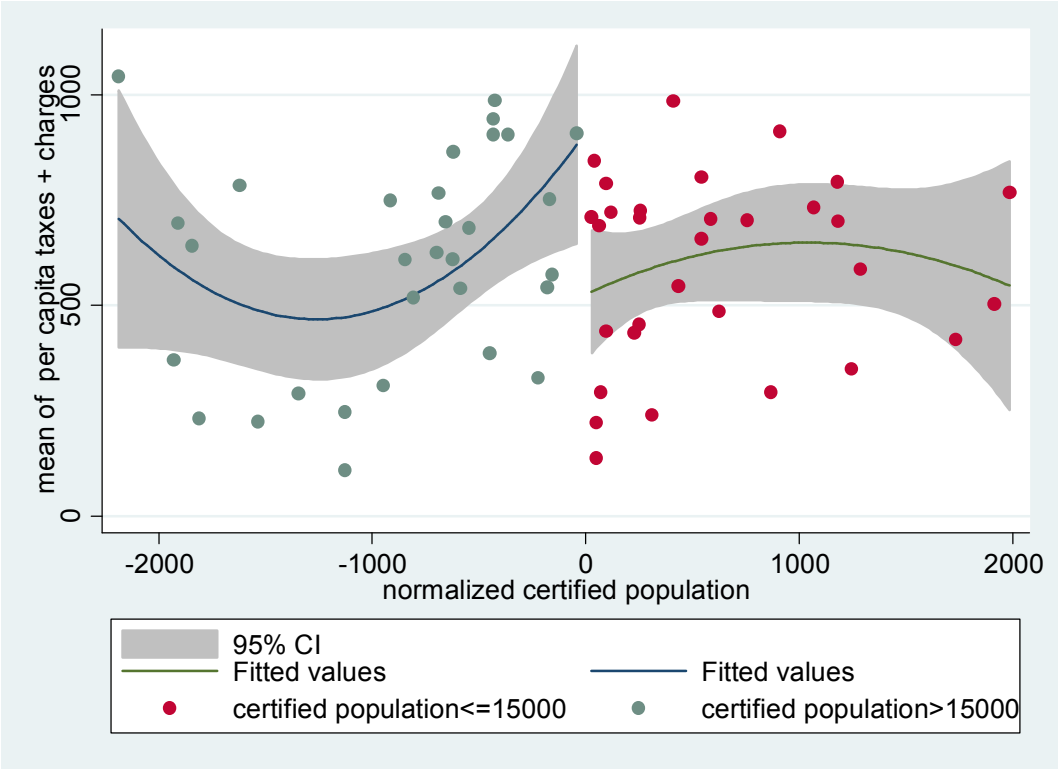
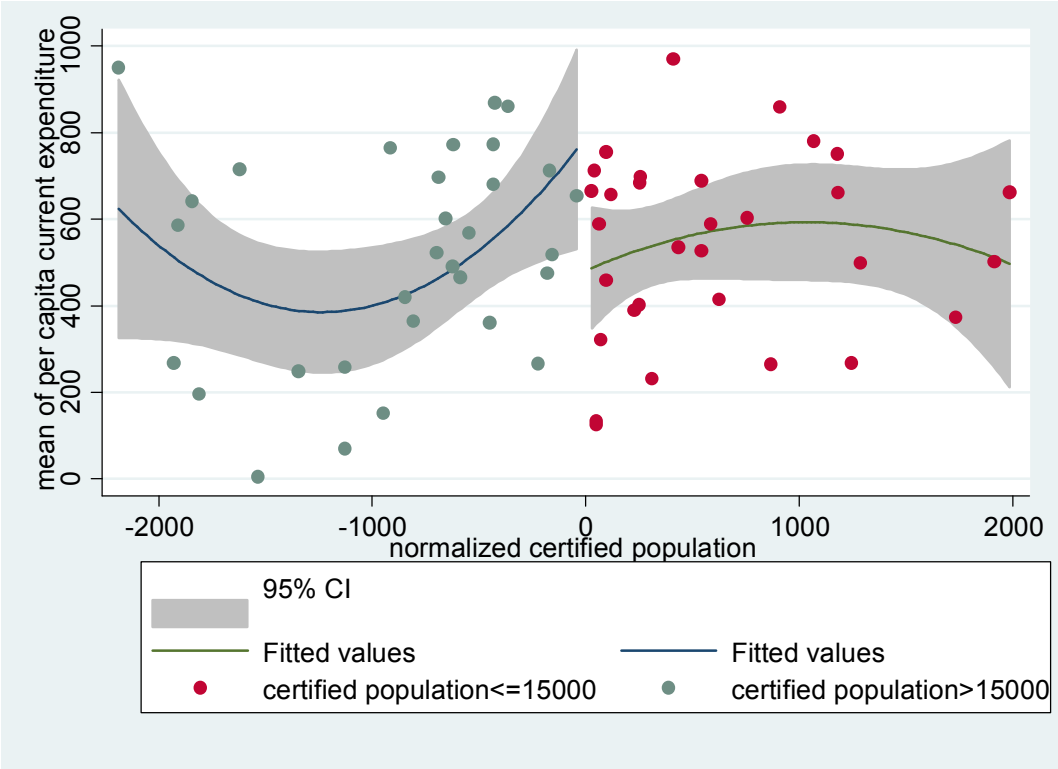


Fig. 1 (continued)

B)

Mean of per capita current expenditure (*exp*) of municipalities switching from the *small* to the *large* municipality electoral regime and vice-versa during the period 2001-2006.



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