Political Competition, Tax Salience and Accountability
Theory and Evidence from Italy

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Abstract

This paper argues that electoral competition may hinder rather than foster political accountability, especially when elected officers can choose among a number of tax instruments. We develop a political agency model showing that politicians in more competitive jurisdictions use less salient tax instruments more intensely. Defining salience as visibility or, analogously, as voters' awareness of the costs associated with specific government revenue sources, we argue that voters are less likely to hold politicians to account for the associated tax burden of a less salient instrument. This in turn implies that strategic politicians will more heavily rely on less salient revenue sources when electoral competition is stronger. Using data on Italian municipal elections and taxes over a 10-year period, we determine the degree of salience of various tax instruments, including property taxes (high salience) and government fees for official documents (low salience). We then show that mayors facing stronger competition for re-election use less salient tax instruments more intensely.

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1   Introduction

Elections are widely recognized as an effective instrument to promote political account-ability, and to communicate voters' preferences to politicians seeking or holding public offices; the literature in this area includes Besley and Smart (2007), Faguet (2004), Hindriks and Lockwood (2009).

This positive effect of elections on accountability is thought to be more effective if electoral competition is stronger. A growing literature both in economics and political science recognizes that political competition improves governments' efficiency and economic outcomes. See, for example: Stigler (1972), and Wittman (1989, 1995) on the effect of political competition on governments' efficiency; Besley, Persson and Sturm (2010) on political competition and economic growth; Galasso and Nannicini (2009), Gagliarducci, Nannicini, and Naticchioni, (2008), and Merlo et al. (2008) on political competition and candidate performance. The common denominator of all these studies is that when candidates face strong political competition, voters are better able to hold them accountable; this, in turn, reduces rent diversion and induces candidates to exert more effort.

In this paper we suggest an alternative story: stronger electoral competition does not necessarily imply better political accountability. When electoral competition is stronger, politicians also have stronger incentives to weaken accountability channels. We concentrate our analysis on one aspect of public policy that is commonplace in most countries: governments' ability to finance public expenditures via multiple tax instruments. This feature plays an important role in shaping local public finance because it leaves to the discretion of politicians not only the level of taxation, but also the tax mix across the available instruments. Our work examines the different degree of salience of the available revenue sources for municipalities.

The public finance literature has extensively explored government decision making in determining the mix of taxes that will be used. Hettich and Winer (1984, 1988), for example, claim that a vote-maximizing government sets taxes such that in equilibrium the marginal political cost of each tax instrument is equalized. This is confirmed by a number of empirical papers (among others Ashworth et al., 2005, who look at the issue of tax innovation). Our analysis contributes to this literature, providing an in-depth explanation of the origins of these political costs, and their relationships with electoral competition and political accountability. In particular, we claim that political costs are better understood under the concept of tax salience. Chetty, Looney, and Kroft (2009) show how voters are likely to underestimate their aggregate tax burdens from tax instruments (such as sale taxes or indirect taxes in general) that are paid in small amounts over time, compared to tax instruments for which taxpayers make lump-sum payments of their aggregate tax liabilities on an annual basis (such as property or income taxes).

Our conjecture is that stronger electoral competition pushes incumbent policymakers

to substitute more salient taxes with the less salient ones with detrimental effects on the transparency of fiscal policy and electoral accountability. To address this issue, we develop a simple political agency model based on Dixit and Londregan (1998) and Bracco et al. (2015). The model verifies and refines our intuitions regarding the loss of tax salience in politically competitive environments.We model the behavior of an incumbent local policymaker (a mayor), who is responsible for providing a local public good, and has the power to make decisions regarding its funding. Two different policy instruments to collect fiscal revenue are available, each differing in their degree of salience. When elections take place, voters base their decisions both on economic grounds and on ideology.

We then bring our theoretical predictions to the data, building a large dataset on Italian local elections and taxes for the period from 1999 to 2008. Italian municipalities derive their main tax revenues from a property tax (denoted ICI),[1] but they also heavily rely on many other sources of revenues, such as waste-management taxes, personal income surtaxes, and a vast array of fees and charges.

A small but important literature has singled out property taxes as a highly salient tax (see, for example, Cabral and Hoxby, 2010). Taxpayers often perceive this tax as an unfair burden on a necessity (the home in which they live). In Italy, the focus of our empirical analysis, the municipal real-estate tax is often at the forefront of the debate in mayoral and general elections, while other taxes and smaller charges and fees play a much more peripheral role in manifestos. At the same time, however, policy debate in Italy has also highlighted the excessive number of taxes and fees, and the inefficiency stemming from this.[2]

Taxes, such as the municipal property tax, are paid in one or two lump sums; by contrast, other government charges and fees are collected at the point of service in small increments throughout the fiscal year. Voters perceive the role the mayor plays in setting "visible" taxes, but they often lack understanding of how much leverage and freedom a mayor has in setting government fees and charges. Variations in these fees are often driven by revenue concerns, rather than by variations in the costs of provision of services.[3] Taxing properties is widely recognized as one of the most efficient and least distorting ways for governments to raise money. Because of the immobility of the tax base, property taxes constitute a stable source of revenue, less prone to cyclical swings, easy to calculate and hard to avoid; property taxes are particularly suitable for local governments (see, for

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[1]ICI is the Italian acronym for "Imposta Comunali sugli Immobili" (Municipal property tax).

[2]There is an ongoing proposal to reform the Italian local tax system, and to replace the current taxes and fees with a single Service Tax; though the issue has been debated for years, and the Italian parliament has agreed to its introduction in principle, implementation has yet to occur.

[3]As an example, one may cite the increase in burial fees of up to 100 percent in Turin in 2008. See "Morire a Torino? Troppo caro" ("Dying in Turin? Too expensive") published on September 6th, 2008, in the newspaper, La Stampa.

example, Norregaard, 2013, and Oates, 1999, 2001). A recent study by the Organisation for Economic Co-operation and Development (OECD,2010) has established that property taxes are the least distortive tax instrument in terms of reducing long-run GDP *per capita*.

In our empirical analysis, we first focus on determining which sources of revenues are and are not salient. We then estimate an equation examining the interaction between mayors' popularity and the types of revenue sources he or she uses. We find that the probability of a mayor's re-election depends (negatively) on the extent of the property tax, but not on the other sources of revenue, such as fees and charges. We take this as a test for the degree of salience of the various fiscal instruments available to Italian local policymakers.

We then proceed to test the theoretical model's prediction. We find that a 1 percent decrease in the margin of victory (i.e., the difference in the vote share) between the elected mayor and her challenger generates a 0.53 euro drop in the *per-capita* tax revenue from ICI (the main property tax in Italy) and a simultaneous increase in revenues from fees for "local services" by 0.66 euro *per-capita*. We find that, consistent with our hypothesis, electoral cycles also play an important role in shaping tax- and fee-setting decisions. Moreover, we find that substitution between fees and taxes occurs mainly in the years close to elections. In short, the effect is stronger when elections are coming up, and when candidates face more political competition.

In order to rule out possible alternative explanations, we carry out a number of robustness checks. First, we employ Regression Discontinuity Design to check whether partisan allegiance affects fiscal decisions, such as, for example, right-wing mayors preferring to fund services through specific charges, and left-wing mayors preferring to rely on general taxation. We find that the link between political competition and tax-mix choices is unaffected by the mayor's ideology thus ruling out that party preferences are the drivers of our results. Second, to address the endogeneity of the municipal margin of victory, we proxy mayoral-election political competition by *regional-election* electoral outcomes at the *municipal* level. We do this both through a reduced form model and by instrumenting for mayoral electoral outcomes with regional (municipality-level) ones. In both cases we obtain analogous results.

The concept of tax salience is closely related to the concept of fiscal illusion stemming from complex tax systems (see the seminal works by Puviani (1903) and Buchanan (1967)[4]).[5]In economics, this issue has been the object of a handful of studies: Krishna and Slemrod (2003) — drawing mainly from the psychology and marketing literatures — review how governments exploit various behavioral biases in the electorate to decrease

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[4] "... to the extent that the total tax load on an individual can be fragmented so that he confronts numerous small levies rather than a few significant ones, illusionary effects may be created." James Buchanan, Public Finance in Democratic Process: Fiscal Institutions and Individual Choice 135 (1967).

the perceived tax burden.[5] McCaffery and Baron (2006) use laboratory simulations of tax setting to show that test subjects are willing to tolerate higher overall tax levels when the tax is imposed through many smaller taxes, rather than through a single large tax, because of the inability to correctly remember the overall tax burden.

Along these lines Chetty, Looney, and Kroft (2009) use variation across U.S. states and over time to analyze the behavioral response of alcohol consumption to variations in excise (included in price) and sales taxes (added to price); they find that consumers respond more to the more salient (excise) and less to less salient (sales) taxes. They also describe a theoretical model, mostly aimed at assessing how the difference in salience affects the tax burden between sellers and buyers; however, they do not explore the potential electoral consequences of this. They then focus on the technical difficulties in reconciling the *boundedly* rational behavior of consumers — who are only partially able to calculate their tax bills — within a fully rational economic model in which consumers' budget constraints are not violated.

Finkelstein (2009) shows that the introduction of electronic toll collections on U.S. roads, tunnels, and bridges has two effects: (i) it makes citizens less likely to know the amount of toll they pay, and (ii) it is associated with an increase in tolls; i.e., electronic collection increases the equilibrium toll rate by decreasing its salience. The theoretical model distinguishes between tax salience at the time of consumption (which leads agents to overconsume goods as a result of underestimating their non-salient sale tax) and tax salience at the time of voting (which leads agents to hold to account government relatively more for more salient tax policies). Similarly, our model assumes that some fiscal instruments are (politically) more salient than others. Unlike Finkelstein (2009), however, we present a fully micro-founded model of the government's tax-setting behavior stemming from the salience differentials.

This is not the first attempt in the literature to analyze the interaction between the tax mix and electoral outcomes, or the effect of government financing on political accountability. However, to the best of our knowledge, this is the first attempt to relate the tax mix to the degree of political competition, and to thoroughly explore the transmission mechanism between the two. In addition to the works already cited, Milesi-Ferretti (2003) studies the effect of fiscal rules on economic outcomes; Alt and Dreyer Lassen (2003) look at the government's choice between taxes or debt; Coate and Morris (1995) investigates the hidden financing of interest groups; Bordignon and Minelli, (2001) consider the trade-off between accountability and efficiency; Bordignon et al. (2017) look at similar data to ours and compare the effect of the property tax to a newly established municipal income tax, and find that mayors seeking re-election (i.e., those who are not subject to a term

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[5]McCaffery and Baron dubbed this phenomenon the "disaggregation bias;" subjects appeared unable to hold together in their minds the cumulative effects of several small taxes.

limit) favored the new tax; the authors argue that this new tax was less transparent. Finally, our results can also be linked with the extensive literature on political budget cycle (for a review, see Dubois, 2016), which confirms that many public finance items are subject to pre-electoral political manipulation, and, therefore, shows a cyclical pattern across the electoral term.

The paper is organized as follows: the next section introduces the economic environment and the model. Section 3 provides some background information on Italian local electoral and tax systems, as well as data description. Section 4 presents our empirical strategy and main results.Section 5 provides robustness checks. Section 6 offers conclusions and discussion.

2   The Theoretical Framework

We develop a simple two-period model of political competition based on Dixit and Londregan (1998), Alesina and Tabellini (2007) and Bracco et al. (2015). The model focuses on the link between the choice among fiscal instruments and political competition.

2.1   The Economic Environment

We focus on a representative local jurisdictions, also referred to as a municipality, ruled by elected mayor. In each of periods $t = 1, 2$, the incumbent mayor decides on the fiscal revenue mix and provides a local public good, G_t. Mayors raise revenues from two separate sources $\{\tau_{1t}, \tau_{2t}\}$, which differ in their degree of salience (more on this later). Fiscal resources, τ_1, τ_2, and output, G, are described by the following relationship:

$$G_t = \tau_{1t} + \tau_{2t} + a_t \tag{1}$$

where a_t represents the ability of the mayor in office at time t. The ability is the realization of a random variable with known distribution. This realization is unknown to voters, but known to the individual mayor, and it is invariant over time, i.e. in case of re-election the mayor will retain her ability into Period Two. If instead the incumbent mayor loses the election, the relevant Period-Two ability is going to be that of the challenger; this is once again drawn from the same distribution.

Assuming public good provision as in Eq. (1) has two main implications: first, such public good provision depends simultaneously on the mayor's strategic choice of each of the two tax instruments $\{\tau_{1t}, \tau_{2t}\}$ and on her exogenous ability a_t; second, it implicitly imposes a balanced budget condition, i.e. a public good provision in year t is funded by tax revenues collected in year t only. This latter feature is quite innocuous with respect

to our empirical analysis: Italian municipalities are heavily restricted in their ability to employ debt instruments, especially for financing current expenditures.

The order of events is as follows: In Period One, nature draws the ability of the incumbent mayor a^M, the incumbent mayor chooses the Period One tax policy (τ_{11}, τ_{21}); and, finally, G_1 is determined via Eq. (1). At the end of Period One, voters try to infer the incumbent's ability, and they vote in municipal elections for the incumbent or the challenger. The winner takes office in Period Two, and chooses (τ_{12}, τ_{22}), which, together with her ability, determines G_2.

The specific feature of our model — and of the handful of other papers that modeled tax salience — is in the need to depart from full rationality. Following Chetty, Looney, and Kroft (2009) and Finkelstein (2009), we assume that voters face a so-called "cognitive bias" in that they are relatively unaware of the less-salient tax instrument τ_2, while are perfectly aware of the (more salient) tax τ_1. In other words, voters believe that the cost of calculating the actual amount of one tax instrument (τ_2) is larger than the potential utility gain from doing so.

The introduction of this element of bounded rationality needs to be reconciled with the (mostly) rational behavior of individual agents. As consumers, players are paying taxes, which negatively affect private consumption; as voters, they are not able to hold mayors into account for the full amount of one of the two taxes being levied. Accordingly, a justification can be mande by thinking that agents make day-to-day consumption choices consistently with the budget constraint, while, instead, agents make periodical voting decisions subject to the above-mentioned cognitive bias. An alternative and analogous interpretation is that voters only partially attribute expenditure on one tax instrument to the political responsibility of the mayor, and thus do not discount it as the product of a discretionary political decision.

Our assumption is that when voters decide whether to re-elect the incumbent, only a fraction s of tax τ_2 paid is attributed to the mayor's performance, while the awareness of the private and public good consumption is full. The implication is that, because of this cognitive limitation, voters infer the ability of mayors in a systematically imprecise way.

2.2 Payoffs

In each municipality there is a continuum of voters of mass 1 with period-specific utility

$$U^i(G_t, c_t) \;=\; c_t^i + v(G_t) \tag{2}$$
$$c_t^i \;=\; m^j - \tau_{1t} - \tau_{2t} - d(\tau_{1t}) - \delta(\tau_{2t}) \tag{3}$$

where i is the index denoting each single voter, c_t^i is the consumption of the numeraire good, $v(\cdot)$ is the monotonically increasing and concave preference for public goods, and

m^i is the private income of voter i. Finally, following a frequent modeling choice in the public finance literature (see, e.g. Bolton and Roland, 1997) we also introduce $d(\cdot)$ and $\delta(\cdot)$, which are two separate monotonic and convex functions that acknowledge the distortions created by each tax on top of the loss of income, such as deadweight loss and compliance cost. Our results would hold also in absence of these two deadweight functions; we chose to state these explicitly in order to highlight that our results are independent of the absolute or relative — administrative or economic — efficiency of each tax instrument. The shape of these functions contributes to determining the equilibrium tax mix, but it does not affect the comparative statics dynamics as reported in the Testable Predictions that conclude this theoretical section.

Substituting the budget constraint in Eq. (2), and ignoring m^i, we get a voter payoff over government policies of $v(G_t) - \tau_{1t} - \tau_{2t} - d(\tau_{1t}) - \delta(\tau_{2t})$. Moreover, following Dixit and Londregan (1998), we assume voter i has an ideological preference for the incumbent, measured negatively by X^i. So voter i's overall payoff is

$$v(G_t) - \tau_{1t} - \tau_{2t} - d(\tau_{1t}) - \delta(\tau_{2t}) - X^i \tag{4}$$

We assume X^i is distributed independently across voters and uniformly in $[\hat{\eta} - 1/2\zeta, \hat{\eta} + 1/2\zeta]$, with ζ inversely measuring the dispersion of ideological preferences in the representative municipality and where η is a random popularity shock, uncorrelated with voters' ideology and mayor's choices, hitting the municipality before election and uniformly distributed on the support $[-1/2\psi, 1/2\psi]$.

Mayors are quasi-benevolent, i.e. they care about the utility of their citizens, either because they are (at least partially) public spirited or because they are citizens themselves; they also receive, however, an "ego rent" ρ when they are in office. We assume that ρ is large enough so that any incumbent mayor always prefers to be re-elected, independently of her ability.[6]

Let us spell out the intertemporal utility function U^M of the mayor in power at $t = 1$; for the sake of simplicity we assume that the intertemporal discount factor is unity:

$$U^M = \rho + c_1^M + v(G_1) + p\left(\rho + U_2^M(a^M)\right) + (1 - p)\,E_a[U_2(a)]] \tag{5}$$

where p is the probability of incumbent re-election, $U_2^M(a^M)$ is the utility net of the ego rent ρ in case of re-election (which depends on the incumbent mayor's ability), and $E_a[U_2(a)]$ is the utility in case of electoral defeat, which is an expectation over the ability distribution of the challenger.

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[6]In other words: $\rho > E_a[v(\tau_{12} + \tau_{22} + a)] - v(\tau_{12} + \tau_{22} + a^M)$, where a^M is the period-one incumbent's ability, and the expectation operator signifies the expected public good provision in Period Two of a mayor with random ability.

2.3 Theoretical Results

We solve the model backwards. In Period Two the incumbent mayor maximizes her utility. In absence of re-election incentives, a mayor's utility is the analogous to the one of a citizen (see Eq. 2). The Period-Two first-order conditions of the sitting mayor M are:

$$\frac{\partial U_2^M}{\partial \tau_{12}} = v'(\tau_{12} + \tau_{22} + a^M) - 1 - d'(\tau_{12}) = 0 \tag{6}$$

$$\frac{\partial U_2^M}{\partial \tau_{22}} = v'(\tau_{12} + \tau_{22} + a^M) - 1 - \delta'(\tau_{22}) = 0 \tag{7}$$

from which we can derive the mayor's equilibrium Period Two tax strategy $\{\tau_{21}^*(a^M), \tau_{22}^*(a^M)\}$. The mayor's decision on fiscal matters in Period Two depends crucially on her ability, and by the Envelope Theorem we can state that voters' utility in Period Two is increasing in the mayor's ability, i.e.:

$$\frac{\mathrm{d}U_2^M\left(\tau_{21}^*(a^M), \tau_{22}^*(a^M)\right)}{\mathrm{d}a^M} = \frac{\partial U_2^M}{\partial a^M} = v_a'(G_2) > 0 \tag{8}$$

As a direct implication, voters' Period-One problem can be reduced to inferring the mayor's ability from her Period One tax policy.

In Period One, voters are fully aware of public good provision (G_1), but discount one of the two tax instrument τ_{21} only partially. Given taxes — whether fully (τ_{11}) or partially (τ_{21}) perceived — voters incorrectly infer the total revenues, and "discount" that from the observed public good. The difference between these two is the inferred ability of the incumbent mayor. As $G_t = \tau_{1t} + \tau_{2t} + a$,

$$a^e = G_1 - \tau_{11} - s\tau_{21} = a^M + (1-s)\tau_{21} \tag{9}$$

where G_1 is the amount of public good consumed in Period One, a^e is the inferred ability, a^M is the actual ability of the incumbent, and $s \in (0,1)$ is the salience of the second tax instrument τ_2. We can see how voters' cognitive bias leads them to systematically overestimate the ability of the mayor; the effect is more pronounced the higher is τ_{21}. The other tax instrument τ_{11} is, instead, fully discounted, and has a neutral impact on the inference problem. We can summarize these findings in the following lemma.

Lemma 1. *The effect of a change in the fiscal choices on the expected ability is*

$$\frac{\partial a^e}{\partial \tau_{11}} = 0, \quad \frac{\partial a^e}{\partial \tau_{21}} = 1 - s \tag{10}$$

In other words, voters fully discount one kind of tax, and partially discount the other, introducing a further "favor" of mayors for the less salient revenue source.

As voters' utility in Period Two only depends on the ability of the mayor, we can expect this to play out as a simple threshold-based rule. Voter i's electoral behavior can be written as: *vote for the incumbent if $U_2(a^e) - X_i > E_a[U_2(a)]$, vote for the challenger otherwise.* In other words, voters will compare the utility they expect to get from re-electing the incumbent $U_2(a^e)$, whose ability a^e has been imperfectly inferred, and the utility of electing the challenger $E_a[U_2(a)]$, whose ability is unknown (with known distribution).[7] We can therefore state the popularity equation in the following Lemma.

Lemma 2. *The incumbent expects to receive the following vote share:*

$$V = \frac{1}{2} + \zeta[U_2(a^e) - E_a[U_2(a)] - \hat{\eta}] \tag{11}$$

and her probability of winning is:

$$p = \frac{1}{2} + \psi[U_2(a^e) - E_a[U_2(a)]] \tag{12}$$

Proof in Appendix.

As we can see, the probability of winning crucially depends on the incumbent mayor's ability as inferred by voters a^e. As shown in Lemma 1, the inferred ability depends only on the non-salient tax because public good provision funded by the salient tax is fully discounted by voters. In other words: the incumbent mayor needs to use the non-salient tax τ_{21} to influence voting behaviour. From this, together with Eq. (5) one can calculate the incumbent's Period One first-order conditions.

$$\frac{\partial U_1^M}{\partial \tau_{11}} \quad : \quad (v'_{G_1} - 1 - d'_{\tau_{11}}) = 0 \tag{13}$$

$$\frac{\partial U_1^M}{\partial \tau_{21}} \quad : \quad (v'_{G_1} - 1 - \delta'_{\tau_{21}}) + \psi(1-s) \, v'(a^e)(U_2^M(a^M) + \rho - E_a[U_2(a)]) = 0 \tag{14}$$

where by a^M we mean the ability of Period-One mayor, and $v'(a^e)$ is the marginal utility from consuming public goods for an amount that a mayor with ability a^e would provide. The first part of both first-order conditions is very similar between Eqs (13) and (14), and represents the marginal utility of increasing each tax instrument (and therefore spending). The extra term of Eq. (14) signifies the effect on the probability of winning (and therefore on the mayor's Period-Two utility) and of increasing the amount of non-salient taxes τ_{21}. As already mentioned, the salient tax instrument τ_{11} instead has a neutral effect on elections as it is perfectly discounted by voters.

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[7]More pedantically, one may write $E_a[U_2(a)] = \int U_2(a)f(a)\mathrm{d}a$ where $f(a)$ is the probability distribution function of the ability.

Assuming the equilibrium is an interior solution, we can interpret the parameter ψ as a measure of the variability the mayor faces in the probability of winning. In other words, higher ψ is related to a more uncertain electoral result. In this sense we can relate the value of the parameter ψ with the electoral competitiveness of a municipality or, analogously, the uncertainty of the electoral result.

Totally differentiating the first-order conditions, one may state the following testable predictions (proof in Appendix).

Testable Prediction 1. *Salient taxes τ_1 decrease as the competitiveness of the locality ψ increases.*

Testable Prediction 2. *Non-salient taxes τ_2 increase as the competitiveness of the locality ψ increases.*

Testable Prediction 3. *Holding everything constant, salient taxes are lower and non-salient taxes are higher in election years than in non-election years ($\tau_{11} < \tau_{21}, \tau_{21} > \tau_{22}$).*

As we show in the Appendix, we proxy an election year with Period One and a non-election year with Period Two. Note that in Period Two mayors care only about their own utility, and they are not concerned about re-election; in this way, differences in Period-One and Period-Two behaviors can shed light on the behavior of mayors seeking re-election as opposed to mayors facing a term-limit. This theoretical results can also be linked with the extensive literature on political budget cycle (for a review, see Dubois, 2016); the result expands the literature's findings by analysing the interaction between revenue sources, rather than the variation of single items across the electoral cycle.

3 Background Information and Data

In this section we present some relevant background information on the Italian local electoral system and public finance.

3.1 Institutional Framework

Italian municipalities (*comuni*) are ruled by a mayor (*sindaco*), who is directly elected every five years,[8] and is subject to a two-term limit. The electoral system varies according to a population threshold: *large* municipalities (with more than 15,000 inhabitants) use a runoff system, while *small* municipalities (with fewer than 15,000 inhabitants) use simple

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[8]Before 2000, mayors were elected to four-year terms.

plurality.[9] Mayors are responsible for the provision of the following services: land management and environment (water, sewage, public hygiene), social services, local transport, local police, culture and recreation, and education (mainly nursery schools and complementary services). The balance of power between mayor and council is strongly in favor of the mayor: the electoral system always awards her a solid majority in the council, and freely chooses the members of the executive committee (*giunta*); her resignation would trigger new council and mayoral elections.

In our sample period, the political system was dominated by two large electoral cartels that alternated in governments in every tier. At the national level, a right-wing coalition ruled Italy from 2001 to 2006. The left-wing coalition ruled from 1996 to 2001, and then again from 2006 until 2008. At least for the vast majority of large municipalities, local elections involve the same coalitions supporting joint mayoral candidates, such that local and national political debates appeared quite coherent with each other, while in small municipalities local unaffiliated candidates often prevail. From official data on mayors published by the Interior Ministry we are able to see each mayor's political allegiance (i.e.,under which party-label he or she ran for election); Table A1 in the Appendix provides a full list of the parties coded by political coalitions for municipalities that are included in our regression sample.

3.2 Local government financing

During the period of our analysis, municipalities' revenues come from two main sources: transfers from upper tiers of government (mainly central and regional governments) and municipalities' own revenues.[10] There are two types of own revenue recorded in Italian municipalities' Final Budget Accounts: (i) revenue from taxes, and (ii) revenue from fees.

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[9]*Small* and *large* municipalities also differ in the electoral system for their city councils. These are elected together with the mayor through an open-list proportional representation system, in which lists are explicitly linked to mayoral candidates. In *small* municipalities, each mayor is supported by a single city council list, and voters express a single vote for the mayor and the associated list. The mayoral candidate who gets the plurality of votes is elected, and two-thirds of the council seats are awarded to her associated list. In *large* municipalities, mayoral candidates can be supported by more than one list (i.e., by a coalition of lists), and voters cast two separate votes: one for the mayor, and one for the list; voters are allowed to split their tickets. The lists associated to the winning mayor (who is elected through a runoff system) are awarded 60 percent of seats in the council.

[10]The use of a debt instrument is strongly restricted by the so-called "Internal Stability and Growth Pact," through which the central government limits the ability of local authorities to incur debt, in order to comply with the European Union's constraints on deficit and debt. Moreover, the Italian Constitution allows local governments to use debt financing only to cover capital expenditures. Because our analysis focuses on current expenditures, we abstain from considering the debt as an active source of financing.

The main source of tax revenue for Italian municipalities is a property tax, denoted ICI, introduced in 1992, and applied to real estate. This tax, which accounts for about 33 percent of municipalities' own revenues, is characterized by a high degree of transparency: property owners have to pay it (in one or two installments) every year directly to the municipality where the estate is located. The tax base is represented by the land registry values.[11] Mayors are free to set the tax rate within a given boundary (between 0.4 percent and 0.7 percent of the "land-registry estimated income"); mayors also have the power to lower the tax burden of resident homeowners through a discounted tax rate.

Another source of tax revenue in Italian municipalities is the waste-disposal tax (TARSU/TIA), which is calculated (similarly to the ICI) on land registry values; municipalities enjoy total freedom in tax-rate setting for the waste-disposal tax. Finally,other minor sources of tax revenues are the taxation of personal income — through the national income-tax surtax — and electricity surcharge.

Both the property and the waste-disposal tax are paid once a year directly to the council (or to the service provider). However, the waste-disposal tax occupies a less central place than the property tax in the political debate. The waste-disposal tax also generates fewer revenues. Bordignon et al. (2017) argue (but do not directly test the proposition) that the latter group of "other" taxes is relatively less salient than the property tax: personal income surtax and electricity surcharge are not paid directly to the municipality, and are instead paid jointly with other items (personal income tax, electricity bill).

Additional own revenues are raised through means of a large array of fees: for parking permits and certificates, for the use of public spaces and areas, for the use of public billboards, etc. These fees account for around 38 percent of municipalities' own revenue. The common denominators of these fees are that each of them is comparatively small, and that they are generally paid several times during the year.[12] As a result, it is often very difficult for voters to have a clear picture of the overall amount of such payments. The main formal difference between taxes and fees is that while both are a charge paid to the government by individuals or by a business, a tax is levied as a part of the common burden while a fee is specifically applied for the use of a service; unlike taxes, a fee ought to be directly linked to the cost of providing the service. This is not usually the case, however,for Italian municipalities, where there are virtually no statutory constraints on the amount and source of revenue municipalities can raise through fees, or regulations regarding how revenues are to be spent.

As described in Table A2 of the Appendix, only a small fraction of the local govern-

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[11]The land registry (*Nuovo Catasto Edilizio Urbano*) was constituted between 1939 and 1956. So far two revisions of property values have taken place in 1979 and 1990. The Italian Ministry of Finance is responsible for the registry's maintenance and updates.

[12]A full list of fees is provided in the Appendix (Table A3).

ments' costs is covered by revenues from fees. There is high variation between municipalities in the use of fees, highlighted by standard deviations reported in the last column of the table (see also MEF, 2014). This implies that fees are often seen as an additional source of revenues to finance the general spending needs of the local government. Some fees, one may argue, are also subject to very rigid demands (i.e., there is little to no choice about whether to "purchase" services such as parking tickets, and compulsory school meals).

3.3 Data Description and Variables' Definition

Our dataset includes municipal financial data, census data, and ballot data of municipal elections from 1999 to 2008. Years before 1999 are excluded because of the lack of available financial data; years after 2008 are excluded because after that time the structure of the municipal property tax was subject to a deep reform process.[13] Municipal elections are not synchronized; the large number of municipalities implies that every year local elections can be observed.

The empirical analysis is focused on large municipalities, i.e., those with a population of more than 15,000 residents; these municipalities account for over 60 percent of the Italian population. This choice has been motivated by the different structure of Italian municipalities with populations below 15,000; these small municipalities are characterized by a different electoral system.[14] These small municipalities tend to manage most of the provision of the services in association with other small municipalities, and this practice reduces mayors' autonomy in the decision-making process. We also exclude municipalities in "Special-Autonomy" regions, which are potentially subject to different electoral and public finance regulations.[15] The exclusion of small municipalities, outliers and municipalities with missing values from our dataset leaves us with a sample of over 500 local councils.

We start by describing our main variables of interest (the dependent variables of the empirical model), which are measures of *salient* and *non-salient* fiscal instruments.

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[13]In December 2007, the government approved the 2008 Budget Law, which ensured a reduction in the property tax rate for a relatively large portion of homeowners. After some months, the (newly elected) government repealed this tax for almost all homeowners. This implies that electors expected a tax rate decrease to take place at least as of late 2007. This anticipated tax change may possibly have had some impact on the elections held in 2008. However, restricting our analysis to the 1999-2007 sub-period provide almost identical results; thus, we decided to keep 2008 data in the analysis.

[14]In Italy mayors are directly elected by a first-past-the-post system in small municipalities (below 15,000 inhabitants), and by a run-off system in large municipalities (above 15,000 inhabitants).

[15]A full list of fees is provided in the Appendix (Table A3). Five out of the 20 regions in Italy have been granted special autonomy: these are Valle d'Aosta, Trentino-Alto Adige, Friuli-Venezia Giulia, Sicily, and Sardinia. Less than 10 percent of Italians live in these regions.

In particular, tax sources of revenues are subdivided into three separate variables: the property tax (ICI), the waste-disposal tax (TARSU/TIA), and the sum of municipal income surtax and the electricity surcharge; the property tax is the largest item in terms of revenues (see Table 1). We also consider the value of the "reduced" property tax rate, applied only to residents, and the standard tax rate, applied to everybody else. Our expectation is that these strictly defined, tax-derived sources of revenues are the most salient levies; they mirror parameter τ_1 of our theoretical model.

Other sources of revenues are fees and charges. We subdivide these into two variables: (i) *Fees for General Services*, which include the long list of small fees reported in the Final Budget Accounts under the item *Revenues from local fees* (burial fees, fines, etc.), and (ii) *Fees for other services*, which include municipal advertising taxes, fees for the occupation of public spaces and areas, and fees related to the issue of vital record certificates. Our expectation is that these sources of revenues — fee, broadly speaking — are relatively less salient; they mirror parameter τ_2 of our theoretical model.

To make the above fiscal variables comparable across municipalities, we compute the *per-capita* values of all monetary variables, and we also deflate them using the consumption price index provided by the Italian Institute of Statistics (ISTAT), with 2010 as a baseline year. A detailed list of municipal taxes and fees is provided in Table A3 in the Appendix.

Finally, to analyze tax and fee setting simultaneously, we compute the tax ratio, TR, as the share of *per capita* local taxes (property, waste-disposal and "other") over total fiscal revenue ($\tau_1/(\tau_1 + \tau_2)$), as reported in Table 1. This ratio ranges from 22 percent to 92 percent. Table 1 also reports summary statistics for local taxes and fees, breaking down the figures by type.

Insert table 1 in about here

Next, our key explanatory variable is a measure of political competition, PC, to proxy for ψ in each municipality over time. We follow Galasso and Nannicini (2011) to construct our measure for ex ante political contestability as the lagged margin of victory in mayoral election results ($l.MV.$). This is calculated as the difference between the vote share obtained by the winner and the runner-up.[16]Values of $l.MV.$ close to zero refer to mayors who won by a very small margin, and therefore were subjected to intense electoral competition; larger values correspond to mayors elected with a large margin and who were therefore less subjected to competition. For the ease of exposition, we define

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[16]If the mayor is elected in the first round (because he or she got more that 50 percent of votes), firstround results are used; if a second round is held, second-round results are used instead.

$PC = -l.MV$ as our measure of political competition. As a further strategy, similarly to the methodology of Galasso and Nannicini (2011), we also compute an alternative measure of political contestability: the margin of victory using the municipality-specific vote share of center-right and center-left coalitions in previous regional council elections. In regional elections, voters cast two separate votes: one for the governor, and one for the regional council party lists. It is reasonable to assume that when voters decide on the council elections, they tend to vote more ideologically, as opposed to when they decide on governors and instead put more weight on candidates' personal attributes and charisma. So, the former (the council elections) should constitute a good representation of the ex ante distribution of ideologies across municipalities.

Insert table 2 in about here

To ensure that our results are effectively driven by political competition rather than by municipalities' other political attributes, we employ additional political controls. First, to take into account a mayor's political preferences, we construct an indicator variable, a local government coalition dummy, taking the value of one if the mayor is supported by a left-wing coalition and zero otherwise. Second, to control for the effect of central government policy preferences on local tax setting, we include a central government coalition dummy taking the value of one if the central government is run by a left-wing coalition and zero otherwise. To test for a possible alignment effect on tax policies (occurring when the mayor shares the same political coalition with either the prime minister or the governor of the region), we construct two alignment dummies, taking the value of one if the mayor is aligned and zero otherwise. To address the issue that tax setting may exhibit a cyclical behavior, we include an electoral cycle control, which measures the number of years from the last election (i.e., the variable takes value of zero the year of the election, one the following year, and so on, with the maximum value being four and corresponding to the year before new elections). Finally, because term-limited mayors may face different incentives compared to mayors seeking re-election, we include an incumbent dummy, which is equal to one if the mayor is at her second mandate and zero otherwise.[17] Detailed summary statistics for these variables are presented in Table 2.

Insert table 3 in about here

Other control variables we employ in the regressions are the following:

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[17]Mayors are allowed to serve for, at most, two consecutive terms.

1. *Socio-demographic* and *geographical* variables: resident population, proportion of the population less than 14 and over 65 years old, proportion of residents with a university degree and proportion illiterate, and discrete variables measuring the geographical characteristics of the municipality.[18] These variables are collected from the Statistical Atlas of Municipalities, issued annually by the Italian National Statistical Institute (ISTAT).

2. *Economic variables*: total income from real estate, total income from sources other than from real estate, percentage of resident taxpayers, and the proportion of unemployed, of self-employed, and of residents working for the service sector. The sources for these variables are ISTAT, and the Ministry of Finance.

3. *Public finance* variables: municipalities' total public expenditures, total grants from the central and regional governments, and government deficits. Public expenditures and deficits are lagged by one year in the empirical model. The sources for these variables are the Italian ministries of finance and of internal affairs.

We observe a lot of variation in the data, including the size of the municipalities, demographic characteristics, economic profiles, and political and public finance characteristics. Descriptive statistics for these variables are reported in Table 3.

4 Empirical Strategy and Main Results

4.1 A Test on Salience

We start by using the data to understand which of the various sources of revenues is "salient," i.e., fully discounted by taxpayers in their voting behaviour. Our hypothesis is that taxes such as the property tax and the waste disposal tax, which are paid in one or two lump-sum payments, are more salient than fees and charges.[19]

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[18]These are an indicator for the average height of the municipality above sea level (altimetric zone) and an indicator for urbanization.

[19]In the case of Italy, the saliency of the property tax is quite evident. In fact, we may recall how the property tax ICI has been at the centre of the political debate. During the embattled 2006 electoral campaign, the leading centre-right candidate Silvio Berlusconi narrowed his disadvantage in the polls by making a lastminute promise to abolish ICI for owners-occupiers. In 2007, the (narrowly) winning center-left coalition increased the tax allowance on this tax, making most taxpayers exempt. In 2008, new elections were called, and Berlusconi's coalition won the elections on a platform that included the property tax exemption for owners-occupiers. One may argue that, as the financial crisis hit Italy, much of the unpopularity of the technocratic Monti government in 2013 could have been ascribed to its decision to reform and substantially hike property-related taxes. The mayoral electoral campaigns often concentrate

To verify this intuition, we estimate the mayors' popularity equation, i.e., we estimate the probability of an incumbent's re-election as a function of sources of tax revenues. Our empirical strategy, in this case, is to estimate the following probit model considering only the subsample of the electoral years (denoted by the subscript e).

$$I_{ie} = \beta \tau_{ie} + \delta F_{ie} + \omega' \mathbf{Z}_{ie} + v_e + \xi_{ie}; \tag{15}$$

In equation (15) $I_{ie} = 1$ if the incumbent in municipality i is re-elected and zero otherwise, τ_{ie} and F_{ie} are measures of (implicit) rates for various local taxes and fees respectively. Also, $\mathbf{Z}_{ie}$ is a matrix of control variables, including the whole set of controls reported in Table 3. Finally, v_e is a year dummy and ξ_{ie} is an i.i.d. error term.[20]

If, as this paper maintains, mayors' actions are driven by the relative salience of tax instruments,, then we should expect β to be negative and significant, and δ non-significant. This empirical exercise also allows us to verify that voting behavior is not consistent with other alternative hypotheses. According to Hettich and Winer (1984, 1988), politicians choose the revenue mix in order to minimize the political cost of taxation; this implies that in equilibrium the marginal electoral cost of each source of taxation should be equalized, and that revenue sources that are politically less damaging should be used more intensely. Similarly, and coherently with a more recent political economy literature, one could argue that mayors do this by targeting taxation towards specific groups that are electorally less relevant. Specifically, this could mean that the incumbent mayor would target a specific group of voters who prefer low (property) taxes and high fees.If mayors in our dataset behaved consistently with Hettich and Winer (1984,1988), we would expect both taxes and fees to have detrimental effects on the probability of the incumbent mayor winning election, i.e., we would expect both β and δ to be negative and significant. If instead the idea that the revenue mix depends on group targeting than we should expect β to be negative, and δ to be positive. If our hypothesis of salient taxes and non-salient fees is correct, we should expect that voters will change their voting behavior only in response to (property) tax setting, but, by contrast, will be unresponsive to fee setting.

Table 4 reports point estimates for the coefficients βs and δs. We present regression results for two definitions of incumbent: *incumbent candidate*[21] and *incumbent party*.[22]

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on ICI tax rates and exemptions.

[20]Standard errors are clustered at municipal level, clustering at provincial level produce almost identical results.

[21]In this case, we consider only incumbents who can run for re-election, i.e., we exclude all the cases where the mayor cannot seek re-election because of term limits. So, under this definition I_{ie} is equal to one if the incumbent mayor is re-elected for the second time and, zero otherwise.

[22]In this case, we use a broad definition of incumbent under which the incumbent is the mayor's party rather than the person of the mayor. Under this definition I_{ie} is equal to one if the winning mayor in elections held at time $e + 1$ in municipality i belongs to the same coalition as the winner of the elections

In columns 1 and 4, the regressions are run without $Z_i e$, and in columns 2, 3,5, and 6, the matrix of additional controls is included. Consistent with our hypothesis on the use of fiscal instruments according to their degree of salience, we can clearly note that the probability of an incumbent re-election is always negatively affected by salient tax instruments (property taxes, waste-disposal and other taxes). However, we observe a statistically significant result only for the property tax setting; in particular, our regression results show that a 1 percent increase in the property tax rate negatively affects the probability of incumbent re-election by between 9 percent (using the broad definition of incumbent) and 16 percent (using the stricter definition of incumbent). For all the other measures of fees there is, with some specifications, evidence of a positive impact on the probability of re-election; in particular, we observe a positive and statistically significant impact in the case of fees for local services. The finding is in contrast to the hypothesis regarding group targeting, and confirms the scarce electoral salience of fees as opposed to the property tax.[23]

Insert table 4 in about here

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4.2   Tax Ratio Equation

We then turn our attention to our main predictions, i.e. that political competition shifts policymakers' choices toward the use of the less salient fiscal instruments. We first look at the link between the preferred mix of own fiscal revenue and the degree of political competition. We do this by estimating the tax ratio equation, TR, and then estimating the determination of taxes and fees items separately.

The driving mechanism illustrated by our model is that political competition changes policymakers' incentives regarding how to raise tax revenue. In particular, our theoretical predictions suggest that when electoral competition is strong, mayors raise a higher proportion of tax revenue by increasing the less-salient instruments (Testable Prediction 2) and reducing the use of the salient ones (Testable Prediction 1) compared to the case when electoral competition is low. To examine this link empirically we estimate regressions of the form:

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at time e; this is quite consistent with the commonplace scenario in which the deputy mayor steps in when the incumbent mayor cannot seek re-election.

[23]We have tried to estimate equation (15) using the MV as a dependent variable. We obtain similar results, which are available upon request

$$TR_{it} = \alpha_i + v_t + \delta PC_{it} + \phi' Z_{it} + \varepsilon_{it} \qquad (16)$$

where TR_{it} represents the proportion of the salient instrument as a share of overall fiscal revenues ($\tau_1/(\tau_1 + \tau_2)$) in municipality i at time t, PC_{it} is our measure of political competition, Z_{it} is a matrix of controls described in Section 3.3, α_i and v_t are municipality and year effects, and ε_{it} is an i.i.d. error term. We estimate the panel data model reported in equation (16)using the Feasible-GLS estimator and Mundlak (1978) approach. This approach consists of including among the regressors municipal means of each time-variant variable. This allows to include time invariant variables as regressors [24] and obtain, at the same time, estimates equivalent to those from the Within-the-Group estimator. Finally, we report robust standard errors adjusted for clustering at the municipal level.

The baseline results are presented in Tables 5 and A4. In Table 5 our measure of political competition is constructed on the lagged MV in mayoral elections, while in Table A4 we use the lagged values of MV calculated on regional elections.

We believe that the mayors' fiscal choices do not affect voting behavior in (previously held) municipal or regional-council elections, and that our measures of political competition are exogenous to the tax-setting behavior of mayors. Nevertheless, to further exclude any source of possible endogeneity of political competition and fiscal choices, and to include a further model specification, we also use an IV approach, instrumenting the mayoral election margin of victory with the regional council election margin of victory. The results of these regressions are relegated to the Appendix, and are fully consistent with our main results.[25]

Starting from Table 5: the first column contains estimates of the basic specification in equation (16). We find a strong positive link between the extent of political competition and tax policy decisions. For example, in this specification, without other controls, a 1 percentage point increase in incumbent's political competition is associated with a decrease in the tax ratio of 0.15 percentage points.

The remaining columns of Table 5 present the results when additional controls are added to the baseline specification in equation (16). In particular, in column two, we include our political variables: the incumbent, the alignment dummies, the local government coalition dummy, and the electoral cycle dummy. We propose two variations to model electoral cycles; first, by using individual year-from-an election dummies (columns

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[24]These are variables include the rural degree and the altimetric zone, for example.

[25]Other authors have used IV approaches as well: Besley, Persson and Sturm (2010) uses the share of population in U.S. states subject either to a literacy test or a poll tax as an instrument for political competition at state level. Fiva and Natvik (2013) uses election results in neighburing municipalities as an instrument for political competition in each municipality in Norway. Svaleryd and Vlachos (2009) uses past national election results as an instrument for local political contestability.

(2) and (4)), second by employing a quadratic function in years from an election (columns (3) and (5)). In columns (4) and (5), the political dummies are interacted with our political competition measure, PC, and augmented with the full set of controls described in the previous section.

Some other results warrant emphasis: First, consistent with Testable Prediction 3, when expressed in term of a quadratic function, electoral cycles play an important role in shaping revenue-mix decisions, with all the related coefficients being highly significant. The interpretation of this result is that the substitution between fees and taxes occurs mainly in the years close to elections, and wanes to its minimum around the middle of the five-year period. Second, there is no evidence that left-wing and right-wing mayors behave differently from one another when they make decisions on the source of fiscal revenues. Third, a mayor who cannot seek re-election in the following term because of term limits (i.e. *incumbent* equal to one) is less likely to rely heavily on fees rather than on taxes, especially when electoral competition is high, which is in line with Testable Prediction 3. Moreover, our results are not sensitive to the inclusion of additional controls as shown in the last two columns of Table 5.

Insert table 5 in about here

In order to check whether our results are sensitive to the way ex ante political contestability is measured, we repeat the same regressions as the ones displayed in Table 5 using an alternative measure of political competition, based on the regional elections' margin of victory. The main feature is that there is not substantial difference in the estimated coefficients in the two tables, in terms of sign, significance and magnitude. The coefficients for these estimates are displayed in Table A4 in the Appendix.

Finally, one may argue that re-elected mayors are better in providing services when using certain types of fiscal tools rather than when using other fiscal tools, and that this is driving our main results. To explore this possibility, we replicate the regressions displayed in Table 5 using only the subset of re-elected mayors, i.e., mayors in their second (and last) term in office.The outcomes from this exercise are displayed in Table 6.

Insert table 6 in about here

The results in Table 6 are very similar to those displayed in Table 5. There is no detectable difference in the use of fiscal revenues by first-term and re-elected mayors; the

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[25]We are grateful to an anonymous referee for suggesting this route.

results confirm that the substitution of revenue sources is driven by contestability rather than by selection (i.e. re-election).

Another possibility is that mayors' strategic behavior may originate from the supply of goods and services as well. We explore this possibility by re-running equation (16) using municipality current expenditures *per capita* as a dependent variable instead of the tax ratio. The results indicate very clearly that the level of political contestability does not affect the level of public spending. The outcomes for this exercise are displayed in in Table A5 in the Appendix. In synthesis, the emerging picture confirms our hypothesis that mayors who are in more competitive municipalities, and in the period of elections, substitute the more visible and politically "costly" source of revenues (taxes) with the less-salient fees.

4.3   Tax and Fee Setting Behavior

In the previous section we established that the use of taxes will be relatively low (high) compared to the use of fees when electoral competition is high (low); in this section, we examine decision making concerning specific taxes and fees in term of their absolute value. Our theory clearly predicts that, as electoral contestability increases, taxes should decrease, and fees should rise. The model we now estimate is:

$$y_{it} = \alpha_i + v_t + \varphi PC_{it} + \omega' Z_{it} + \varepsilon_{it}; \Rightarrow y_{it} = \tau_{it}, F_{it} \tag{17}$$

where y_{it} is in turn equal to the various specific tax and fee variables, Z_{it} is the matrix of controls employed in the previous sets of regressions, α_i and v_t are fixed effects and time dummies and ε_{it} the error. PC_{it} is our measure of political contestability,[26] so the coefficient of interest is φ. The expected sign for φ is negative for the salient taxes (in particular the property tax) and positive for the less salient fees.

Insert table 7 in about here

The results are displayed in Table 7: the first three columns report the estimated co-efficients when our dependent variable is a measure of our salient instruments (*property, waste-management tax, and other taxes*, respectively), and the last two columns present the results for the non-salient instruments (*fees for local services* and *other fees*). As the

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[26]In this section we present results when political competition is proxied by lagged MV in municipal elections, results for MV calculated on regional elections are in Table A4 in the Appendix.

table clearly shows, the results are consistent with our hypothesis: if political competition increases 1 percentage point, on one hand, the revenues from property taxes, waste disposal and other taxes decrease by 0.53, 0.44, and 0.19 euros *per capita*, respectively; however, the latter two are not significantly different from zero. On the other hand, revenues from fees increase by about the same amount, by 0.66 euros *per capita* for *fees for local services*, and by 0.18 euros *per capita* for *other fees*; the latter is not significant. Note also that, consistent with the results discussed in the previous section, left and right coalitions do not show different preferences regarding the set of fiscal instruments.

4.4 Alternative measures for property tax: residents vs. non residents

To provide further support to our hypotheses, we look into the effect of electoral competition on the tax rates of the most salient tax: the ICI property tax. Municipalities apply a reduced tax rate to residents (who are also voters), as opposed to non-residents (who cannot vote). If our hypotheses are correct, we should expect that electoral competition should more strongly affect the decision on the (resident) reduced tax rate, and have a smaller effect (if any) to the non-resident standard rate.

Insert table 8 in about here

Table 8 reports regression results for equation (17) when our dependent variable, τ, is in turn the standard non-resident property tax rate, and the reduced resident property tax rate. In the same model our main explanatory variable, political competition, is calculated on the lagged MV of municipal elections. The table shows that political competition only affects the reduced tax rate; a 1 percent increase in the level of political competition has a negative impact on reduced tax rates of about 0.53 percentage points. Note that, from the inspection of Table 1, the average reduced rate is 0.5 percent while the average standard rate is 0.6 percent. Therefore, it is clear that the effect of political competition on the former is larger. Moreover, this effect appears highly sensitive to the position in the electoral cycle. Figures 1a and 1b plot the combined coefficient of PC for each year of the electoral cycle, as displayed in columns (2) and (3) of Table 8. The graphs show how the impact of political competition on the reduced tax rate changes with the electoral cycle, reaching its minimum value (per percentage point of political competition) in the year before the election, and becoming much weaker in the middle of the electoral cycle. Note

also that using individual-year dummies or a quadratic function to represent the electoral cycle does not affect the shape of the graph. By contrast, there is no effect of political competition on the standard tax rate, which is consistent with our hypothesis (Testable Prediction 3).

Insert Figure 1a and 1b in about here

5 Robustness Checks

5.1 Partisan preferences and close races

In Section 4 we have shown that revenue choices are shaped by the degree of political competition rather than by party preferences. This is also in line with our theoretical predictions. The results displayed in tables 5-8 suggest that this is the case, because the local government coalition dummy is always not significant. However, because this is an important point, we investigate it further.[27]

Our empirical strategy to identify a coalition effect is to exploit the fact that the mayors' victory changes discontinuously at 0 percent of mayoral candidates' victory margin. This allows us to identify a possible coalition effect in tax- and fee-setting behavior by implementing a regression discontinuity design (RDD) on the margin of victory of one coalition over the other, by comparing municipalities where center-left (center-right) mayors have barely won the elections against a center-right (center-left) opponent. In other words, the focus is on left and right candidates' races decided by a narrow margin. Lee (2001, 2008) shows that this approach represents quasi-random variation in candidate winner, because, as long as there is some unpredictability in voting behavior, when the race is very tight, the winner is likely to be determined by pure chance.

More formally, we compute the margin of victory for the center-right candidate (MVR) in each municipality: positive (negative) values indicate that a center-right, R, (center-left, L) candidate has won the election. Note that the probability of having a center-right-wing mayor has a sharp discontinuity equal to 1 at the threshold $MVR = 0$. So RDD estimates the effect of the mayor's party-coalition on tax- and fee-setting behavior. Note that, also in this specification the margin of victory is lagged because municipal elections usually

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[27]One could argue, for example, that there could be a correlation between the margin of victory, our measure of political contestability, and coalition identity, and that, therefore, we could erroneously attribute the choice of the revenue mix to political competition rather than to party preferences.

take place in April-May of year n, while fiscal variables of year n depend on decisions made in December of year n-1.

There are various ways in which RDD can be implemented. In what follows we present two different approaches. First, following Pettersson-Lidbom (2008), we use the whole sample available, and we regress our dependent variable on a *pth*-order polynomial in the control function, in addition to the binary treatment indicator. Because we are interested in the effect of political coalitions on taxes and fees setting, our dependent variable is TR_{it}, previously defined. The model we estimate takes the following form

$$TR_{it} = \gamma_0 R_{i,t} + f(MVR_{i,t})\varphi + \rho' Z_{i,t} + v_t + \mu_i + \xi_{i,t} \tag{18}$$

where R is our center-right coalition dummy that takes value of one if the mayor ruling municipality i is supported by a center-right coalition, this is our treatment variable. The coalition effect is estimated controlling for the margin of victory under a different hypothesis on its functional form $f(MVR)$[28] as well as the interaction of all of these terms with R. Finally Z is the vector of control variables employed in the previous set of regressions, $\xi_{i,t}$ the error terms (standard errors are clustered at municipal level), v_t is a year dummy, and μ_i is the unobserved heterogeneity. We treat μ_i as a municipality fixed effect. The coefficient of interest, γ_0 in equation (18), represent the coalition effect at zero threshold.

Imbens and Lemieux (2008) raise a possible concern with the above estimation method: that it may be sensitive to outcome values for observations far away from the threshold. To address this we also implement the *local linear regression* approach, which restricts the sample to municipalities in the interval $MVR_{i,t} \in [-h, +h]$, where h is an optimally chosen bandwidth, here selected following the methodology suggested by Calonico, Cattaneo and Titiunik (2014).[29] So, the second model we estimate is as follows:

$$TR_{it} = \rho_0 + \rho_1 R_{i,t} + \phi_0 MVR_{i,t} + \phi_1 R_{i,t} \times MVR_{i,t} + \nu_t + \mu_i + \xi_{i,t} \tag{19}$$

where ν_t are year effects, μ_i municipalities fixed effects, $\xi_{i,t}$ the error terms, standard errors are clustered at municipal level. ρ_1 is our coefficient of interest and identifies the coalition effect at the zero threshold.

Results of the estimation of γ_0 in equation (18) and ρ_1 in equation (19) are reported in Table 9; we experiment different specifications of the two models, which include or exclude the full set of controls and the fixed effects, and we present the results using up to third degree polynomial orders [30] equation (18) and also doubling the optimal bandwidth

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[28]Our control function is: $f(MVR_{it}) = \beta_{01}MVR_{it} + \beta_{02}MVR_{it}^2 + ... + \beta_{0p}MVR_{it}^p + \beta_1 R_{it}MVR_{it} + \beta_2 R_{it}MVR_{it}^2 + ... + \beta_p R_{it}MVR^p$.

[29]This is implemented using the STATA command *rdrobust*.

[30]Gelman and Imbens (2014) show that using high-order polynomials should be avoided.

in equation (19) as a further robustness check.

The table shows that there is not a clear difference in behavior regarding the tax-ratio setting by left-and-right wing mayors - as estimated around the zero threshold. Both models presents similar results.

We also report the graphical analysis. Figure 2a displays a graphical representation of equation (18), by reporting running-mean smoothing (separately on either side of the threshold) for the percentage of votes won by the incumbent mayor in the latest election (on the horizontal axis) and the tax ratio (on the vertical axis). The visual analysis of the data and the cross-validation procedure (proposed by Lee, Lemieux, 2010) always suggests using a bandwidth of 0.02 or more, therefore, in order to make the graphical representation more effective, 50 bins are reported in all figures. The figures also help with the visualization of the estimated equations with respect to the presence of a discontinuity at the cutoff point, and the relationship between outcome and assignment variable. In particular, Figure 2a refers to equation (18) and highlights no clear evidence of a discontinuity at the cutoff point for TR and a U-shaped relationship between the outcome and the assignment variable. This latter finding confirms that both left- and right-wing mayors behave similarly vis-a-vis electoral competition, relying more strongly on taxes when competition is weak. Figure 2b shows graphical analysis for equation (19) implemented using the optimal bandwidth and shows no clear evidence of a significant discontinuity in TR around the threshold.

One important validity test for regression discontinuity estimates is to check whether the density of the running variable is continuous at the threshold. The underlying assumption that generates the local random assignment result is that each individual has imprecise control over the assignment variable. An intuitive test of this assumption is whether the aggregate distribution of the assignment variable is discontinuous, since a mixture of individual-level continuous densities is itself a continuous density. Using Mc-Crary (2008) procedure, Figure A1 in the Appendix shows a graph of the raw densities computed over bins with a bandwidth of 0.01 (100 bins in the graph), along with a smooth 2nd-order polynomial model. The graphs show no evidence of discontinuity at the cutoff confirmed also by a formal RD regression using polynomials up to the 4th-order in the control function.

Another important test for the validity of the RD design is to examine whether the covariates do not exhibit any discontinuity in relation to the margin of victory. As suggested by Lee and Lemieux (2010) we test the null of discontinuities in all covariates simultaneously estimating a Seemingly Unrelated Regression (SUR) where each equation represents a different baseline covariate, and then performing chi-square test for the discontinuity gaps in all equations being zero. As reported in Table A6 in the Appendix we cannnot reject the null hypothesis of zero discontinuity in all covariates in relation to almost all polynomial orders of the margin of victory.

6 Conclusions

This paper has explored the link between electoral competition and tax-setting behavior. In particular, we have analyzed the choices mayors make about the mix of taxes they use, and how these choices are affected by electoral incentives.

When collecting revenues, mayors can often decide among a number of tax instruments characterized by different levels of salience (e.g., property taxes as opposed to fees and charges). Because voters are less likely to take notice of the less salient charges, they are also less likely to impute them to the mayor's political responsibility. Our theoretical model predicts that mayors facing stronger electoral competition choose to rely relatively more on less salient revenue sources to decrease the overall "electoral cost" of raising funds. On the other hand, mayors facing moderate electoral competition have less of an incentive to hide their sources of revenues from voters, and rely relatively more on salient revenue sources.

These findings are confirmed by our empirical analysis, which focuses on the choices on revenue mixes made by Italian mayors in the period from 1999 to 2008. We use data to explore which sources of revenues are more salient. We find that the property tax is the most salient tax instrument; by contrast, fees and charges are among the least salient. We then explore the link between electoral competition and tax-mix choices. We find that mayors who won with a narrower margin of victory, i.e., those who faced a stiffer electoral competition, were more likely to increase the proportion of revenue coming from fees, as opposed to taxes. The reverse also holds true; mayors who won with broader margin are less likely to resort to fees over taxes. Moreover, we find that this behavior is unaffected by the political affiliation of the mayor.

These results enrich our understanding of the interplay between electoral incentives and political accountability. Elections are commonly seen as a positive force that improves political selection and disciplines politicians. This is challenged by our findings: if policymakers can choose between an array of policy instruments with various degrees of salience, they will also disproportionately use the least salient tool when their election

is at greater risk (localities in which either party could win with a small margin of victory) or when voters are more sensitive to policy decisions (in the pre-election period). This, in turn, weakens the positive role that elections are playing in keeping politicians accountable to voters.

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Appendix

Proofs

Lemma 2

A generic voter i votes for the incumbent if:

$$U_2(a^e) - X_i > E[U_2(a)], \text{ i.e. } X_i \leq U_2(a^e) - E[U_2(a)]$$

As voters' ideology X_j is uniformly distributed, we can calculate the vote share for the incumbent mayor as

$$V = \frac{1}{2} + \zeta[U_2(a^e) - E_a[U_2(a)] - \hat{\eta}] \tag{20}$$

To calculate the probability of winning we can updated re-arrange the expression of V to obtain the values of η such that at least 50% of votes are obtained:

$$\frac{1}{2} + \zeta_i[U_2(a^e) - E_a[U_2(a)] - \hat{\eta}] \quad > \quad \frac{1}{2} \tag{21}$$

$$\hat{\eta} \quad < \quad U_2(a^e) - E_a[U_2(a)] \tag{22}$$

Knowing the distribution of η, one can easily calculate:

$$p = \frac{1}{2} + \psi[U_2(a^e) - E_a[U_2(a)]] \tag{23}$$

$\square$

Proof of Testable Predictions

Proof of Testable Predictions 1 and 2

As we refer to a representative municipality, we drop the municipality-specific subscript i. All subscripts refer to the time periods.

Let us first recall (see Eq. [8]) that voters' Period Two equilibrium utility is increasing in the mayor's ability. Let us now recall the incumbent mayor's inter-temporal utility function:

$$U^M = \rho + c_1^M + v(G_1) + p \ (\rho + U_2^M(a^M)) + (1 - p) \ E_a[U_2(a)]$$

where U_2^M is the utility in case of re-election, and $E_a[U_2(a)]$ is the utility in case of electoral defeat (which is an expectation over the distribution of ability in the pool of potential candidates).

From Eqs. (6)-(7) we know that the second-period decision on the two tax instruments depends on the ability of the mayor and are anticipated by voters. For a given belief a on

the ability of the incumbent mayor, we define therefore $v_2(a)$ as the Period Two utility from public good consumption, and $U_2(a)$ as the Period Two representative voter's utility. Similarly, as ability is a random variable with unknown realization but known distribution, we define the expectation operator E_a as the expectation over the probability distribution function of a.

From Eq (12), we can also calculate:

$$\frac{\partial p}{\partial \tau_{11}} = 0 \tag{24}$$

$$\frac{\partial p}{\partial \tau_{21}} = \psi \, \frac{\partial [U_2(a^e) - E_a[U_2(a)]]}{\partial \tau_{21}} \tag{25}$$

$$\text{with} \quad \frac{\partial [U_2(a^e) - E_a[U_2(a)]]}{\partial \tau_{21}} = (1-s)v_2'(a^e) \tag{26}$$

which leads us to the period-one first-order conditions:

$$\frac{\partial U^M}{\partial \tau_{11}} \; : \quad (v_1' - 1 - d') = 0 \tag{27}$$

$$\frac{\partial U^M}{\partial \tau_{21}} \; : \quad (v_1' - 1 - \delta') + \psi(1-s) \, v_2'(a^e) \left(U_2^M(a^M) + \rho - E_a[U_2(a)] \right) = 0 \tag{28}$$

Totally differentiating the first order conditions (27)-(28) with respect to ψ, one obtains:

$$\begin{bmatrix} U_{\tau_{11}\tau_{11}}^M & U_{\tau_{11}\tau_{21}}^M \\ U_{\tau_{11}\tau_{21}}^M & U_{\tau_{22}\tau_{22}}^M \end{bmatrix} \begin{bmatrix} d\tau_{11}^*/d\psi \\ d\tau_{21}^*/d\psi \end{bmatrix} = - \begin{bmatrix} U_{\tau_{11}\psi}^M \\ U_{\tau_{21}\psi}^M \end{bmatrix}$$

with

$$\begin{aligned}
U_{\tau_{11}\tau_{11}}^M &= v_1'' - d'' < 0 \\
U_{\tau_{21}\tau_{21}}^M &= v_1'' - \delta'' + \psi(1-s)^2 \, v_2''(a^e)(U_2^M(a^M) + \rho - E_a[U_2(a)]) < 0 \\
U_{\tau_{11}\tau_{21}}^M &= v_1'' < 0 \\
U_{\tau_{11}\psi}^M &= 0 \\
U_{\tau_{21}\psi}^M &= (1-s) \, v_2'(a^e)(U_2^M(a^M) + \rho - E_a[U_2(a)]) > 0
\end{aligned}$$

The determinant of the above matrix, which we can call $|D|$, is strictly positive by the concavity assumption. Again by assumption all the elements of the Hessian matrix are negative. From which we can calculate that $d\tau_{11}^*/d\psi < 0$, and that $d\tau_{21}^*/d\psi > 0$. $\qquad \square$

Proof of Testable Prediction 3

We can also observe that in case $s = 1$ the first-order conditions are identical across period (compare Eqs. [13-14] with Eqs. [6-7]). We can therefore apply the same technique as

above, as if doing a comparative statics exercise with respect to s. The matrix form simultaneous equations can be written as:

$$
\begin{bmatrix} U^M_{\tau_{11}\tau_{11}} & U^M_{\tau_{11}\tau_{21}} \\ U^M_{\tau_{11}\tau_{21}} & U^M_{\tau_{22}\tau_{22}} \end{bmatrix} \begin{bmatrix} d\tau^*_{11}/ds \\ d\tau^*_{21}/ds \end{bmatrix} = - \begin{bmatrix} 0 \\ -\psi \ v'(a^e) \ U^M_2(a^M) \end{bmatrix}
$$

which implies that $d\tau^*_{11}/ds > 0$ and $d\tau^*_{21}/ds < 0$, i.e. as salience increases (or as we pass from Period One to Period Two) τ_1 increases and τ_2 decreases. As Period One (period 2) proxies an electoral (non-electoral) year, the third testable prediction is proved. $\qquad \square$

Further Robustness Tests: IV Analysis

An endogeneity bias in our estimates might arise if the degree of political competition at municipal level is influenced by local fiscal policy decisions. Possible endogeneity issues of the municipal margin of victory are addressed by running instrumental variables regressions using regional electoral margin of victory at the municipal level as strictly exogenous instrument.

Our strategy is to estimate the tax ratio equation in model (16) and the property tax rate equation in model (17) instrumenting our measure of municipal political competition (PC_i) with the regional elections' margin of victory. The strict exogeneity of the instruments is ensured by the nature of the variables, being determined only by regional politics.

Table A7 reports the results, every model is run twice: the first time allowing for a constant term, time and municipal fixed effects only; the second time adding all controls. Finally the last two columns report the first stage regressions.

The instrumental variables regressions confirm the previous evidence of the negative impact that political competition exerts on the tax ration and on the level of the property tax.

Finally, the first stage of the 2SLS reveals that most of the variation across municipal political competition is explained by the local political orientation captured by the regional election results. The estimated coefficient is highly significant and the positive sign is in line with the prior. Both the underidentification test and the weak identification reported in the last two lines of column five provide a formal test for the validity of our IV analysis.

Tables and Figures

Insert tables A1-A7 in about here
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Tables

Table 1 - Summary statistics of dependent variables (regression sample)

Description	Mean	Std.Dev.	Min	Max
Tax ratio (salient taxes over total local taxes and fees), %	65.87	10.90	22.15	92.25
Property tax, real euro per capita	209.31	90.25	8.22	647.96
Property tax rate (reduced rate), ‰	5.02	0.66	0	7
Property tax rate (standard rate), ‰	6.39	0.66	4	7
Waste management taxes, real euro per capita	102.39	70.93	0	976.22
Other taxes (municipal income tax, electrical surcharge) real euro per capita	53.51	34.74	0	278.07
Local Fees for General services (excluding waste management) real euro per capita	175.00	111.04	10.51	848.26
Local Fees for Other services - real euro per capita	27.90	30.41	0	260.06

Table 2 - Summary statistics of political variables (regression sample)

Description	Mean	Std.Dev.	Min	Max
Margin of victory (municipal election), %	18.86	16.07	0.03	74.27
Margin of victory (regional election, at municipal level), %	18.95	12.89	0.04	63.13
Alignment dummy 1=local gov. aligned with central gov.	0.50	0.50	0	1
Incumbent dummy - 1 = the incumbent is reelected (second term)	0.38	0.49	0	1
Local government coalition, 1=left, 0=right	0.63	0.48	0	1
Electoral cycle, year from election	2.02	1.30	0	5
Central government coalition, 1=left, 0=right	0.34	0.47	0	1

Table 3 - Summary statistics of control variables (regression sample)

Description	Mean	Std.Dev.	Min	Max
Resident population	57,298	160,217	14,650	2,769,012
Population below 15, % over total pop.	14.63	3.23	8.24	28.80
Population over 65, % over total pop.	17.24	4.49	3.80	29.53
*Illiterate people, % over total pop.	1.32	1.15	0.18	7.71
*Graduates, % over total pop.	6.89	2.89	1.53	17.29
Income (no real estate) real euro per-capita	16,827.27	3,283.64	7,602.59	32,319.21
Income from real estate	1,736.37	532.42	537.18	4,389.78
% of resident taxpayers	83.24	3.55	69.22	93.20
*Unemployed, % over total active pop.	12.48	9.48	2.55	49.30
*Service sector workers, % over total workers	61.59	10.29	23.79	84.59
*Self-employed workers, % over total workers	23.16	3.93	13.78	39.14
Total current grants, real euro per-capita	246.18	147.75	3.60	1,217.15
Local current expenditure, real euro per-capita	829.58	227.71	30.54	1,856.29
Deficit, real euro per-capita.	170.81	239.13	0	2,404.12
*Rural degree, 1=low, 3=high	2.39	0.61	1	3
*Altimetirc zone, 1=low, 5 = high	4.08	1.11	1	5

*Time invariant

Table 4 - Probit model, dependent variables = 1 if the incumbent is re-elected 0 otherwise

	incumbent candidate			incumbent party		
	(1)	(2)	(3)	(4)	(5)	(6)
Property tax (reduced resident tax rate) [1]	-10.638	-8.935	-16.414	-11.354	-9.552	-9.880
	(0.000)***	(0.002)***	(0.001)***	(0.000)***	(0.000)***	(0.006)***
Waste manag. Taxes (implicit tax rate) [2]	-3.872	-1.602	-0.160	-4.511	-0.127	-2.372
	(0.331)	(0.701)	(0.990)	(0.230)	(0.974)	(0.782)
Other taxes (implicit tax rate) [2]	-13.450	-16.823	-10.138	-4.541	-8.690	-10.803
	(0.298)	(0.184)	(0.584)	(0.721)	(0.472)	(0.427)
Other fees (implicit tax rate) [2]	12.263	10.315	-1.051	-1.859	-5.678	0.813
	(0.319)	(0.400)	(0.953)	(0.855)	(0.553)	(0.940)
Fees for local services (implicit tax rate) [2]	5.740	1.839	-1.534	8.484	0.375	-6.528
	(0.026)**	(0.503)	(0.843)	(0.007)***	(0.910)	(0.277)
Years dummy	yes	yes	yes	yes	yes	yes
Controls A	no	yes	yes	no	yes	yes
Controls B	no	no	yes	no	no	yes
Observations	567	567	220	721	721	342
Pesudo R-squared	0.085	0.103	0.089	0.128	0.170	0.073

Notes. Dependent variable: incumbent re-elected equal to one and zero otherwise. All independent variables are expressed in terms of variation rate with respect to the value registered in the year before the election. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Controls A variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita). Controls B variables include: total current grants (real euro per-capita lagged), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged). All coefficients can be interpreted as the change in the probability of re-election after a 1% change in the tax rates.
(1) The reduced property tax rate is the tax rate relevant for resident taxpayers since it is applied only on the main dwellings.
(2) The implicit tax rate is computed as the ratio between the tax revenue and the total declared income at municipal level.

Table 5. Tax Ratio Regressions (all sample)

	(1)	(2)	(3)	(4)	(5)
PC (political competition)	-0.144***	-0.140***	-0.140***	-0.165***	-0.154***
	(0.0229)	(0.0230)	(0.0230)	(0.0436)	(0.0418)
State Alignment Dummy (=1 if local gov. aligned		0.316	0.344	0.0134	-0.0296
with central gov.)		(0.276)	(0.274)	(0.539)	(0.535)
PC X State Alignment Dummy				0.00326	-0.000362
				(0.0260)	(0.0249)
Incumbent Dummy(=1 reelected incumbent		-0.0875	-0.0883	1.040	1.024
second term)		(0.359)	(0.359)	(0.643)	(0.644)
PC X Incumbent Dummy				0.0554**	0.0545**
				(0.0234)	(0.0235)
Local gov coalition (1= center lft, 0= center right)		1.046*	1.058*	0.406	0.369
		(0.605)	(0.606)	(0.897)	(0.903)
PC X Local gov coalition				0.00118	-0.00169
				(0.0451)	(0.0450)
Region Alignment Dummy (=1 if local gov. aligned		-0.159	-0.164	0.126	0.179
with regional gov.)		(0.430)	(0.431)	(0.708)	(0.710)
PC X Region Alignment Dummy				0.00383	0.00838
				(0.0309)	(0.0306)
Electoral Cycle (election year)		0.711**		0.787	
		(0.352)		(0.618)	
Electoral Cycle (1 year after elections)		0.414		1.334**	
		(0.340)		(0.672)	
Electoral Cycle (2 years after elections)		0.151		0.434	
		(0.323)		(0.592)	
Electoral Cycle (3 years after elections)		-0.627		-0.418	
		(0.385)		(0.693)	
Electoral Cycle (4 years after elections)		-0.212		-0.966	
		(1.612)		(2.433)	

Table 5. Tax Ratio Regressions (all sample)

	(1)	(2)	(3)	(4)	(5)
PC X Electoral Cycle (election year)				0.0160	
				(0.0289)	
PC X Electoral Cycle (1 year after elections)				0.00876	
				(0.0337)	
PC X Electoral Cycle (2 years after elections)				-0.0109	
				(0.0283)	
PC X Electoral Cycle (3 years after elections)				0.000487	
				(0.0243)	
PC X Electoral Cycle (4 years after elections)				-0.407	
				(0.329)	
Electoral Cycle (continuus variable)			0.594**		1.098**
			(0.276)		(0.504)
Electoral Cycle Squared			-0.194***		-0.302**
			(0.0687)		(0.121)
PC X Electoral Cycle (continuus variable)					-0.00162
					(0.0279)
PC X Electoral Cycle Squared					-0.000144
					(0.00669)
Observations	2,852	2,852	2,852	1,975	1,975
Municipal Dummmies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Control Variables	No	No	No	Yes	Yes

Notes. Dependent variable: Tax Ratio (%). PC is minus margin of victory calculated on previous mayoral elections. Clustered standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, regional and national current grants (real euro per-capita), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).

Table 6. Tax Ratio Regressions (sub-sample of winners)

	(1)	(2)	(3)	(4)	(5)
PC (political competition)	-0.131***	-0.125***	-0.125***	-0.178***	-0.166***
	(0.0255)	(0.0256)	(0.0255)	(0.0490)	(0.0484)
State Alignment Dummy (=1 if local gov. aligned with central gov.)		0.503	0.534*	0.205	0.169
		(0.313)	(0.308)	(0.589)	(0.582)
PC X State Alignment Dummy				0.0139	0.00923
				(0.0257)	(0.0251)
Incumbent Dummy(=1 reelected incumbent second term)		0.0379	0.0396	1.238	1.175
		(0.517)	(0.517)	(0.843)	(0.845)
PC X Incumbent Dummy				0.0572*	0.0533*
				(0.0294)	(0.0299)
Local gov coalition (1= center lft, 0= center right)		1.502**	1.524**	1.335	0.0533*
		(0.746)	(0.745)	(1.055)	(0.0299)
PC X Local gov coalition				0.0337	1.336
				(0.0595)	(1.053)
Region Alignment Dummy (=1 if local gov. aligned with regional gov.)		-0.308	-0.308	0.179	0.236
		(0.475)	(0.475)	(0.759)	(0.765)
PC X Region Alignment Dummy				0.179	0.236
				(0.759)	(0.765)
Electoral Cycle (election year)		0.653		0.898	
		(0.407)		(0.654)	
Electoral Cycle (1 year after elections)		0.403		1.437*	
		(0.393)		(0.774)	
Electoral Cycle (2 years after elections)		0.173		0.472	
		(0.397)		(0.738)	
Electoral Cycle (3 years after elections)		-0.544		-0.304	
		(0.454)		(0.840)	
Electoral Cycle (4 years after elections)		-1.450		-1.780	
		(1.862)		(3.125)	
PC X Electoral Cycle (election year)				0.0182	
				(0.0288)	
PC X Electoral Cycle (1 year after elections)				0.00130	
				(0.0374)	
PC X Electoral Cycle (2 years after elections)				-0.0215	
				(0.0341)	
PC X Electoral Cycle (3 years after elections)				-0.00240	
				(0.0323)	
PC X Electoral Cycle (4 years after elections)				-0.357	
				(0.417)	

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Table 6. Tax Ratio Regressions (sub-sample of winners)

	(1)	(2)	(3)	(4)	(5)
Electoral Cycle (continuus variable)			0.568*		1.169**
			(0.321)		(0.584)
Electoral Cycle Squared			-0.183**		-0.317**
			(0.0784)		(0.135)
PC X Electoral Cycle (continuus variable)					-0.00885
					(0.0307)
PC X Electoral Cycle Squared					0.00126
					(0.00718)
Observations	2,346	2,346	2,346	1,614	1,614
Municipal Dummmies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Control Variables	No	No	No	Yes	Yes

Notes. Dependent variable: Tax Ratio (%). PC is minus margin of victory calculated on previous mayoral elections. Clustered standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, regional and national current grants (real euro per-capita), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).

Table 7 - Sources of revenue regressions

	(1) Property Tax	(2) Waste Manag. Tax	(3) Other Taxes	(4) Other Fees	(5) Fees for Local Services
PC (political competition)	-0.530*	-0.449	-0.193	0.189	0.665**
	(0.286)	(0.308)	(0.165)	(0.130)	(0.333)
Electoral Cycle (election year)	0.937	0.965	1.146	-0.647	-11.93***
	(3.672)	(3.809)	(2.594)	(1.969)	(4.040)
Electoral Cycle (1 year after elections)	-2.956	2.427	2.033	-0.478	-11.03**
	(3.583)	(3.420)	(2.359)	(2.215)	(4.583)
Electoral Cycle (2 years after elections)	-1.426	-1.678	0.536	-0.568	-6.225
	(3.507)	(3.394)	(2.559)	(2.232)	(3.924)
Electoral Cycle (3 years after elections)	1.639	1.735	-0.614	2.189	-0.962
	(4.311)	(3.979)	(2.110)	(2.344)	(4.550)
Electoral Cycle (4 years after elections)	3.166	26.82**	7.873**	1.058	17.16
	(7.292)	(10.38)	(3.433)	(6.554)	(11.40)
PC X Electoral Cycle (election year)	0.000897	0.123	0.0413	-0.0947	-0.410**
	(0.151)	(0.218)	(0.105)	(0.0997)	(0.193)
PC X Electoral Cycle (1 year after elections)	-0.246	0.181	0.0966	0.0134	-0.585***
	(0.159)	(0.231)	(0.105)	(0.110)	(0.222)
PC X Electoral Cycle (2 years after elections)	-0.0177	0.114	-0.0844	-0.0389	-0.286
	(0.131)	(0.185)	(0.127)	(0.115)	(0.181)
PC X Electoral Cycle (3 years after elections)	0.512**	0.570**	-0.0135	0.116	0.175
	(0.244)	(0.267)	(0.104)	(0.102)	(0.230)
PC X Electoral Cycle (4 years after elections)	0.263	3.807	0.26	0.748	3.564***
	(0.909)	(3.122)	(0.346)	(1.092)	(1.307)

Table 7 - Sources of revenue regressions

	(1) Property Tax	(2) Waste Manag. Tax	(3) Other Taxes	(4) Other Fees	(5) Fees for Local Services
State Alignment Dummy (=1 if local gov. aligned with central gov.)	1.209 (2.068)	0.684 (2.564)	-1.182 (1.484)	-1.814 (1.901)	3.65 (3.580)
PC X State Alignment Dummy	-0.184* (0.102)	0.144 (0.135)	0.0371 (0.0703)	-0.00918 (0.0830)	0.327** (0.153)
Region Alignment Dummy (=1 if local gov. aligned with regional gov.)	-3.933 (3.874)	1.605 (4.512)	-4.266* (2.503)	-0.647 (1.907)	-3.8 (4.607)
PC X Region Alignment Dummy	-0.203 (0.187)	0.0889 (0.253)	-0.217 (0.142)	-0.0772 (0.0838)	-0.303 (0.241)
Local gov coalition (1= center lft, 0= center right)	-3.041 (3.965)	-3.275 (5.096)	4.648* (2.599)	-1.058 (2.707)	-2.582 (6.398)
PC X Local gov coalition	0.0191 (0.263)	-0.304 (0.364)	0.0856 (0.129)	0.0513 (0.114)	0.519 (0.405)
Incumbent Dummy(=1 reelected incumbent second term)	-3.382 (3.704)	3.492 (4.010)	3.713* (2.160)	-3.26 (2.235)	-7.839 (5.080)
PC X Incumbent Dummy	0.0305 (0.180)	0.101 (0.207)	0.185* (0.0944)	-0.186** (0.0919)	-0.264 (0.248)
Observations	2,942	2,942	2,942	2,942	2,942
Municipal Dummmies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes

Notes. Dependent variable: Various Items. PC is minus margin of victory calculated on previous mayoral elections.

Clustered standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%.

Control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, regional and national current grants (real euro per-capita), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).

Table 8 - Property Tax (ICI), tax rate regressions, discounted (relevant for resident tax payers) and standard rates, PC based on municipal elections

	Resident Reduced Rates			Standard Rates		
	(1)	(2)	(3)	(4)	(5)	(6)
PC (political competition)	-0.00537* (0.00324)	-0.00526* (0.00304)	-0.00523** (0.00246)	-0.00484 (0.00530)	-0.00586 (0.00496)	-0.000893 (0.00386)
Incumbent Dummy(=1 reelected incumbent second term)	0.0103 (0.0330)	0.011 (0.0330)	0.0201 (0.0356)	-0.0465 (0.0629)	-0.0467 (0.0628)	-0.0127 (0.0526)
PC X Incumbent Dummy	0.000486 (0.00110)	0.000495 (0.00110)	0.000972 (0.00113)	-0.000501 (0.00195)	-0.00047 (0.00198)	0.00159 (0.00196)
Local gov coalition (1= center lft, 0= center right)	-0.134 (0.0959)	-0.134 (0.0953)	-0.0954 (0.0696)	-0.0314 (0.120)	-0.0315 (0.120)	0.00749 (0.0940)
PC X Local gov coalition	-0.00294 (0.00393)	-0.00293 (0.00388)	-0.00378 (0.00286)	-0.00104 (0.00547)	-0.000874 (0.00547)	-0.00264 (0.00499)
Region Alignment Dummy (=1 if local gov. aligned with regional gov.)	-0.0186 (0.0347)	-0.0179 (0.0348)	0.00969 (0.0324)	0.0207 (0.0453)	0.0181 (0.0448)	0.0448 (0.0418)
PC X Region Alignment Dummy	0.00047 (0.00185)	0.000538 (0.00186)	0.000564 (0.00195)	0.00292 (0.00211)	0.00259 (0.00204)	0.00458** (0.00218)
Electoral Cycle (election year)			0.0726*** (0.0231)			0.0930*** (0.0356)
Electoral Cycle (1 year after elections)			0.0627** (0.0273)			0.110** (0.0500)
Electoral Cycle (2 years after elections)			0.0272 (0.0261)			0.145*** (0.0458)
Electoral Cycle (3 years after elections)			-0.0289 (0.0290)			0.104** (0.0442)
Electoral Cycle (4 years after elections)			0.00226** (0.000916)			-0.000176 (0.00153)

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Table 8 - Property Tax (ICI), tax rate regressions, discounted (relevant for resident tax payers) and standard rates, PC based on municipal elections

	Resident Reduced Rates			Standard Rates		
	(1)	(2)	(3)	(4)	(5)	(6)
PC X Electoral Cycle (election year)			0.0015 (0.00108)			0.000147 (0.00179)
PC X Electoral Cycle (1 year after elections)			7.81E-05 (0.00101)			0.00267 (0.00168)
PC X Electoral Cycle (2 years after elections)			-0.001 (0.00101)			0.00175 (0.00187)
PC X Electoral Cycle (3 years after elections)			-0.0197 (0.0220)			-0.0509* (0.0284)
PC X Electoral Cycle (4 years after elections)			-0.00119* (0.000709)			-0.00212* (0.00117)
Electoral Cycle (continuous variable)		0.0799*** (0.0303)			0.123** (0.0482)	
Electoral Cycle Squared		0.00244* (0.00125)			0.00299 (0.00193)	
PC X Electoral Cycle (continuous variable)		-0.0227*** (0.00835)			-0.0250** (0.00989)	
PC X Electoral Cycle Squared		-0.000706** (0.000317)			-0.000629 (0.000438)	
Observations	2,019	2,019	2,912	2,019	2,019	2,912
Municipal Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

Notes. Clustered standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, total current grants (real euro per-capita lagged), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).

Table 9 – RDD results, coalition effect on tax ratio

RD Model	Controls+FE	Coefficient estimates		Observations
Local linear reg. 5.6%	*no*	2.188	(2.0389)	1161
Local linear reg. 11.2%	*no*	0.7383	(1.3776)	1853
1st poly.	*no*	-0.4234	(0.7396)	2286
2nd poly.	*no*	0.0937	(0.9891)	2286
3rd poly.	*no*	2.7891**	(1.2128)	2286
Local linear reg. 5.6%	*yes*	2.1836	(2.1705)	976
Local linear reg. 11.2%	*yes*	0.5199	(1.5367)	1561
1st poly.	*yes*	-0.3844	(1.1488)	1897
2nd poly.	*yes*	0.41	(1.6458)	1897
3rd poly.	*yes*	1.4946	(2.0517)	1897

Notes. Clustered standard errors in brackets * significant at 10%; ** significant at 5%; *** significant at 1% Optimal bandwidth =0.05628 calculated using *rdbwselect* and *rdrobust* commands in Stata following Calonico, Cattaneo and Titiunik (2014).

Appendix

Table A1. Political classification of parties (1998-2008)

Center-Left	No.	Center-Right	No.	Independents	No.
CEN-SIN(LS.CIVICHE)	2,565	CEN-DES(LS.CIVICHE)	1,245	LISTA CIVICA	265
CEN-SIN	629	CEN-DES	403	IND	57
DEMOCRATICI SINISTRA	246	FORZA ITALIA	251	SVP	20
PDS	193	LEGA NORD	181	UV	7
SINISTRA	140	CENTRO	127	PATTO SEGNI	6
L'ULIVO	84	ALLEANZA NAZIONALE	87	DEMOCRAZIA EUROPEA	5
P.POPOLARE ITALIANO	39	POLO PER LE LIBERTA'	30	MOV. PER L'AUTONOMIA	5
PPI (POP)	27	CCD	26	RINNOV.IT-ALTRI	5
DL.LA MARGHERITA	18	CASA DELLE LIBERTA'	17	SI	4
RIF.COM.	17	CDU	14	LISTA LOCALE	1
LA MARGHERITA	16	IL POPOLO DELLA LIBE	13	PRI	1
PROGRESSISTI (1994)	8	LEGA LOMB-LEGA NORD	10		
CEN-SIN(CONTR.UFF.)	7	LG.NORD-LG.VENETA	10		
PARTITO DEMOCRATICO	7	L.VEN-L.NORD	9		
POPOLARI	6	LISTA CIVICA	9		
IND.SIN.	5	UDC	9		
PER VERONA	5	CCD-CDU	7		
PROGRESSISTI SALERNO	5	DESTRA	7		
SDI-ALTRI	5	FI-CCD	5		
FED.DEI VERDI	4	FI-CCD-AN	5		
UNITI NELL'ULIVO	4	POLO BUON GOVERNO	5		
ALL. DI PROGRESSO	3	CDL	4		
CENSIN	3	CENDES	4		
I DEMOCRATICI	3	LG.VENETA REPUBBLICA	4		
LA MARG.	2	U.D.EUR	3		
SDI	2	U.D.EUR POPOLARI	1		
SOCIALISTIALTRI	2	FI-CCD-CDU	1		
U.D.EUR	2	FORZA IT.-POLO POP.	1		
U.D.EUR POPOLARI	2	PDL	1		
P.DEM.	1				
PATTO DEMOCRATICI	1				
POPOLARI-CIVICA	1				
VERDI	1				
TOTAL	4,053		2,489		376

Notes: Frequencies record the number of elected mayors in large municipalities classified as supported by each party. U.D.EUR and U.D.EUR POPOLARI are classified as a Center-Left party for the years 2006-2008 when they supported the center-left government.

Table A2 - Percentage of expenditure financed by fees (average values in the regression sample)

Variables	% of total expenditure	% financed by fees		
		mean	*median*	*std. dev.*
General administration	31.09	2.23	1.73	3.19
Environmental services	22.10	12.85	3.48	18.21
Social services	11.97	11.00	6.56	12.72
Education (complementary services)	10.01	13.43	12.35	9.94
Public Roads and Transport*	7.84	6.15	0.54	11.29
Local police	5.73	37.83	35.20	24.52
Culture	4.03	3.88	0.71	6.82
Nursery	3.53	12.41	11.10	11.75
Sport	1.91	8.63	4.08	12.04
Justice	0.92	0.31	0.00	2.54
Tourism	0.88	2.91	0.00	11.62

*Revenues from tickets are not included

Table A3 – Taxes and Fees in Italian municipalities

LOCAL TAXES	LOCAL FEES	LOCAL FEES for other services
Property tax, Waste disposal, Municipal income tax, Electricity surcharge	Sewerage and water, Revenue from municipal assets, Fines, School transport, Nursery and preschool, Burial fees, Elderly care, Road traffic and related services, Theatres and cultural activities, Municipal stadium and swimming pools, Libraries, museums and art galleries	Municipal advertising tax, Occupation of public spaces and areas, Public billboards, Vital record certificates

Table A4. Tax Ratio Regressions on regional elections (all sample)

	(1)	(2)	(3)	(4)	(5)
PC (political competition)	-0.127***	-0.127***	-0.127***	-0.0983*	-0.112**
	(0.0210)	(0.0217)	(0.0216)	(0.0508)	(0.0493)
State Alignment Dummy (=1 if local gov. aligned with central gov.)		-0.131	-0.0897	-0.0530	
		(0.303)	(0.300)	(0.624)	
PC X State Alignment Dummy				0.0143	-0.00551
				(0.0263)	(0.621)
Incumbent Dummy(=1 reelected incumbent second term)		0.348	0.347	-0.000453	0.0171
		(0.375)	(0.375)	(0.810)	(0.0261)
PC X Incumbent Dummy				-0.00611	0.0215
				(0.0371)	(0.809)
Local gov coalition (1= center lft, 0= center right)		0.597	0.618	-0.0469	-0.00520
		(0.639)	(0.639)	(1.111)	(0.0373)
PC X Local gov coalition				-0.00297	-0.110
				(0.0472)	(1.113)
Region Alignment Dummy (=1 if local gov. aligned with regional gov.)		-0.105	-0.108	0.487	-7.711***
		(0.412)	(0.412)	(0.843)	(2.060)
PC X Region Alignment Dummy				0.0180	0.477
				(0.0385)	(0.841)
Electoral Cycle (election year)		0.731*		-0.0781	
		(0.393)		(0.703)	
Electoral Cycle (1 year after elections)		0.412		1.342*	
		(0.362)		(0.755)	
Electoral Cycle (2 years after elections)		0.0761		0.940	
		(0.331)		(0.686)	
Electoral Cycle (3 years after elections)		-0.545		-0.485	
		(0.363)		(0.715)	
Electoral Cycle (4 years after elections)		1.467**		4.506***	
		(0.709)		(1.467)	
PC X Electoral Cycle (election year)				-0.0341	
				(0.0292)	
PC X Electoral Cycle (1 year after elections)				0.0178	
				(0.0303)	
PC X Electoral Cycle (2 years after elections)				0.0291	
				(0.0289)	
PC X Electoral Cycle (3 years after elections)				-0.00371	
				(0.0274)	

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Table A4. Tax Ratio Regressions on regional elections (all sample)

	(1)	(2)	(3)	(4)	(5)
Electoral Cycle (continuus variable)			0.546*		1.397**
			(0.297)		(0.589)
Electoral Cycle Squared			-0.183**		-0.359**
			(0.0742)		(0.143)
PC X Electoral Cycle (continuus variable)					0.0229
					(0.0258)
PC X Electoral Cycle Squared					-0.00484
					(0.00650)
Observations	2,454	2,454	2,454	1,670	1,670
Municipal Dummmies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Control Variables	No	No	No	Yes	Yes

Notes. Dependent variable: Tax Ratio (%). PC is minus margin of victory calculated on previous regional Councils' elections. Clustered standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, regional and national current grants (real euro per-capita), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).

Table A5. Current Expenditure Regressions (all sample)

	(1)	(2)	(3)	(4)	(5)
PC (political competition)	0.384	0.391	0.385	-0.351	-0.268
	(0.367)	(0.378)	(0.377)	(0.540)	(0.520)
State Alignment Dummy (=1 if local gov. aligned with central gov.)		-6.648	-6.160	5.570	5.801
		(4.465)	(4.397)	(5.472)	(5.373)
PC X State Alignment Dummy				0.339	0.356
				(0.342)	(0.321)
Incumbent Dummy(=1 reelected incumbent second term)		3.543	3.531	-1.250	-1.269
		(6.335)	(6.327)	(6.681)	(6.625)
PC X Incumbent Dummy				-0.0162	-0.0167
				(0.309)	(0.305)
Local gov coalition (1= center lft, 0= center right)		0.494	0.679	19.27*	18.92*
		(8.301)	(8.290)	(10.42)	(10.34)
PC X Local gov coalition				0.787	0.766
				(0.481)	(0.479)
Region Alignment Dummy (=1 if local gov. aligned with regional gov.)		-5.962	-5.965	-14.34**	-14.90**
		(7.215)	(7.213)	(6.984)	(6.953)
PC X Region Alignment Dummy				-1.069***	-1.084***
				(0.348)	(0.346)
Electoral Cycle (election year)				11.32	
				(7.045)	
Electoral Cycle (1 year after elections)				-3.595	
				(7.711)	
Electoral Cycle (2 years after elections)				-2.600	
				(6.612)	
Electoral Cycle (3 years after elections)				4.158	
				(8.162)	
Electoral Cycle (4 years after elections)				21.85	
				(41.86)	
PC X Electoral Cycle (election year)				0.151	
				(0.298)	
PC X Electoral Cycle (1 year after elections)				-0.127	
				(0.394)	
PC X Electoral Cycle (2 years after elections)				-0.0758	
				(0.302)	
PC X Electoral Cycle (3 years after elections)				0.139	
				(0.294)	
PC X Electoral Cycle (4 years after elections)				5.205	
				(5.200)	

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Table A5. Current Expenditure Regressions (all sample)

	(1)	(2)	(3)	(4)	(5)
Electoral Cycle (continuus variable)			2.907		-2.761
			(4.284)		(5.570)
Electoral Cycle Squared			-0.699		0.632
			(1.040)		(1.323)
PC X Electoral Cycle (continuus variable)					-0.133
					(0.291)
PC X Electoral Cycle Squared					0.0368
					(0.0693)
Observations	2,850	2,850	2,850	1,973	1,973
Municipal Dummmies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Control Variables	No	No	No	Yes	Yes

Notes. Dependent variable: Municipalities Current Expenditures (per capita). PC is minus margin of victory calculated on previous mayoral elections. Clustered standard errors in brackets, * significant at 10%; ** significant at 5%; *** significant at 1%. Control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, regional and national current grants (real euro per-capita), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).

Table A6 - Covariates no-discontinuity test (SUR model)

Polynomial Order	P-value
1	0.0001
2	0.2531
3	0.1431

Table A7 – IV analysis, tax ratio and property tax reduced rate

|	Dependent variable					
	Tax ratio		Property Tax (ICI), reduced tax rate		Political competition (municipal election)	
	2SLS		2SLS		OLS - FIRST STAGE	
	(1)	(2)	(3)	(4)	(5)	(6)
Political competition (regional election)					0.110***	0.113***
					(0.007)	(0.004)
Political competition (municipal election)	-0.528**	-0.408*	-0.0147*	-0.0142*		
	(0.044)	(0.072)	(0.087)	(0.099)		
Alignment dummy, 1=local gov. aligned with central gov.		-0.288		-0.0188		-0.387
		(0.387)		(0.102)		(0.251)
Incumbent dummy, 1 = reelected incumbent (second term)		-0.725		-0.0152		-1.808***
		(0.162)		(0.491)		(0.001)
Local government coalition, 1=c.left, 0=c.right		0.525		-0.02		0.597
		(0.448)		(0.466)		(0.525)
Electoral cycle, year from election		0.41		0.0246*		-0.684
		(0.273)		(0.094)		(0.114)
Electoral cycle sq.		-0.128		-0.0062*		0.172
		(0.171)		(0.090)		(0.125)
Other control variables	no	yes	no	yes	no	yes
Municipal dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Observations	1612	1612	1612	1612	1612	1612
Underidentification test (Kleibergen-Paap rk LM statistic)					7.36	8.42
Weak identification test (Kleibergen-Paap rk LM statistic)					7.22	8.49

Notes. p-values in brackets, * p<0.10, ** p<0.05, *** p<0.01. The set of other control variables include: resident population, % of population below 15, % of population over 65, Income from real estate (real euro per capita), income from other sources (real euro per capita), % of resident taxpayers, total current grants (real euro per-capita lagged), local current expenditure (real euro per-capita lagged), deficit (real euro per-capita lagged).
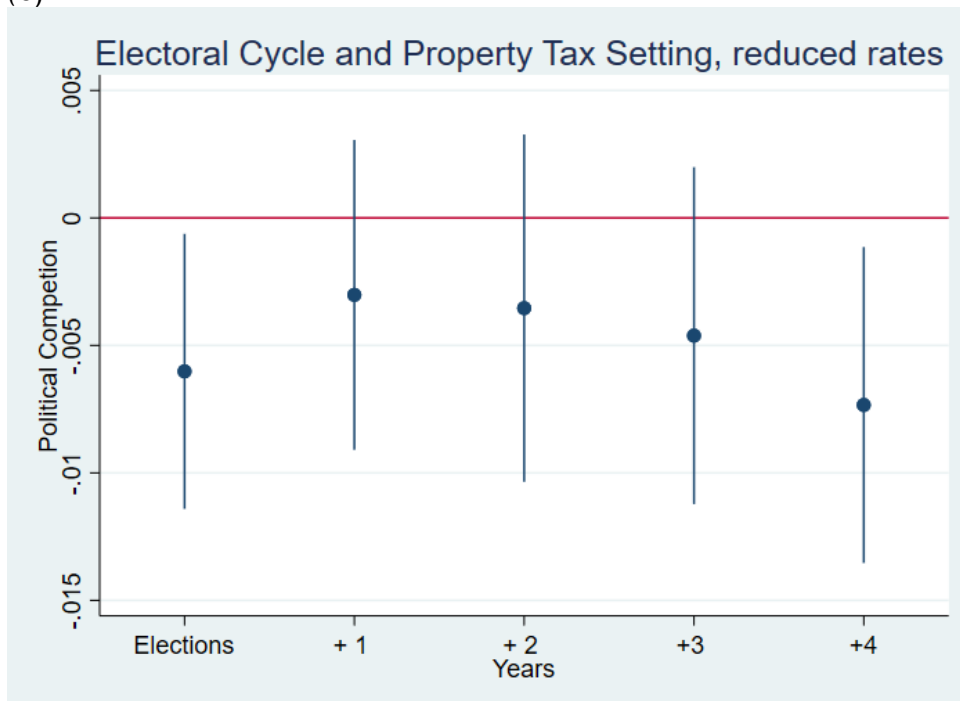
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Figures

Figure 1 – Electoral cycle (property tax, reduced tax rates)

(a)
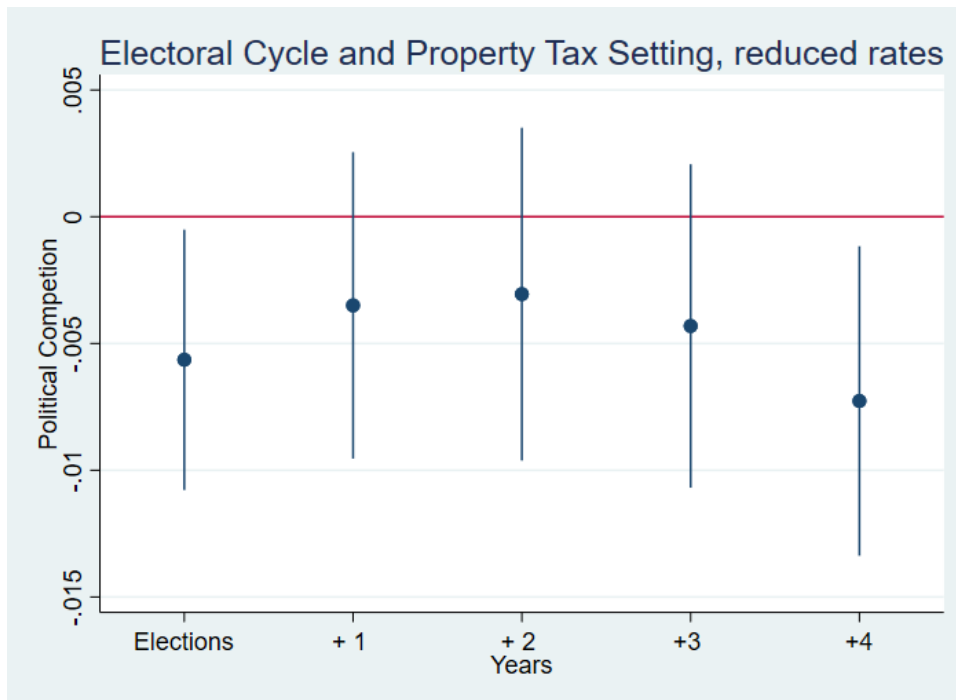
Note. The graph reports on the vertical axes the sum of the estimated coefficients of *PC and Electoral Cycle + Electoral Cycle square* and their interactions. (column 2, Table 8), the vertical lines represent the 95 percent confidence intervals.
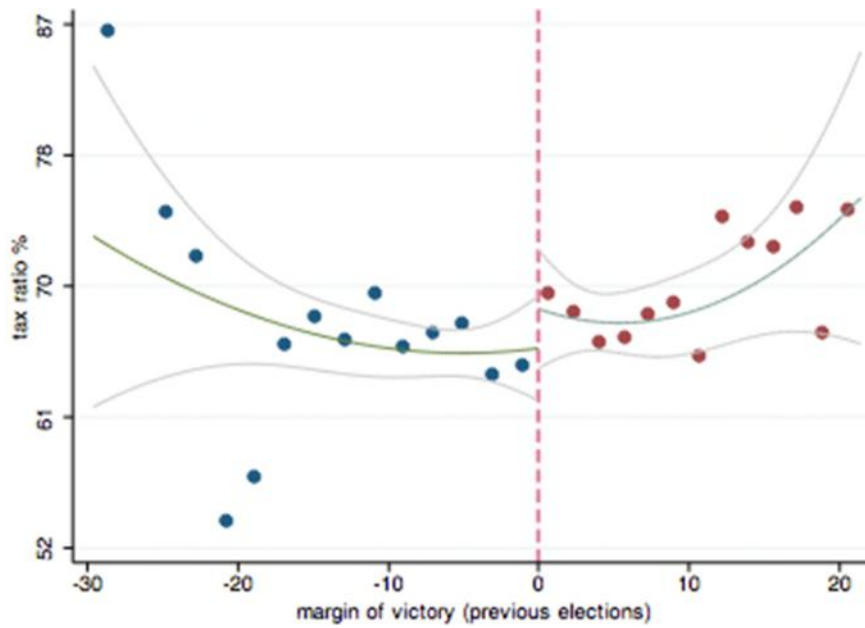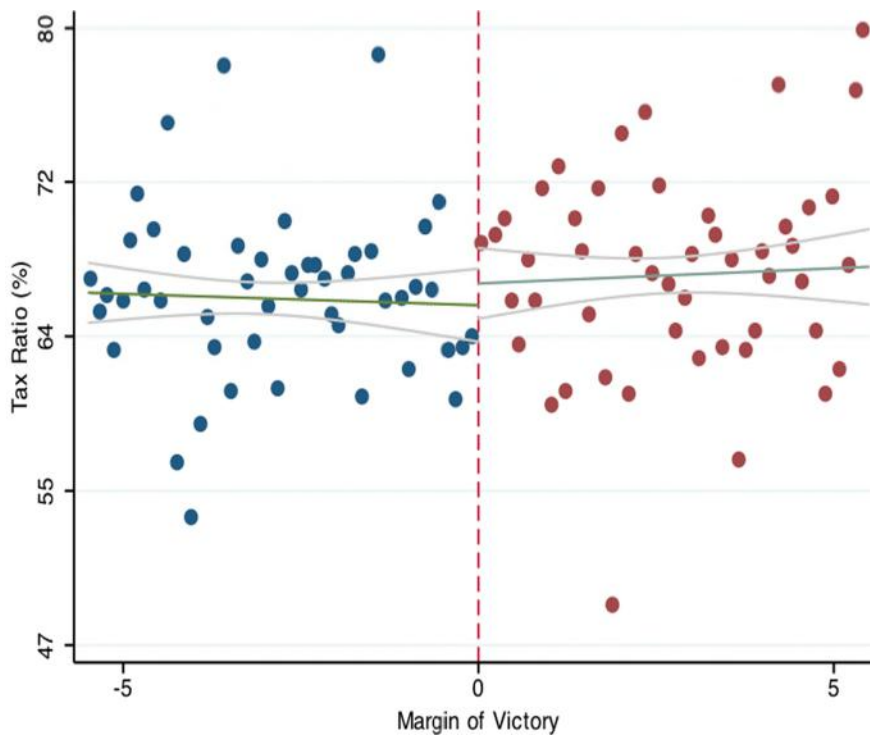
(b)

54

Note. The graph reports on the vertical axes the sum of the estimated coefficients of *PC and Individual year Electoral Cycle* dummies and their interactions (column 3, Table 8), the vertical lines represent the 95 percent confidence intervals.

Figure 2. Tax ratio (RDD)

(a) - all sample

(b) – optimal bandwidth

Notes. The central line split the polynomial functions in the margin of alignment fitted over the interval [-30, +30] in panel (a) and over the optimal bandwidth in panel (b), the lateral lines represent the 95% confidence interval.

Figure A1 – Density of the Assignment Variable (Margin of victory)