

POLITICAL COMPETITION, TAX SALIENCE AND ACCOUNTABILITY:
THEORY AND SOME EVIDENCE FROM ITALY

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Abstract

This paper argues that high political competition does not necessarily induce policy makers to perform better as previous research has shown. We develop a political economy model and we show that when political competition is tight, and elected politicians can rely on more tax instruments, they will substitute salient taxes with less salient ones, which are not necessarily preferable. These predictions are largely confirmed using a dataset on Italian municipal elections and taxes.

KEYWORDS: Political Competition, Government, Accountability, Tax Salience.

JEL CLASSIFICATION: H11, H2, H77, H87, D7, N12.

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1. Introduction

One of the main arguments used in favour of delegating expenditures and taxation to *elected* subnational governments is that elections are a powerful instrument to favour citizens participation to local decisions and promote political accountability, works in this area include Besley and Smart (2007), Faguet (2004), Hindriks and Lockwood (2009).

Moreover, this positive effect of elections is thought to be stronger where opposite parties face high competition to gain political consensus. There is a growing literature both in economics and political sciences recognising that political competition improves governments' efficiency and economic outcomes. See for example the studies by Stigler (1972), and Wittman (1989, 1995) on the effect of political competition on governments' efficiency, the recent contribution by Besley, Persson and Sturm (2010) on political competition and economic growth, and the papers by Galasso and Nannicini (2009), Gagliarducci, Nannicini, and Naticchioni, (2008) and Merlo et al., (2008) on political competition and candidate performances. The common denominator to all these studies is that the fact that parties (or candidates) face a strong political competition makes them more accountable to voters, by reducing rent diversions and inducing policy makers to exert more effort.

In this paper we suggest a possible alternative story, which highlights the fact that higher political competition does not necessarily make policy makers more accountable to voters, but instead may induce an opposite behaviour. We focus on a particular aspect which is common to most countries and, we believe, plays an important role in shaping local public finance: the fact that governments usually rely on more than on type of taxes to finance their public expenditures, and they have some discretionality on how to use them. It is a well known and established fact that some taxes are more salient than others.

Our conjecture is that when electoral competition is high incumbent policy makers, exploiting the fact that voters are not fully informed on the costs of public goods provision, satisfy jurisdictions' budget requirements by means of substituting the more salient taxes with the the less salient ones, even if it is economically inefficient to do so. When, instead, electoral competition is low, since they do not face a real threat to loose elections, they can optimally decide the mix of taxes, irrespective of their degree of salience.

To address this issue we develop a simple model of political competition based on Dixit and Londregan (1998) and Arulampalam et al. (2008) which verifies and refines these intuitions. The focus is on the political incentive to use different types of fiscal instruments in response to different degrees of political competition. We model the behaviour of an

incumbent local policy maker (*mayor*) who is responsible for providing a local public good, and has power to decide over its funding. Two different policy instruments are available: a property tax t , which is paid by everyone and has high degree of salience, and a composite fee F , which is paid only by a fraction of voters, and has lower salience. When elections take place, voters base their voting decisions both on economic grounds—i.e. looking retrospectively at the level of public good provision and taxation—and on ideology. Moreover, voters hold the mayor fully accountable for property tax t but they are perfectly able to hold her into account when they consider other source of fiscal revenue, F . While it is well establish that in Italy and elsewhere property taxes are the most salient local taxes, see for example Cabral and Hoxby (2010), and the property tax is often object of heated political debate and campaigning these fees are much much less visible to voters because they are collected several times during the fiscal year, generally their amount is relatively small and also it is not easy for voters to understand how much leverage and freedom a mayor has in setting these fees. For example, 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 inability of correctly remember the overall tax burden¹. Along these lines Chetty, Looney, and Kroft (2012) use variation across US states and over time and analyse the behavioral response of alcohol consumption to variation in excise (included in price) and sales taxes (added to price) and find that consumers respond more to the more salient (excise) and less to less salient (sales) taxes. Finkelstein (2009) show that the introduction of electronic toll collections (ETC) on U.S. roads, tunnels, and bridges has two effects: (i) it makes citizens less likely to know amount of toll they pay and (ii) it is associated with an increase in tolls; i.e. ETC increased the equilibrium toll rate by decreasing its salience.

Our model predicts that, when electoral competition is high, parties base the financing of the public goods more on the less salient tax (even if it is inefficient to do so) compared to the case when electoral competition is low. The reasons for this result is due to the fact that high electoral uncertainty induces majors to hide citizens-voters the true amount of tax burden in order to be re-elected; when instead political uncertainty is low, majors do not feel the electoral pressure and feel free to choose the optimal fiscal instruments to finance the public good.

¹McCaffery and Baron dubbed this phenomenon the “disaggregation bias”; subjects appeared unable to hold together in their minds the cumulative effects of several small taxes.

We then bring this prediction to the data, building a large dataset on Italian local elections (only municipalities above 15,000 inhabitants) and taxes for the period 1998-2007. Italian municipalities derive their main source of tax revenue from a property tax, called ICI. This tax, which accounts for about 35% of municipalities' own tax revenue and fees, is characterised by a high degree of transparency: citizens-property owners have to pay it every year directly to the municipality where the estate is located (in one or two installments). Other salient sources of revenues in Italian municipalities are related to waste collection and to the taxation of personal income, which account respectively for 18% and 16% of municipalities' own tax revenue and fees. Additional tax revenue can be raised by Italian municipalities, *more quietly*, through means of much smaller taxes and fees, for example the taxes and fees on the issue of parking permits and certificates, or related to the occupation of public spaces and areas and the use of public billboards etc., which account for around 15% - 20% of municipalities' own tax revenue and fees. The main problem with these small taxes and fees is that they are collected several times during the financial years, they are often linked to the provision of a service and, for these reasons, it is very difficult for municipalities to predict the revenue they will raise, making them a quite costly tax instrument both in term of revenue forecast and collection. The fact that there are too many small taxes in the Italian local tax system, which creates inefficiencies, is a well known fact, that has been debated for several years².

The results of the empirical analysis broadly confirm the predictions of the theory. In particular we find that when the distance between the elected mayor and his/her opponent shrinks by 1%, the revenue from ICI, in per-capita, terms shrinks by 0.23 euros (mainly driven by a reduction in the ordinary tax rate levied on residents). Instead, revenues raised from fees on the provision of general services (mainly fees on the issue of certificates and permits for the occupation of public spaces and areas) are, in per-capita terms, 0.20 euros higher. Finally, the degree of electoral competition does not seem to have any significant impact on other sources of revenues and the level of public expenditure.

This is not the first attempt in the literature to analyse the effect of government financing on political accountability. However, as far as we know, this is the first attempt to relate this to the degree of political competition. The related literature is as follows.

²There is an outgoing proposal to reform Italian local tax system and replace the current taxes and fees with a single Service Tax, but despite the fact that the issue has been debated for years and its introduction has been agreed in principle by the Italian parliament its implementation has not occurred yet.

Milesi-Ferretti (2003) studies the effect of fiscal rules on economics outcomes, Alt and Dreyer Lassen (2003) look at 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. Among all contributions the paper more closely related to ours is Bordignon and Piazza (2010) who uses a dataset on municipalities in the Piedmont Region in Italy to investigate the effect on probability of mayor's re-elections after a tax reform introduced the possibility for majors to partially substitute a more accountable source of tax revenue with a less transparent one. Using arguments similar to ours, their analysis suggests that the availability of these two tax instruments gives incompetent mayors a cheap way to hide themselves, allowing them to be more easily re-elected.

The paper is organised as follows. The next section introduces the economic environment and the model. Section 3 provides some background information on political competition in Italian municipalities, some information on the local tax system as well as data description. Our empirical strategy and main results are in section 4. Conclusions and discussions are in the last section of the paper.

2. The Theoretical Framework

We develop a simple model of political competition based on Dixit and Londregan (1998), Arulampalam et al. (2008), which focuses on the incentive that political parties face to replace salient taxes with less salient ones when electoral competition is high.

2.1. The Economic Environment

A local incumbent mayor is responsible of providing a local public good, and has power to decide over its funding. Two different policy instruments are available: a property tax t , which is paid by everyone and has high degree of salience, and a fee F , which is paid only by a fraction of voters, and has lower salience. This fee can be thought as aggregating in a simplified way all the other non-tax sources of revenues available to municipalities, such as planning permission fees, parking tickets, burial fees, fees for the use of public billboards, or the price of issuing vital record certificates. Unlike taxes, these fees are strictly speaking not compulsory, in the sense that they are to be paid to have access to services which citizens may decide to purchase or not. Secondly, the municipalities are usually local monopolists in providing these services.

As this large array of revenues hardly ever come up in the public debate, it is often difficult for voters to understand how much leverage and freedom a mayor has in setting these fees, and how much are instead set by, for example, national laws. For example, the cost of issuing an ID card or the cost of a speeding ticket is the same all over Italy, while planning permission, burial fees, and advertising prices are more freely set by each municipality.

This has two main implications that will be reflected in our modelling choice: firstly, the revenues coming from these fees, unlike property tax revenues, are affected by the fee itself; in other words, one cannot decide not to pay property tax, but if it's too costly, one may decide not to put an advertising poster, or postpone building an extension to one's property. Secondly, voters are not perfectly able to hold mayors into account when they consider these particular sources of revenues, while the property tax is often object of heated political debate and campaigning. As the great majority of Italian households owns the house they live in, it seems reasonable to assume that voters fully discount the effect of this tax on them when voting for a given mayor. This implies, in more general terms, that fees are less salient than taxes.

There is a continuum of voters of mass 1. Voters are homogeneous with respect to their preferences over the public policy, but differ in their ideology. Ideologies are distributed according to a uniform distribution defined over the interval $\delta_i \sim [-1/2\psi, +1/2\psi]$. The voting process is subject to uncertainty. Voters' distribution on the ideology line is hit by an idiosyncratic shock, which is uniformly distributed as follows: $\eta \sim U[-1/2\zeta, 1/2\zeta]$. Thus voters are ex-ante and on average centrists.

Citizens vote retrospectively conditioning their choice on the ideology of the candidates and on the public policies implemented by the local governments. By public policy we mean the positive effect of public good provision, which is funded through taxes and fees. Every voter pays the property tax t , while only a fraction $on < 1$ pays the fee F .³ More specifically, as the municipality partially sells these fee-based services in a monopolistic regime, we assume that the number of people purchasing the fee-based services is negatively related with the fee itself, and with disposable income in particular, therefore:

$$0 > \frac{\partial n}{\partial t} > \frac{\partial n}{\partial F}, \frac{\partial^2 n}{\partial t \partial F} \leq 0$$

Voters who pay the fee attribute only a fraction $(1 - s) < 1$ to the mayor's will, for the reasons spelled out in the previous paragraph.

³We assume as well that paying the fees and ideology are uncorrelated.

Voters' utility is negatively affected by local taxes and fees (adjusted for their salience), as they reduce private consumption, and positively affected by the consumption of a local public good $g = t + nF$. Following a long tradition (Dixit and Londregan [1998], Arulampalam et al. [2008]), we interpret the parameter ψ as the sensitivity of the locality's voting behavior to changes in policy. In other words, a higher level of ψ will be referred to as (electorally) more "swing", than if they had a lower ψ .

More precisely, a voter's i is going to vote for the incumbent if:

$$u(g) - t - (1 - s)F - \delta_i - \eta \geq 0 \quad (2.1)$$

$$u(g) - t - \delta_i - \eta \geq 0 \quad (2.2)$$

according to whether he or she has to pay a fee (??) or not (2.1), and where u is a strictly concave and monotonically increasing function in g .

Following Arulampalam et al. (2008) and Solé-Ollé and Sorribas-Navarro (2009), we assume that mayors care simultaneously about the votes accruing to the parties they belong to, and about the public good produced. This implies that incumbent mayors share with voters the preference for public good, but are also office-motivated.

The utility of the incumbent mayor can be written as:

$$U^G = h(g) + V \quad (2.3)$$

where h is a strictly increasing and concave function, and V is the share of votes accruing to the incumbent mayor. Moreover, we assume that U^G is strictly concave as well.

2.2. Theoretical Results

Let's first of all calculate what is the expected amount of votes the incumbent mayor, given the uncertainty on the realization of the opinion shock and the amount of fees being paid/collected.

Lemma 2.1. *[[The share of votes the incumbent mayor expects to receive, given the tax and fee level he or she sets, is:*

$$V = \frac{1}{2} + \psi X$$

$$\text{with } X = \frac{1}{2} [u(t + nF) - t - n(1 - s)F]$$

where $n(t, F)$ is the demand for fee-related services.

As we can see, raising taxes or fees has an ambiguous effect, as it simultaneously raises public good provision and decreases disposable income. Secondly, raising fees (as opposed to taxes) has the advantage of impacting less on voters' perception of their disposable income, but because of the downward sloping marginal revenue from fees, have a smaller impact in terms of utility from public good provision with respect to an analogous tax increase.

We can then derive the incumbent mayor's first-order conditions given his or her utility (2.3), where by a_b is indicated the derivative of a with respect to b :

$$U_t^G : (1 + n_t F) [h'(g) + \psi(u'(g) - 1)] + \psi s n_t F = 0 \quad (2.4)$$

$$U_F^G : (n + n_F F) [h'(g) + \psi(u'(g) - 1) + s] = 0 : \quad (2.5)$$

From these we can derive the following testable prediction:

Proposition 2.2. *[[In jurisdictions with higher electoral competition there will be lower taxes and higher fees.*

3. Background Information and Data

In this section we present some relevant background information on the Italian local electoral system and public finance. In particular we describe the main characteristics of the electoral system and the basic structure of local taxation.

3.1. Italian Institutional Framework

There are 8,101 municipalities (*comuni*) in Italy, 7,391 of which with a population below 15,000. *Comuni* are ruled by a local government (*giunta*), headed by an elected mayor (*sindaco*), who stays in power for five years and is subject to a two-term limit.

Mayors are in charge of appointing the other members of the *giunta*, whose competencies are primarily in the areas of land management and environment (water, sewage, public hygiene), local transport, local police, culture and recreation, education (nursery schools, training programmes). Mayors also have some discretionary powers on how to raise fiscal revenue to finance local public expenditures, more on this in the next section.

In 1993, a major electoral reform took place in Italy; the main objective of the reform was to increase political accountability at local level by introducing the direct election of mayors under plurality rule.

The reform established a single round election for *small* municipalities (i.e. below 15,000 inhabitants), and a runoff system for *large* municipalities (i.e. above the 15,000-inhabitant threshold). In particular, in *small* municipalities, each party (or coalition of parties) presents a list of candidates for the council and supports one mayoral candidate, voters then express one vote jointly for the mayor and the associated council list. The mayoral candidate who gets the majority of votes is elected and the associated city-council list is awarded 2/3 of all seats. In *large* municipalities, instead, parties (or coalitions of parties) present lists of candidates for the council and support one mayoral candidate. At the first round, voters express two votes, one for the mayor and one for the council. A mayoral candidate is elected only if he or she obtains more than 50% of votes. If no mayoral candidate obtains an absolute majority of votes, in two weeks time, the two top candidates run again in a second round, and the candidate who get the most votes is elected mayor. As in the single-round plurality system, the city-council lists associated with the winning candidate are awarded an absolute majority of seats in the council.

3.2. Local government financing

Municipalities' revenues come from two main sources: own revenues (from own taxes and fees) and transfers from upper levels of government (mainly central and regional governments). For the past twenty years municipalities' share of own revenue has been roughly constant and around 30% of municipalities total revenue.

The main source of own revenues for *comuni* is a property tax, called ICI, introduced in 1992 and applied to real estate. This tax, which accounts for about 35% of municipalities' own revenue, is characterized by a high degree of transparency: property owners have to pay it every year directly to the municipality where the estate is located (in one or two installments). The tax base is represented by the cadastral income. Mayors are free to set the property tax rate within a given boundary (0.4 and 0.7%) and also have the power to lower the tax burden of resident-owners by imposing a discounted tax rate for residents.

Other sources of own tax revenues in Italian municipalities are related to waste collection and to the taxation of personal income, which account respectively for 18% and 16% of municipalities' own tax revenue and fees.

Additional own revenues can be raised by Italian municipalities, through means of much smaller taxes and fees: on the issue of parking permits and certificates, or related to the occupation of public spaces and areas and the use of public billboards etc., which account for around 15% - 20% of municipalities' own tax revenue and fees. The common

denominators of these taxes and fees is that they are comparatively small, they are generally paid several times during the year and they are usually linked to the provision of a service by the local authority. Given these characteristics, the main problem associated with them is that it is very difficult for municipalities to accurately predict at the beginning of the financial year the revenue they will raise, and how the fee level will affect the demand for each service, making them a quite costly tax instrument both in term of revenue forecast and collection.

3.3. Data Description and Variables' Definition

Our dataset includes municipal financial data, census data, and ballot data of the municipal elections from 1998 to 2007. The large number of municipalities implies that every year local elections can be observed. We have restricted our analysis to *comuni* with at least 15,000 inhabitants, given that this is the threshold for applying different electoral rules for mayoral elections, as described above. The exclusion of *small* municipalities, outliers and municipalities with missing values from our dataset leaves us with a sample of 593 local councils.

Our theoretical model predicts that there is a relationship between local governments' preferred mix of tax instruments and the extent of electoral competition; i.e. when mayoral candidates are very close in the electoral race we should observe that more revenue is collected by mean of the less salient tax instruments compared to the case where the incumbent mayor runs safely for re-election.

We begin with describing our main variables of interest, which are measures of *salient* and *non-salient* tax instruments. Among *salient taxes* (denoted by the letter t in our theoretical model) we include the local property tax (ICI), which is undoubtedly the most salient tax for Italian municipalities. We consider three measures: (i) the per capita value calculated as the property tax revenue divided by the resident population (ICI per capita in table 1), (ii) the "discounted" rate for residents, and (iii) the "full" rate that non-residents (and therefore non-voters) are subject to. The second *salient* tax is the waste disposal tax (TARSU), measured in per capita value. Like ICI, TARSU is paid once a year directly to the council but it is (politically) much less important and the tax revenue that is able to raise is much lower, xxx for ICI is on average xxx per capita while the rubbish collection tax is only able to raise xxx.

Among *less-salient tax instruments* (denoted by the letter F in our theoretical model) we include the long list of small taxes and fees aggregated in the Italian budget under the

categories *Other Taxes* and *Other Fees*; which are: the tax for the use of public spaces (COSAP), fees for parking permits, for the issue of various certificates and for burying dead bodies in public cemeteries. It was already recognised by Buchanan (1967)⁴ that fiscal illusion (or low salience) is the product of complex tax systems where multiple smaller tax instruments (as opposed to only a single comprehensive tax instrument) are employed. The arguments behind this claim are that voters are likely to underestimate their aggregate tax burdens from tax instruments (like sales taxes or indirect taxes in general) that are paid in small amounts over time, compared to tax instruments (like the property taxes, or income taxes) for which taxpayers make lump-sum payments of their aggregate tax liabilities on an annual basis, see Aradhna and Slemrod (2003), Campbell, (2012).

Next, our key explanatory variable is a measure of political competition in each municipality over time. To construct this measure, which we denote *MV*, we use Italian mayoral election results for the period 1997-2008 and we compute the margin of victory, i.e. the difference between the vote share obtained by the winner and the runner up. Values of *MV* close to zero refer to mayors who won the elections with a very small margin, and so electoral competition is assumed to be high; high values correspond to municipalities and periods with less political competition, since the mayor won the electoral race with a large margin.

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

1. *Socio-demographic and geographical variables*; comprising resident population (*POP*), proportion of population less than 14 and over 65 years old (*PYOU* and *POLD* respectively), proportion of residents with an university degree and illiterate (*GRAD* and *ILL*), altimetric zone (*ALT*). These variables are collected from the Statistical Atlas of Municipalities, yearly issued by the Italian National Statistical Institute (ISTAT).
2. *Economic variables*. Variables in this group are income per capita (*INC*), proportion of unemployed (*UN*), proportion of self employed (*SELF*), proportion of residents working for the service sector (*TERTWORK*). The sources for these variables are ISTAT and the Ministry of Finance.

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)

3. *Political variables*: these are the party dummies, (*LEFT* and *RIGHT*) equal to one if the mayor is supported by a left-wing or a right-wing coalition respectively, the alignment dummy (*AL*), which is equal to 1 if the mayor's coalition party is the same as the ruling party at the central level, election dummy (*ELECT*), which is equal to 1 in the local election years. Finally we include *TERM* and *POLCYCLE*. Their source is the Statistical Office of the Italian Ministry of Internal Affairs.
4. *Public finance variables*: these variables include grants from the central government (*GR*), municipality expenditures (*G*), these data are taken from the Italian Ministry of Internal Affairs.

The descriptive statistics for these variables are given in Table 1. We observe a lot of variation in the data, starting for the size of the municipalities, demographic characteristics, economic profile, to political and public finance data. For example the smallest *comune* in our dataset has 15,000 residents while the largest over 2,700,000, the richest has an income per capita of over 34,000 Euros while the poorest just reaches 8,000 Euros.

4. Empirical Strategy and Results

We test our the theoretical predictions in two ways. We first look at the link between salient and non salient taxes and the degree of political competition by estimating the tax ratio equation. We then estimate the structural model of salient and non salient taxes determination.

4.1. Tax Ratio Equation

The driving mechanism illustrated by Proposition 2.2 is that political competition changes the incentives on how to set municipalities tax mix. In particular, our theoretical model suggests that when electoral competition is high, mayors raise an higher proportion of tax revenue by increasing mean of less salient taxes and reduce the use of salient ones (even if it is inefficient to do so) compared to the case when electoral competition is low. To examine this link empirically we estimate regressions of the form:

$$TR_{it} = \alpha_i + v_t + \delta MV_{it} + \gamma X_{it} + \varepsilon_{it}$$

where TR_{it} is a measure of the ratio of salient/non salient taxes in municipality i at time t and α_i and v_t are municipality and year effects, respectively. As mentioned in the data

section, we consider different measures of TR_{it} .

We also include a vector of controls, X_{it} , described in the previous section, and an i.i.d. error term ε_{it} . We estimate robust standard errors adjusted for clustering at the municipal level.

The baseline results are presented in Tables 1 and 2.

DISCUSSION OF THE RESULTS IN HERE

From Figures 1 and 2 we can see how irrespective of the use of a fixed- or random-effect model (resp. Figures 1 and 2) taxes increase in the margin of victory. This is true whether we look into the property tax per se (A, column 2), the waste disposal tax (B, column 3) or other taxes (C, column 3). At the same time service fees (D, E, columns 4 and 5) is negatively related with the margin of victory. All these results are very robust, and are confirmed also when we consider the ratio of salient taxes over non-salient ones (ABC/DE, Column 1). Also this figure is positively related with the margin of victory, confirming that mayors who are in more competitive municipalities substitute the more visible and politically “costly” source of revenues (taxes) with the less salient—albeit less efficient—fees.

4.2. Structural Model

In this section we test the predictions of the theory by estimating municipalities’ tax setting behavior. According to Proposition 2.2,

$$\begin{aligned} t_{it} &= \alpha_i + v_t + \beta F_{it} + \gamma MV_{it} + \delta X_{it} + \varepsilon_{it} \\ F_{it} &= \alpha_i + v_t + \eta t_{it} + \theta MV_{it} + \lambda X_{it} + \varepsilon_{it} \end{aligned}$$

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5. Robustness

5.1. Group Targeting vs Electoral Competition: RD design

In this section we investigate further the possibility that mayors’ preferred mix of salient-non-salient tax instruments is not due a strategic political behavior driven by the intensity of political competition but it is the results of groups’ targeting. *MORE*

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5.2. Electoral Cycles

5.3. Term limits

6. Conclusions

This paper has explored the link between electoral competition and tax setting behavior. Our theoretical model predicts that mayors who face stronger electoral competition behave differently than mayors in electorally safer municipalities. In particular, we analyzed the trade-off between a more salient tax, paid by each citizen, with a less salient source of revenues (fee), which correspond to the sale of services monopolistically supplied by the municipality. Our model's prediction is that the in more competitive jurisdictions mayors are less likely to use a larger proportion of salient sources of revenues, as the effect of "hiding" from the voters some revenues is electorally more convenient. On the other hand, mayors who face a less fierce electoral competition do not need to hide their sources of revenues from voters, and therefore can rely more on the safer and more salient taxes, as opposed to fees.

These findings are confirmed by our empirical analysis, which focuses on the choice of financing by Italian mayor in the period 1997-2008. Mayors have a choice between more salient property and waste collection taxes, and less salient fees for other services (parking permits, vital records certificates, planning permission, advertising billboards). The data confirm that mayors who won with a narrower margin of victory, i.e. who face a tighter electoral competition, are more likely to increase the proportion of revenue coming from fees, as opposed to taxes, and viceversa.

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Appendix

Proof of Proposition 2.2

First of all, let's look at the first order conditions:

$$U_t^G : (1 + n_t F) [h'(g) + \psi(u'(g) - 1)] + \psi s n_t F = 0 \quad (.1)$$

$$U_F^G : (n + n_F F) [h'(g) + \psi(u'(g) - 1 + s)] = 0 : \quad (.2)$$

We can say that $(n + n_F F) = 0$. If this were not so, then it must be that, from (??),

$$[h'(g) + \psi(u'(g) - 1 + s)] = 0$$

which implies that:

$$[h'(g) + \psi(u'(g) - 1)] < 0 \quad (.3)$$

Recall that by assumption $(1 + n_t F) > 0$ and $(\psi s n_t F) < 0$. Then the first order condition (.1) is not satisfied, as it is the sum of three negative addenda.

Let us now focus on the comparative statics with respect to ψ on the equilibrium, i.e.:

$$\frac{dt^*}{d\psi} < 0 < \frac{dF^*}{d\psi}$$

In order to find the values of these two expression, we need to solve the following matrix-form simultaneous equations, i.e. we need to apply the Implicit Function theorem in order to check how the equilibrium changes with the competitiveness ψ of the political arena.

$$\text{ginequation} \begin{bmatrix} U_{tt} & U_{tF} \\ U_{tF} & U_{FF} \end{bmatrix} \begin{bmatrix} \frac{dt^*}{d\psi} \\ \frac{dF^*}{d\psi} \end{bmatrix} = - \begin{bmatrix} U_{t\psi} \\ U_{F\psi} \end{bmatrix} \quad (.4)$$

By definition, as U^G is assumed to be concave:

$$\begin{vmatrix} U_{tt} & U_{tF} \\ U_{tF} & U_{FF} \end{vmatrix} > 0 \quad (.5)$$

By concavity we also know that $U_{tt} < 0$ and $U_{FF} < 0$. We can calculate the other second-order differentials:

$$U_{tF} : (n_{tF} F + n_t) [f' + \psi(u' - 1)] + \psi s (n_{tF} + n_t) \quad (.6)$$

which is negative as long as $n_{tF} < 0$.

$$U_{t\psi} : (n_{tF} + 1)(u' - 1) + s n_t F' < 0 \quad (.7)$$

$$U_{F\psi} : (n + n_F F')(u' - 1 + s) = 0 \quad (.8)$$

This implies that

$$\frac{dt^*}{d\psi} = \frac{\begin{vmatrix} -U_{t\psi} & U_{tF} \\ 0 & U_{FF} \end{vmatrix}}{\begin{vmatrix} U_{tt} & U_{tF} \\ U_{tF} & U_{FF} \end{vmatrix}} = \frac{-U_{t\psi}U_{FF}}{+} < 0 \quad (.9)$$

$$\frac{dF^*}{d\psi} = \frac{\begin{vmatrix} U_{tt} & -U_{t\psi} \\ U_{tF} & 0 \end{vmatrix}}{\begin{vmatrix} U_{tt} & U_{tF} \\ U_{tF} & U_{FF} \end{vmatrix}} = \frac{U_{t\psi}U_{FF}}{+} > 0 \quad (.10)$$

■

Figure 1: Impact of the margin of victory on municipals fiscal policy, FE panel data model.

	ratio (ABC/DE)	Property tax (A)	Waste disposit (B)	Other taxes (C)	Fees for general services (D)	Fees for other services (E)
margin of victory	2.6774*** (0.6373)	0.3635*** (0.1295)	0.3474* (0.1930)	0.7725*** (0.2500)	-0.3458*** (0.0750)	-0.6590* (0.3731)
margin of victory X aligned	-0.5065 (0.3113)	-0.0115 (0.0548)	-0.2193** (0.1007)	-0.2255** (0.1060)	0.0941** (0.0418)	0.0791 (0.1432)
aligned	10.4643 (7.8789)	0.5213 (1.4294)	0.2322 (1.9715)	1.5386 (2.4478)	-0.5897 (0.7635)	-0.1839 (3.0464)
margin of victory X incumbent	-1.2680*** (0.4398)	-0.0366 (0.0679)	-0.218 (0.1570)	-0.2945** (0.1302)	0.1610** (0.0643)	0.351 (0.2389)
margin of victory X coalition	-1.2708* (0.7588)	-0.2851** (0.1304)	-0.0963 (0.1913)	-0.399 (0.2493)	0.2290*** (0.0725)	0.3172 (0.4432)
incumbent	15.8215 (11.4613)	-1.6239 (1.6709)	5.6612 (3.5734)	3.4763 (3.3198)	-2.8028* (1.4510)	-4.0832 (5.5436)
electoral cycle	-0.5014 (1.7231)	0.4798* (0.2481)	-0.4361 (0.4144)	0.64 (0.5227)	-0.1561 (0.1998)	-0.966 (0.7599)
Municipal coalition (1=centre left)	38.4673*** (14.8055)	4.6760** (2.2182)	3.5914 (3.7421)	15.2666*** (4.6309)	-4.9674*** (1.6367)	-17.4602** (8.5473)
State coalition (1=centre left)	- 39.3658*** (11.5380)	- 4.9351*** (1.8872)	- -5.9577** (2.8898)	- 17.0796*** (2.9507)	- 5.3975*** (1.0734)	- 0.1876 (5.4095)
population	-0.0003 (0.0023)	0.0013*** (0.0005)	-0.0009 (0.0009)	-0.0008 (0.0007)	0.0001 (0.0002)	-0.0004 (0.0009)
population (0- 14)	-7.2088 (7.7390)	-1.3498 (0.8794)	24.6808*** (2.0139)	15.3295*** (1.6311)	0.3247 (0.6684)	15.7375*** (3.3835)
population (above 65)	-12.2227* (7.3631)	-2.5379** (1.0885)	-2.2449 (2.5389)	0.9455 (1.9900)	1.0086 (0.9182)	6.413 (4.7478)
declared income	-0.0737 (0.0566)	-0.0014 (0.0101)	0.0136 (0.0238)	0.0831*** (0.0163)	0.0042 (0.0056)	0.0475 (0.0341)
Observations	4001	4001	4001	4001	4001	4001
Number of codice istat	589	589	589	589	589	589

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

Figure 2: Impact of the margin of victory on municipals fiscal policy, RE panel data model.

	ratio (ABC/DE)	Property tax (A)	Waste disposit (B)	Other taxes (C)	Fees for general services (D)	Fees for other services (E)
margin of victory	2.9262*** (0.6257)	0.3655*** (0.1334)	0.4365** (0.1778)	0.7595*** (0.2349)	-0.2402*** (0.0640)	-0.7899** (0.3363)
margin of victory X aligned	-0.6337** (0.3092)	-0.0063 (0.0551)	-0.2356** (0.1010)	-0.2406** (0.1058)	0.0883** (0.0382)	0.153 (0.1451)
aligned	13.5778* (7.9646)	0.4717 (1.4228)	0.3584 (1.9595)	2.2084 (2.4264)	-0.5579 (0.7514)	-1.8056 (3.1069)
margin of victory X incumbent	-1.2052*** (0.4337)	-0.042 (0.0690)	-0.1677 (0.1512)	-0.3177** (0.1259)	0.1338** (0.0551)	0.3465 (0.2353)
margin of victory X coalition	-1.6677** (0.7238)	-0.2629** (0.1323)	-0.2237 (0.1761)	-0.3105 (0.2284)	0.1550*** (0.0583)	0.5679 (0.3779)
incumbent	13.1254 (11.3850)	-2.021 (1.6819)	4.7559 (3.4324)	3.5541 (3.2159)	-1.9943* (1.1530)	-3.3564 (5.5039)
electoral cycle	-0.6925 (1.7180)	0.4756* (0.2490)	-0.6099 (0.4137)	0.7098 (0.5213)	-0.0667 (0.1941)	-0.9391 (0.7550)
Municipal coalition (1=centre left)	38.2639*** (14.0407)	4.8630** (2.1632)	3.5373 (3.4491)	14.4784*** (4.2613)	-3.3487*** (1.2612)	-16.1478** (7.8518)
State coalition (1=centre left)	110.7284*** (14.4808)	-4.1121* (2.4232)	-2.9964 (3.7439)	116.3298*** (3.9662)	-7.1244*** (1.8162)	25.4621*** (5.6415)
population	0.0001 (0.0002)	0.0001* (0.0000)	0 (0.0000)	0.0001** (0.0000)	-0.0000*** (0.0000)	0.0001 (0.0001)
population (0-14)	-5.9229 (6.2692)	-3.2332*** (0.8410)	-19.4432*** (1.5282)	8.6958*** (1.4405)	0.2727 (0.3473)	-10.2249*** (2.3068)
population (above 65)	-16.6837*** (4.1990)	0.0427 (0.7625)	-5.1553*** (1.1043)	6.3462*** (1.1248)	0.2528 (0.2397)	3.6106* (1.8423)
declared income	-0.0513* (0.0274)	0.0312*** (0.0070)	0.0152* (0.0083)	0.0813*** (0.0074)	-0.0014 (0.0014)	0.0530*** (0.0119)
altimetric zone	-20.7627*** (7.8487)	-5.3680*** (1.9788)	4.7090*** (1.5945)	-9.7265*** (2.2139)	-0.4886 (0.3705)	2.3389 (3.1687)
self-employed workers	6.3467** (2.9858)	3.0864*** (0.8609)	1.6366** (0.6706)	-0.8355 (0.9071)	-0.0109 (0.1289)	-0.1789 (1.1782)
illiterate people	-24.2487* (13.8101)	-9.6354*** (2.3087)	-1.6218 (2.8741)	-7.2805*** (2.6271)	-0.2914 (0.4684)	0.5125 (3.9037)
graduates	5.3883 (4.5610)	1.7239 (1.0690)	-0.589 (1.0590)	2.7127** (1.1366)	0.3577* (0.1970)	-1.5008 (1.5993)
unemployment rate	4.7789*** (1.8101)	-2.4844*** (0.3800)	3.4245*** (0.4469)	-6.2540*** (0.4427)	-0.111 (0.0787)	-1.9358*** (0.6158)
service sector workers	-4.0565** (1.9299)	1.6455*** (0.5942)	0.8368* (0.4451)	2.2138*** (0.5880)	0.2200** (0.1109)	0.067 (0.7227)
Observations	4001	4001	4001	4001	4001	4001
Number of codice istat	589	589	589	589	589	589

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