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TAX LIMITS AND LOCAL DEMOCRACY

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Tax Limits and Local Democracy

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Abstract

Based on a theoretical model where state limits on local government policy elicit a move from private value (position issue) to common value (valence issue) voting, I exploit exogenous variation in tax limitation rules in over 7,000 Italian municipalities during the 2000s to show that fiscal restraints provoke a fall in voter turnout and number of mayor candidates, and a rise in elected mayors' valence proxy and win margins. The evidence is compatible with the hypothesis of hierarchical tax limitations fading the ideological stakes of local elections and favoring valence-based party line crossing, thus questioning the influential accountability postulate of the fiscal decentralization lore.

JEL classification: D72; H77; C23.
Key words: local elections; voter turnout; tax and expenditure limitations; fiscal decentralization.

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1 Introduction

Local elections have conventionally been labeled second-order in academic discourse to denote their generally less salient features and lower stakes relative to parliamentary and presidential elections that are most notable in the eyes of political parties, *élites* and the citizenry at large (Boyd, 1981; Miller, 1988).[1] Their second-order nature would be reflected in the influence of national politics, Prime Minister's popularity and overall country performance on local election results, and in the lower turnout in local than in national elections. However, based on the observation of a 'turnout twist' in a number of countries, with local/regional elections exhibiting higher voter participation than state/federal ones, recent research has explicitly acknowledged that the stakes of local elections depend on circumstances, and that those circumstances vary across localities and over time, sort of weakening the alleged universal validity of the second-order election paradigm (Berry, 2009; Nachmias *et al.*, 2012). Moreover, the hypothesis of irrelevance of local elections seems at odds with a key assumption of mainstream research on voting behavior and fiscal federalism based on Downs (1957) and Oates (1970) respectively, given that local elections take place at the level that is closest to where voters should think their votes can make a difference (Trounstine, 2009; Clark and Krebs, 2012).[2]

In fact, the conventional second-order election wisdom has been challenged in the most recent years by deeper attempts at investigating the determinants of election stakes, focusing on the role of institutions.[3] As far as the US government system is concerned, Tolbert *et al.* (2001) examine the impact of the explosion of citizen-initiated ballot measures on electoral participation in the US states, finding that states with frequent usage of citizen initiatives have systematically higher voter turnout than non-initiative states. Besley and Case (2003) find too that turnout is higher in states where voter initiatives are allowed by law, but warn that the result might be due to state-specific omitted variables (*e.g.*, political culture) that drive both initiatives and voter turnout. Hajnal and

[1] Reif and Schmitt (1980) first coined the term to refer to European Parliament elections.

[2] Based on the contrasting contribution of local governments to growth in China and Russia respectively, though, Blanchard and Shleifer (2001) argue that the competitive benefits of 'market preserving federalism' (Qian and Weingast, 1997) depend on political centralization in terms of the power of central government to appoint or dismiss local governors. Treisman (2007) forcefully questions the conventional theoretical arguments and influential institutional sponsorship of political decentralization.

[3] Fumagalli and Narciso (2012) explore the effects of institutions (form of government and electoral system) on voter turnout and policy outcomes on a cross-section of countries.

Lewis (2003) discuss the role of a number of local institutions as determinants of turnout in US cities, including the city manager form of government, non-partisan elections, contracting out and other outsourcing of city services, and Caren (2007) shows that cities having partisan primaries and no city manager display higher turnout.

Similarly, the devolution of power from the center to the periphery and the increasing degree of autonomy of local governments in the organization and financing of public services in crucial policy domains constitute potentially important drivers of turnout in local *versus* national elections (Blais *et al.*, 2011). Percival *et al.* (2007) find that turnout is higher in US states that spend more on valued public programs (education, health) and impose heavier tax burdens. Andersen *et al.* (2012) study how turnout in Norwegian local elections is influenced by exogenous variation in government financial abundance. They exploit the fact that some local governments in Norway enjoy substantial tax revenues from hydropower generation plants located within their jurisdiction (an exogenous circumstance largely determined by geography), and show that voter turnout is higher in localities where the election stakes (hydropower generation resources) are higher. Michelsen *et al.* (2013) use the institutional variation in administrative structure across German municipalities to test the hypothesis that centralized municipal decision-making - *i.e.*, absence of community-level self-governing institutions within a municipality - lowers the probability of a voter being pivotal, and find that centralization of local public good provision depresses voter turnout. Finally, noting that virtually all Western countries became less centralized during the 1980s and 1990s, Henderson and McEwen (2010) study voter participation in regional elections across a number of OECD countries, and conclude that regions whose political institutions have gained salience in terms of powers and responsibilities have recorded higher levels of voter turnout.

As far as Europe is concerned, though, the late 2000s saw a sort of restoration of the fiscal *ancien régime* in terms of a widespread reversion in the fiscal decentralization process. The financial crisis and global recession constituted powerful centripetal forces, both in terms of the weakening of EU member state sovereignty over fiscal matters, and of the dwindling of the fiscal autonomy that regional and local governments had progressively achieved during the 1980s and 1990s (IEB, 2013). Most EU countries severely tightened the tax and spending autonomy of regional and local governments during the domestic fiscal con-

solidation process, most often putting in place increasingly strong limitations on regional and local governments' self-financing power. In France, the fiscal counter-reformation of the latest Sarkozy years considerably diluted the fiscal decentralization revolution of the Mitterrand era, while the sharp increase in Spanish regional governments' debts during the financial crisis of 2007-2009 induced central government to impose quarterly budget reporting in 2011, and to assume the right to directly intervene in regional fiscal policies in case of non-compliance with centrally set rules. In Italy, the profound fiscal decentralization reforms of the 1990s were followed by the imposition of strict budgeting limitations on regional and local governments during the subsequent decade (Revelli, 2013).

This paper explores the consequences of the resurgence of central command over peripheral authorities on voter turnout and on the overall functioning of the local democratic process. Intuitively, and in line with the conventional rational voting framework that has long been employed to investigate the determinants of the individual decision to vote (Dhillon and Peralta, 2002; Feddersen, 2004), fiscal centralization should be expected to weaken individual incentives to cast a vote due to lower election stakes and dwindling party differentials. In addition, the doubtful possibility on the part of candidates to implement their policy platforms once in power might as well lead political parties and interest groups to expend little campaign and mobilization efforts, thus reducing the number of candidates running for office and reinforcing the negative effect of fiscal limitations on turnout in local elections.

In order to make that intuitive argument more precise, I rely on Ghosal and Lockwood (2009) model of voluntary, costly voting, where ideologically biased agents receive informative signals about commonly valued candidate competence, and I adapt it to a decentralized set-up where localities elect one of two candidates to implement a policy that might be subject to state limitations. I show that, by narrowing the position issue gap between candidates, fiscal centralization makes it more likely that local voting occurs according to competence signals than to ideological views, and that such switch lowers turnout due to the operation of two forces. First, as signals are informative and correlated across residents in a locality, there is an incentive to free ride when the others are voting according to signals. Second, the expected benefit from voting according to noisy signals of candidate valence is lower than when voting according to non-stochastic private values on position issues. Finally, and in spite of the fall in

turnout, the switch to common value voting improves the selection property of local democratic systems by favoring success of the most valent candidates, and in likely circumstances with a larger margin of votes than when voting occurs according to private values.

In multi-tiered government structures, top-down fiscal restraints on local governments would therefore, on one hand, lower the stakes and exacerbate the parochial, second-order character of local contests, discourage voter participation, and interfere with the voice mechanism on which local democracy is believed to rest. On the other hand, by deemphasizing or altogether removing purely ideological stances from local elections, fiscal restraints would tend to facilitate rational voters' party line crossing and valence-based selection mechanisms, thus questioning one of the fundamental postulates of the fiscal federalism lore, namely the widespread credence that tax decentralization is a key ingredient to foster local government performance and accountability.

I next analyze empirically the fiscal hierarchy-local democracy nexus by investigating the impact of the Italian system of top-down tax and expenditure limitations (TELs) on turnout rates and candidate competition in the elections that were held throughout the past decade in over 7,000 Italian municipalities. Municipal elections take place every five years, with direct election of the mayor in a single or dual ballot depending on resident population size, and display an average turnout rate of almost 80 percent. Importantly, the election schedule across the country is staggered, meaning that several elections occurred in each of the 2001 to 2010 years. By exploiting the unique institutional features of the Italian system of local TELs, particularly their exogenous sources of time-series and cross-locality variation, and by relying on local turnout in parallel Parliamentary elections as a counterfactual, I employ a difference-in-differences research design to find that tax limits provoke a moderate fall in voter turnout and mayoral candidate competition, some improvement in candidate valence proxies, and a sizeable rise in elected mayors' win margins. The evidence is compatible with the hypothesis that, by fading the ideological stakes of local elections, fiscal centralization favors valence-driven vote convergence via party line crossing.

The rest of the paper is organized as follows. Sections **2** presents the institutional set up and some key features of the panel dataset on municipal elections in Italy. Section **3** outlines a simple theoretical framework for the analysis of the effects of fiscal centralization on local democratic processes. Section **4** traces

back the evolution of local tax limitation rules over the 2001-2010 decade in Italy. Section **5** reports the results from the empirical analysis of the impact of tax limits on voter turnout and a number of other aspects of local elections. Finally, section **6** concludes.

2 Local elections in Italy

Elections in Italian municipalities take place every five years, with direct election of the mayor in a single or dual ballot depending on resident population size, with larger localities (>15,000 inhabitants) having a runoff stage among the two most voted candidates if none gets more than 50% of the votes in the first stage. Voters express a vote for a mayor candidate as well as for a councillor candidate if they wish.[4] Voting is formally mandatory for all aged above 18, though no sanctions exist for abstainers. Importantly for the purposes of our empirical analysis, the election schedule across the country is staggered, meaning that several elections occurred in each of the 2001-2010 years, as shown in table 1.

The municipal level of government is highly fragmented, with average population size of around 7,000 inhabitants.[5] As shown in table 2, the number of cities above 100,000 inhabitants is only around 40, just two of them exceeding one million residents, with more than half localities having less than 3,000 residents. This means that in most municipalities a single vote can make a difference, either for the mayor candidate that is elected, or for the composition of the municipal council. For instance, in the elections held in 2009 in the municipality of Monte San Vito (Marche), 5,374 registered voters, the two most voted candidates each got exactly the same number of votes (1,653), thus requiring an *ad hoc* second round of elections. More sensationally, the city of Meda (Lombardia), with an electorate of 18,485, had the mayor elected with a single vote difference at the runoff held in May 2012.[6] Of course, such close outcomes are rare, as shown in table 3, as they involve only a few dozen municipalities over thousands of elections. Table 4 shows, though, that relatively narrow vote margins are far from uncommon. Moreover, the likelihood that a vote be decisive for the selection of candidates into the local councils - whose number varies

[4] $\frac{2}{3}$ of the council seats are assigned to the councillor candidates (frequently grouped in one or more parties) supporting the mayor that is elected.

[5] Municipal governments are mainly in charge of urban public transport, road maintenance and cleaning, waste collection and management, water and sewer services, environmental monitoring and protection, planning and zoning.

[6] *Ministero dell'Interno*, Municipal election data (http://elezionistorico.interno.it).

depending on population size, from 12 councillors (<3,000 inhabitants) to 60 (>1,000,000 inhabitants) - is much higher. In smaller communities, a handful of votes can frequently be enough to gain a seat in the local council.[7]

In fact, the closeness of mayoral races varies considerably across elections. Let us focus on the vote difference between the two most voted mayor candidates that was registered in the over 14,000 municipal elections that took place across Italy between 2001 and 2010. Figure 1 draws the log of the mayor win margin against the log of population. Elections that are uncontested or won by a huge margin lie close to a 45 degree frontier, while close outcomes lie in the proximity of the horizontal axis. The fact that win margins increase with the size of population and that close outcomes are more likely to be observed in smaller sized localities lends support to the conjecture that the instrumental motive to vote should be stronger in smaller communities, and could explain the high voter turnout rate in a fragmented local government structure as the Italian one. Turnout at municipal elections averages almost 80% and surpasses 90% in a number of regions, though it has been steadily declining over time (table 1), a secular tendency that is common to virtually all developed countries (Wattenberg, 2002; DeBardeleben and Pammett, 2009).

Moreover, turnout variation across Italian municipalities is substantial. Figure 2 draws the turnout rate against the log of population. A few features of figure 2 seem noticeable, and sort of puzzling too. First, turnout reaches its peak (above 90%) in smaller-sized localities, several of which only show what could be seen as frictional abstention. However, turnout rates exhibit a fairly large variance in small localities as well, and fall below 50% not too infrequently, with a leakage of voters at around the arguably small population size of 1,000. On the other hand, turnout rates never drop below 60% in larger (population above 20,000) localities.

3 Theoretical framework

3.1 Private *versus* common values in decentralized voting

Recent characterizations of voluntary and costly voting in majority rule elections postulate individual preferences to be shaped either by private attitudes (idiosyncratic tastes or ideology) in favor of one of the alternatives or candidates

[7] In the 2001 election held in the small municipality of Bergolo (Piemonte), the mayor and his majority of 8 (out of 12) councillors were elected with 29 (out of 68) votes. The turnout rate was over 97%.

(Börgers, 2004; Krasa and Polborn, 2009; Taylor and Yildirim, 2010), or by common values (*e.g.*, candidate competence) whose information is disseminated across the electorate through noisy private signals (Martinelli, 2006; McMurray, 2013), or both (Groseclose, 2001; Aldashev, 2008; Ghosal and Lockwood, 2009; Krishna and Morgan, 2011), and analyze how those inner motivations affect information gathering, turnout and overall quality of collective decision-making.

A distinct, recent literature relies on common value models of political agency where career concerned representatives allocate resources between public good provision and rents, and studies the effects of government budget size and composition on politicians' behavior under the assumption of plebiscitary turnout. Besley and Smart (2007) examine the optimality of fiscal restraints in the Brennan and Buchanan (1980) spirit in a political agency model with moral hazard and adverse selection, and argue that constitutional restrictions on the size of the budget favor discipline over selection, making the (pooling) political equilibrium less informative. In Brollo *et al.* (2013), the hypothesis of an exogenously determined budget size generates a perfectly fiscally centralized environment where larger state transfers allow higher rents and attract rent-prone, low ability candidates. Bordignon *et al.* (2012) argue that own financial resource-rich localities would select candidates with higher administrative ability and attain better performances than resource-poor localities. Finally, Gadenne (2012) shows that imperfectly observed grants to local governments stimulate larger rent extraction than perfectly observed local tax revenues, lending support to Paler (2012) argument that it is citizens' degree of information rather than revenue source *per se* that determines government accountability with respect to alternative (and fungible) means of financing.

In order to formalize the effects of hierarchical fiscal restraints on turnout and political competition in local elections, this section relies on Ghosal and Lockwood (2009) model of costly voting over two alternatives, where agents have both an ideological bias and a commonly valued state of the world, and adapts it to a decentralized set-up where localities elect one of two candidates to implement a policy that might be subject to state limitations. In particular, consider a set of M municipalities, each of which is inhabited by N immobile, adult individuals, and two mayor candidates A, B running for office in each locality. If elected, candidate $X \in \{A, B\}$ implements policy $\pi_m^X \in \Re_+$ in locality m.

Voting is voluntary and costly, with voting cost for individual i in municipal-

ity m (c_{im}) being independently and identically distributed on $[\underline{c}, \overline{c}] \subset \Re_+$ with probability distribution F. Turnout and voting decisions depend on individuals' own personal bias and on candidates' competence, the latter being a function of the state of the world that is realized. Voter i's payoff from candidate X is:

$$w_{im}^X = \lambda_m u(X, \tau_{im}) + (1 - \lambda_m) v(X, s_m) \tag{1}$$

where $\lambda_m \in [0, 1]$, $m = 1, ..., M$, captures the weight of ideological bias (the first component in (1)) relative to candidate competence (the second component in (1)) in the payoff function, and is allowed to vary across localities only. Each voter i is ideologically biased towards one of the candidates $X \in \{A, B\}$, with:

$$u(X, \tau_{im}) = \begin{cases} 1 & \text{if} \quad \tau_{im} = X \\ 0 & \quad\quad\ \ \tau_{im} \neq X \end{cases} \tag{2}$$

Voter's ideological bias τ_{im} is i.i.d. on $\{A, B\}$, with $\gamma_m^X \equiv \Pr(\tau_{im} = X) = 0.5$. As for candidate competence, $s_m \in \left\{s_m^A, s_m^B\right\}$ in (1) denotes the state of the world, with $v(A, s_m^A) = v(B, s_m^B) = 1$, 0 otherwise, meaning that candidate X delivers a positive payoff in state of the world s_m^X. While the states of the world s_m^A, s_m^B are *ex ante* equally likely, voters costlessly receive informative signals $\sigma_{im} \in \left\{s_m^A, s_m^B\right\}$ prior to voting, with: $\Pr(\sigma_{im} = s_m^X | s_m = s_m^X) = q > 0.5$.

With preferences defined by (1), Ghosal and Lockwood (2009) first characterize the voting decision conditional on turnout, and show that there exists a critical value $\widehat{\lambda}$ above (below) which all those who turn out vote according to their private value τ_{im} (common value signal σ_{im}), with $\widehat{\lambda} = \frac{q-0.5}{q}$, an increasing function of the accuracy of the competence signal (Lemma 1, p. 30). As for the turnout decision, the equilibrium turnout rate is determined by $p^* = F(B_P(p^*))$ if $\lambda_m > \widehat{\lambda}$ (voting is according to private values), where $B_P(p^*) = c^*$ is the expected benefit of voting given that all other agents turn out with probability p^*, and turnout is inefficiently high due to the same negative pivot externality as in Börgers (2004): any individual's vote makes it less likely that other voters are pivotal. On the other hand, if $\lambda_m < \widehat{\lambda}$ (voting is according to signals), turnout is inefficiently low due to a positive informational externality: since individuals base voting decisions on their informative signals, an individual voter improves the quality of the collective decision for the entire polity (Ghosal and Lockwood, 2009: Propositions 1-3, pp. 34-37).[8]

[8] In Krishna and Morgan (2011), voters care about candidate's ideology and competence, yet ideology outweighs competence leading to purely ideological voting. In their model, if voting is voluntary and costly, endogenous turnout adjustment restores the social optimality of majority rule in large elections.

3.2 Centralization

Let now local governments be subject to state limitations on their policy instrument of the general form: $0 \leq \underline{\pi} \leq \pi_m^X \leq \overline{\pi}$. Voter i's payoff from candidate X in the presence of the above limits can be expressed as:

$$\widetilde{w}_{im}^X = \lambda_m \widetilde{u}(X, \tau_{im}) + (1 - \lambda_m) v(X, s_m) \tag{3}$$

$$\widetilde{u}(X, \tau_{im}) = \begin{cases} 1 - \triangle_m^X & \text{if} \quad \tau_{im} = X \\ \triangle_m^X & \quad\quad\ \ \tau_{im} \neq X \end{cases} \tag{4}$$

where $\widetilde{u}$ denotes the private payoff function in the presence of state limitations, and $0 \leq \triangle_m \equiv \triangle_m^A + \triangle_m^B \leq 1$ is the extent to which state limits narrow the payoff gap between the two candidates' policies. Indeed, $\triangle_m > 0$ requires the limit to be binding on at least one of the candidates, and $\triangle_m = 1$ results from complete policy centralization ($\underline{\pi} = \overline{\pi}$; $\overline{\pi} < \pi_m^X$; $\underline{\pi} > \pi_m^X$; $X = A, B$).

With voter preferences given by (3) and (4), the critical value of λ_m above which all those who vote do so according to private values is:[9]

$$\widetilde{\lambda}_m = \frac{q - 0.5}{q - 0.5\triangle_m} \tag{5}$$

$\widetilde{\lambda}_m$ is increasing in $\triangle_m$, and indeed equals 1 in case of full policy centralization removing any ideological cleavage among candidates ($\triangle_m = 1$). Consequently, the more severe are state limitations on local governments, the more likely is that voting in municipality m occurs according to signals about candidates' competence than to ideologically biased private values. This is reminiscent of Stokes (1963) argument - more recently formalized by Groseclose (2001) - that deemphasizing the importance of position issues (*i.e.*, a policy choice from a set of alternatives over which a distribution of voter preferences is defined) amplifies the moment of candidates' talent and prestige (valence issues). In our context, position issue deemphasization in local elections is the result of an intensification of state command on local choices (fiscal centralization). Moreover, it relies on a similar trade-off as between group loyalty and politicians' probity in ethnically divided societies (Banerjee and Pande, 2009; Casey, 2012), where the strength of the influence of group identity on citizens' political preferences

[9] As in Ghosal and Lockwood (2009), when an individual has $\tau_{im} \neq \sigma_{im}$ and all other $j \neq i$ individuals are voting with their private values, payoff equals $\lambda_m(1 - \triangle_m^X) + (1 - \lambda_m)(1 - q)$ if she votes according to τ_{im}, and $\lambda_m \triangle_m^{\neq X} + (1 - \lambda_m)q$ if she votes according to σ_{im}. Equating the two payoffs gives (5). A similar argument applies to when all other individuals vote according to their signals (Ghosal and Lockwood, 2009: p. 45).

perpetuates low accountability equilibria in which people cast their votes uncritically along ethnic lines. In our context, tighter state limitation of municipal governments discards local party loyalty and favors common value voting.

3.3 Turnout and election outcomes

State limitation of local government fiscal autonomy can have important consequences on the functioning of the decentralized democratic process in terms of turnout, political competition, and election outcomes. As far as voter turnout is concerned, the regime switch from voting according to private values to voting according to common values can be expected to lower turnout due to the operation of the following two forces.[10] First, as signals are informative and correlated across residents in a locality, there is an incentive to free ride when the others are voting according to signals: the competent candidate is going to be elected with probability $q > 0.5$ relative to 0.5 when everyone votes according to private values. Second, the benefit from voting according to the signal is $q - 0.5$, *i.e.*, the extra content of information on the competent candidate in the signal (q) relative to random selection (0.5). On the other hand, when voting according to private values the benefit is $0.5 > q - 0.5$, *i.e.*, the private payoff from the preferred candidate (1) relative to random selection (0.5). As a result, the turnout drop that should be expected to result from policy centralization does not in itself constitute a symptom of a struggling decentralized democracy, but can instead be safely interpreted as a reflection of secularized, pragmatic polities.

In fact, the turnout drop as a result of state limitations can be conjectured to be reinforced when relaxing the hypothesis of a fixed two-candidate race, and allowing for an endogenously determined number of mayor candidates. If, as in citizen-candidate models (Osborne and Slivinski, 1996; Besley and Coate, 1997), the number of candidates who enter a political competition depends negatively on the costs of running for office and positively on the benefits of winning the election (*i.e.*, the chance of implementing their preferred policy),

[10] A similar reasoning leads Ghosal and Lockwood (2009) to conclude that an increase in the accuracy of information (an increase in q) tends to lower turnout. Relatedly, McMurray (2013) shows that a citizen's own information makes her more willing to vote, while the information of her peers makes her more willing to abstain, so that voter turnout at the macro level is determined by the distribution of expertise. Gentzkow (2006) argues instead that television's introduction depressed turnout in the US by substituting away from media with more political coverage (newspapers and radio), and Gentzkow *et al.* (2011) find that newspaper entry increases turnout.

fiscal centralization reduces the latter by narrowing the admissible local policy space. The expected utility loss from ending up in a policy corner solution generated by fiscal limits rather then selecting the utility maximizing alternative can be expected to lower the number of candidates in equilibrium, thus likely magnifying the negative impact of policy centralization on turnout through voter alienation.[11]

Finally, the limit-driven switch from ideological to signal voting can be expected to affect the very outcomes of local elections. First, conditional on the set of candidates and given that the competence signal $q > 0.5$, policy centralization would make election of the competent candidate more likely, and the more so the more accurate is the signal. This is in line with recent research on the effect of political competition on policy performance, in particular with the idea that a fall in voters' ideological attachment and polarization leads to more cost-efficient policies (Svensson, 2005), lower equilibrium political rents (Aldashev, 2008), better performance in the provision of local public services (Geys *et al.*, 2010), and creation of a growth-promoting environment (Besley *et al.*, 2010). Second, given that c_{im}, τ_{im}, and σ_{im} are mutually independent, and that the signal is informative ($q > 0.5$), the expected win margin change that is provoked by a centralization-driven switch from private value voting to signal voting in a two-candidate race is positive if:

$$q > 0.5 + \left|\gamma_m^X - 0.5\right| \tag{6}$$

where γ_m^X is the share of voters that are ideologically attached to party X in locality m.[12] A switch to competence signal voting will lead to wider win margins the more accurate is the signal and the more evenly spread is party attachment. Indeed, the win margin increases with common value voting in an ideologically split electorate ($\gamma_m^A = \gamma_m^B$).

[11] It has been argued, though, that an increase in the number of parties lowers the power and willingness to vote of the electorate by calling for post-election coalition formation (Geys and Heyndels, 2006). Relatedly, Lizzeri and Persico (2005) show that party proliferation may reduce welfare by channeling resources into targeted transfers at the expense of general interest public goods. Zhuravskaya (2007) finds that party fractionalization worsens government quality and performance in developing countries.

[12] The expected win margin in a two-candidate race when voting occurs according to private values is: $\left|\gamma_m^A - \gamma_m^B\right| = \left|2\gamma_m^A - 1\right|$. When voting is according to signals, and with $q > 0.5$, the expected win margin is: $q - (1 - q) = 2q - 1$.

4 The Italian local tax limitation system

TELs in multi-tiered government structures come in a number of forms - tax base assessment rules, rate limits, expenditure floors and ceilings (Mullins and Wallin, 2004) - and differ depending on their genesis: in the US states, local TELs typically originated from bottom-up, popular initiatives, while in most other OECD countries TELs are the result of a top-down hierarchical process (Sutherland *et al.*, 2005; Ter-Minassian, 2007). I focus here on the Italian system of state-determined, hierarchical limitations on municipal governments' revenue raising power, and exploit its changes during the past decade.

Italian municipalities' own revenues are mainly constituted by a local property tax and a surcharge on the national personal income tax. The latter was introduced nationwide in 1999 as part of a wider process of fiscal decentralization that started in 1993.[13] The municipal income surcharge has since represented an important source of revenue for municipal governments, amounting to around $\frac{1}{4}$ of total own municipal tax revenues in the late 2000s. Since the tax base is computed according to a comprehensive net ability to pay principle that includes income from all types of labor (employees, pensioners, self-employed, and non-incorporated business) and from real and financial assets, the tax is due by the vast majority of residents. Moreover, the purely proportional features of the municipal surcharge (a flat rate that adds to the progressive rate schedule set by the national government on an identical tax base), with no low income exemptions, make it visible and salient to all personal income taxpayers, including those – say, part-time workers, small businesses and pensioners – that are only lightly burdened by the national personal income tax. The municipal income surcharge is subject to nationwide rate limits (table 5). Interestingly, and crucially for our identification strategy, those limits changed on an almost annual basis during the subsequent decade, and affected localities in heterogeneous ways, in particular:

Phase 1 (1999-2002): at the time of the municipal surcharge introduction and for the three subsequent years, a nationwide rate limit was set at 0.5% of the income tax base, and annual municipal rate increases could not exceed 0.2%. This implies that a municipality consistently setting the maximum allowed rates would hit the limit of 0.5% in 2001, and be at a corner solution there in 2002.

[13] The local property tax was introduced in 1993, subject to state-imposed, two-sided rate limits that remained unchanged since (0.4% and 0.7% respectively on the cadastral value of property).

Phase 2 (2003-2004): in an attempt to slow down local tax and spending growth, the central government halted the fiscal autonomy of municipalities by 'freezing' all local surcharge rates at their existing (2002) levels for the two subsequent years.

Phase 3 (2005-2006): following the vigorous protests of the authorities that were stuck at a zero tax rate and were facing increasing financial troubles due to state grant retrenchment, the central government established that municipal surcharge rates would remain at their 2002 levels in localities with a strictly positive surcharge rate, while the authorities that had been keeping a zero surcharge rate in the past had the freeze lifted.

Phase 4 (2007-2008): following the 2006 general elections and change of government, the upper rate limit was elevated to 0.8%.

Phase 5 (2009-2010): in the wake of the change of government following the 2008 general elections, all municipal surcharge rates were frozen again at their 2008 level in order to curb local public sector growth.

Due to the above features, authorities held elections subject to varying degrees of tax autonomy during the decade. The exogenous nature of both the schedule of municipal elections (table 1) and of the fiscal restrictions on municipal budgets (table 5) makes it possible to estimate the impact of local election stakes as determined by tax limits on a number of features of the local democratic process.

5 Empirical analysis

5.1 Tax limits and turnout

I use information on over 14,000 municipal elections held during the 2001-2010 decade (at least two elections in around 7,000 localities) to investigate the effect of election salience as determined by state fiscal limitations on voter turnout.[14] In order to characterize the exogenously determined 'low stakes' circumstances where local authorities are bound on their revenue raising power, I build a dummy variable TL_{mt} that equals 1 if authority m is subject to a state-imposed tax rate freeze in year t. As discussed above, the local income tax freeze applies

[14] The Italian Ministry of the Interior manages and keeps detailed records of all municipal elections in 'general law' Italian regions, or around 90% of all local elections (http://elezionistorico.interno.it), while municipal elections are autonomously ruled and administered in 'home rule' regions. Data on municipal income tax rates and elections prior to 2001 are lacking or incomplete.

to all authorities irrespective of their $t-1$ rates in 2003-2004 and 2009-2010, and to authorities having positive $t-1$ tax rates only in 2005 and 2006.[15] About 70% of the observations have $TL_{mt} = 1$, and over $\frac{1}{4}$ of the municipalities experience a switch in the TL dummy (in either direction) from one election to the next.

The voter turnout rate is defined as the ratio of actual votes cast relative to eligible population. Since it is bound by definition between 0 and 100%, I make a conventional log of the odds transformation of the dependent variable in equation (7):[16]

$$\ln\left(\frac{turnout_{mt}}{1-turnout_{mt}}\right) = \beta_{TL} TL_{mt} + f_m + y_t + \varepsilon_{mt} \tag{7}$$

where f_m absorbs all time-invariant local traits affecting turnout (*e.g.*, social and civic capital endowment), y_t controls for common influences on all elections taking place in a given year, and ε_{mt} captures unobserved time-varying influences on turnout in locality m. The panel data set is unbalanced, both in the sense that some municipalities record more than two elections during the decade (due, for instance, to mayor resignation during the term of office), and because elections occur at different points in time (table 1). The f_m terms are treated as fixed, and equation (7) is conventionally estimated by taking deviations from group means.

In addition to the tax freeze dummy TL_{mt}, richer specifications of equation (7) include the size of population among the determinants of turnout, along with an indicator of election closeness given by the vote difference between the two most voted mayor candidates. I have to use an *ex post* race closeness measure because *ex ante* information on the closeness of elections is not available for municipal elections. Finally, I include the number of candidates running for mayor position. The latter variable might itself be affected by the stakes of elections, so that the estimated effect of tax limits on turnout after controlling for the number of mayor candidates reveals whether tax limits have a direct effect on voter turnout, or they only have a mediated one via lower political competition.

The estimation results of equation (7) on the 2001-2010 election panel are reported in table 6. Column (6.1) relies on a specification that only has the tax freeze dummy (TL) and municipality and year fixed effects. The subsequent columns of table 6 report the results when allowing for the other determinants

[15] The tax freeze endogeneity issue is discussed in section **5.4**.

[16] Two of the 14,561 observations in table 1 drop due to 100% turnout, leading to a final dataset of 14,559 observations (table 6).

of turnout. Expectedly, the number of mayor candidates has a positive and highly significant effect on turnout, while the size of population and the *ex post* win margin are estimated to have little or no effect on voter participation. As for the key tax freeze dummy, it is estimated to have a significant negative effect on voter turnout. Interestingly, the effect is robust to conditioning on the number of mayor candidates. In terms of magnitude of the impact, the marginal effects of the regressors on turnout vary with the level of the dependent variable in this model. Table 7 reports the estimated effects on the dependent variable at a number of turnout rates for the crucial TL dummy, showing that tax limits have a moderate impact on turnout of around one percentage point.

5.2 The 2006 treatment

It might be argued that, due to universal tax freeze in a number of years, the effect of tax limits as defined above would be difficult to separately identify from unobserved statewide influences on voter turnout - due, for instance to concomitant parliamentary, regional or European assembly elections - that have little to do with the actual degree of local government fiscal autonomy. In order to corroborate the evidence on the impact of tax limits on turnout, I focus here on the 2006 tax freeze rule, and exploit the fact that a subgroup of municipal authorities having two consecutive elections in 2001 and 2006 was 'treated' by the 2006 tax limitation scheme, the rest of the authorities having elections in 2001 and 2006 serving the role of control group.[17]

According to the tax limitation rule in place in 2006, all authorities setting a positive surcharge rate in 2005 had their rates frozen. In fact, this implies that their income surcharge rates would be fixed at their 2002 level due to the preexisting limitations in years 2003 and 2004. On the other hand, authorities at a zero surcharge rate in 2005 had the tax freeze removed in 2006. Of the 1,133 municipalities having elections in 2001 and 2006, 794 were frozen at their existing tax rate levels in 2006, while 339 were not. The turnout difference-in-differences (DiD) between the two samples can consequently be computed as:

$$DiD_{TL} = E\left(\Delta turnout | TL_{2006} = 1\right) - E\left(\Delta turnout | TL_{2006} = 0\right) \qquad (8)$$

Table A2 in the Appendix reports a number of characteristics of the authorities in the two samples, showing that the municipalities subject to the tax

[17] In the subsequent years (2007-2008), the tax freeze was lifted, to be put back in place in 2009-2010 on *all* authorities.

freeze in 2006 have larger (though not significantly so) resident population, are significantly less likely to be located in the South of Italy ($\frac{1}{3}$ versus $\frac{1}{2}$), and exhibit a significantly faster rate of growth of population ($1\frac{1}{2}$ percentage points difference), mostly reflecting the secular dynamics of South to North of Italy migration, as well as the more recent phenomenon of foreign immigration to affluent Northern regions. Finally, the authorities in the TL=1 sample were significantly more likely to be located in left-wing controlled regions in 2001 - a difference that vanishes after the massive gain of votes and political take-over of the left-wing parties in the regional elections of 2005.

While it is hard to infer whether the evolution of those characteristics might plausibly provoke different trends in turnout at municipal elections between the two samples (due, say, to changing population structure), focusing on the 2001 and 2006 municipal elections offers the unique opportunity to use the trajectory of local turnout in the concurrent general elections as the counterfactual turnout trends in the two samples. In fact, any difference in the trend of voter participation between 2001 and 2006 that is unrelated to the imposition of the local tax freeze in 2006 (say, changes in income, education, and demographic composition of the localities) ought to be observed both in municipal and in Parliamentary elections.

The timing of local and general elections in 2001 and 2006 is remarkably fortunate. In the year 2001, municipal and Parliamentary elections were held on the same day (May 13), with voters simultaneously casting a vote for mayor and national Parliament composition.[18] On the other hand, the 2006 municipal elections were held on May 28, that is seven weeks after the general elections (April 9, 2006), thus creating an ideal set up to identify the impact of local election stakes on turnout in mayoral elections relative to national elections whose stakes should in principle be orthogonal to the presence of local tax limits.

The upper panel of table 8 reports the trend in turnout in Parliamentary elections between 2001 and 2006 in the two samples. Turnout is high (above 80%), and even shows a mild increase from 2001 to 2006 in both samples. Interestingly, table 8 shows no significant difference between the two groups of authorities as far as participation trends in national elections are concerned, lending support to the hypothesis of parallel turnout trends.

As far as turnout at municipal elections is concerned, the lower panel of

[18] Once at the polls, voters could in principle abstain for either if they wished.

table 8 shows that turnout steadily declines between the 2001 elections and the 2006 elections in both samples. This is likely attributable both to the fact that the 2001 elections gave voters the chance of simultaneously casting a vote for national Parliament and mayor elections, thus presumably driving up turnout in the latter relative to what would have been in the absence of concomitant general elections, and to the secular decline in local voter turnout referred to in section **2** above. Most interestingly, though, the decline is more pronounced in the TL treated group. The turnout difference-in-differences equals -1.3 percentage points, and is highly statistically significant. In terms of size, it is slightly larger than the moderate estimated effect from table 7 around the median turnout rate in the 2006 sample (75 percent). Moreover, the estimated turnout effect of tax limits is virtually unaffected when controlling for the change in population size, number of mayor candidates, election closeness (win margin) and change in turnout at Parliamentary elections. Table A1 in the Appendix shows that the election closeness proxy has no significant impact on turnout, while population and number of mayor candidates have significant negative and positive effects respectively.

5.3 Tax limits and political competition

As argued in section **3.3**, fiscal limitations can further be expected to lessen political competition and restrain potential candidates from running for office by narrowing the feasible policy space and reducing the expected benefits from appointment. As shown in figure 3, the number of mayor candidates in municipal elections varies from 1 to 16. Around 6% of all elections held between 2001 and 2010 are uncontested, while a two-candidate is the most common race (almost half of the elections). Two-digit figures for the number of mayoral candidates are rare, and usually occur in larger cities.[19]

As above, I rely on the sharp design created by the fiscal limitation rule change between the consecutive 2001 and 2006 elections. The difference-in-differences estimates of the effect of fiscal limitations on the number of mayor candidates are reported in table 9: the number of candidates decreases in the treated group and increases in the control group. State limits appear to have exerted a significant negative effect on the degree of competition for office, though of relatively small magnitude (a five percent fall in the number of mayor candi-

[19] Roma had a record 16 mayor candidates in the 2001 elections, and 12 in the 2006 elections. Milano had 10 mayor candidates in both 2001 and 2006.

dates in the treated relative to the control group). Table A1 in the Appendix shows that the declining degree of competition for office in the tax limited sample relative to the control sample is not driven by changes in population size between the two elections.

5.4 Tax limits and valence

Finally, the crucial intuition from section **3** concerns the ability of fiscal limitation arrangements that are typical of hierarchical government structures to overcome ideological bias in lower-tiered elections: the move from private value voting to common value voting that I have argued to be favored by tax centralization should be expected to facilitate rational voters' party line crossing and convergence towards high valence candidates.

Recent research in this area variously proxies candidates' valence either by their level of education (Galasso and Nannicini, 2011), or by their professional record (Bordignon *et al.*, 2012), or by their labor market performance in terms of the Mincer residual from an earnings regression on individual level observables (Besley *et al.*, 2012). Table A3 in the Appendix reports summary information on a number of mayors' sociodemographic characteristics in the 2001 and 2006 elections in the treatment and control groups.[20] In particular, table A3 shows the average share of elected mayors reporting positive scores on the following binary indicators of valence: young (age at appointment < 50), female, educated (holding a university degree or more), expert (having a specialization in management, administration, or law), and distinguished professional status (architects, engineers, physicians, accountants, lawyers, and academics). For the most part, the DiD estimates in table 10 suggest that the 2001 to 2006 evolution of the composition of elected mayors in the two samples does not differ significantly along any of those dimensions, with the exception of the distinguished professional status valence proxy, that exhibits a noticeably larger increase between 2001 and 2006 (around four percentage points) in the tax limited sample than in the control sample.

On the other hand, based on the discussion in section **3.3** and given the difficulty of defining and measuring candidate valence objectively and accurately, table 11 reports the results of estimation of the impact of tax limits on mayors' observed win margins, a sort of indirect evidence of voters' convergence to

[20] Ministry of the Interior (*Ministero dell'Interno, Anagrafe degli Amministratori Locali*: http://amministratori.interno.it/).

valent candidates. Using the win margin change across the 2001 and 2006 elections has the advantage of not requiring any *ad hoc* formulation of unobserved candidates' valence. To have comparable figures across municipalities, the win margin is standardized by expressing the absolute difference in votes between the two most voted candidates as a percentage of the votes got by the elected mayor.[21] This way, the standardized win margin lies between 0 (in case of a tie) and 100 (in uncontested elections, or where the second most voted candidate gets no votes, an event occurring once in the dataset), and takes a median value of around 33 and 36 percentage points in the 2001 and 2006 elections respectively. Table 11 shows that the win margin increases in the treated group and slightly decreases in the control group. Overall, tax limits appear to favor a strikingly large convergence of votes towards one of the candidates: where tax limits bind, the win margin of the mayor is larger by over 5 percentage points relative to the control group. The estimated effect is robust to controlling for the difference in the number of candidates between 2001 and 2006: table A1 in the Appendix expectedly shows that the number of mayor candidates has a negative impact on the win margin. While an additional candidate reduces on average the mayor's win margin by almost 6 percentage points, still the effect of fiscal limitations remains large and significant (over 4 percentage points), thus ruling out the possibility that higher win margins are sort of mechanically determined by the fall in competition for office.

In fact, the two pieces of direct and indirect empirical evidence discussed above are not reciprocally inconsistent. It turns out that distinguished professional status mayors that are elected in tax limited jurisdictions in 2006 (94 mayors) enjoy an excess win margin improvement of more than ten percentage points (an effect that is significant at the 10% level of confidence) over similarly qualified mayors in the control localities. Taken together, both the direct evidence based on mayors' valence proxy and the indirect evidence based on elected mayors' actual win margins are compatible with the hypothesis of fiscal centralization influencing election outcomes by facilitating common value voting based on candidates' valence signals.

5.5 Robustness analysis

Table A4 in the Appendix reports the results of a number of checks of the robustness of the above evidence. I first drop the observations in the top 5% and

[21] The first round outcome is considered in case the election has a run-off stage.

bottom 5% of the 2006 voter turnout distribution (turnout rate below 57.6% and above 87.4% respectively), and compute the difference-in-differences on the main variables of interest for the remaining 1,020 election pairs 2001-2006. This is meant to allow for the possibility, further discussed below, that the results be driven by unusually large shocks to voting in local elections (*e.g.*, corruption scandals) that could be correlated with local tax setting policy. I also experiment with removing the observations in the bottom 10% distribution of turnout changes between 2001 and 2006 (turnout fall exceeding 16 percentage points between the two municipal elections). Similarly, in order to check whether uncontested elections are the sole drivers of the estimated effects of tax limits on the local political process, I exclude all observations where only one candidate runs for office in the 2006 elections (49 municipalities). Moreover, to allow for specific features of large metropolitan areas, I compute the difference-in-differences after dropping the four main cities (Roma, Milano, Napoli and Torino), whose population exceeds that of the next largest localities by an order of magnitude. Finally, I allow for a role from restraints on municipal expenditures. Starting 1999 and following Italy's adherence to the EMU Treaty and Stability and Growth Pact (Maastricht, 1992), Italian municipal authorities have had to abide to the rules of the so-called Domestic Stability Pact (DSP) consisting of a set of annually determined restrictions on municipal governments' outlays (Ambrosanio and Bordignon, 2007).[22] In order to control for the potential impact of such EU-imposed spending restrictions on local election stakes, I build a dummy variable EL that equals 1 if a locality's population exceeds the threshold (3,000 inhabitants in 2006) for being liable to the DSP rules, smaller localities being exempt from the spending restrictions. The expenditure limitation scheme is presumed to be binding if an authority is statutorily liable to it (population $> 3,000$), capturing the idea that budgeting limits *per se* affect the popularly perceived ideological stakes of local elections, irrespective of the specific - and rather hard to decipher - limitations in force. Based on the joint operation of the tax and expenditure limitations, it turns out that 416 (of the 794 tax limited authorities) were fully constrained in 2006 ($TEL = TL \times EL = 1$), while no authority was jointly tax and expenditure constrained in 2001. I compute the difference-in-differences for the main variables of interest as in equation (8).

[22] Recent research has used panel data on Italian municipalities to investigate the effects of the DSP on a number of local policies, including compliance with the very DSP rules, size of budget deficits, spending composition and growth (Balduzzi and Grembi, 2011; Bordignon *et al.*, 2011; Grembi *et al.*, 2012).

The results of all of the above further checks are reported in table A4. Generally, they show that the effects of the tax freeze on turnout, number of mayor candidates and win margins persist, or are even reinforced, in all of those instances. When allowing also for spending limitations as in the lower panel of table A4, the estimated effects are slightly larger, though of comparable magnitude, than when considering tax limitations alone.

Finally, and as far as exogeneity of the tax limitation criteria that I have exploited above is concerned, it might be argued that selection of authorities into the tax freeze sample in 2006 cannot be treated as strictly exogenous, given that it is determined by the income tax rates that were deliberately set by municipal governments before freezing was introduced: authorities setting positive surcharge rates in the early years of application of the municipal income surcharge (1999-2002) would unexpectedly suffer rate freezing in all subsequent years up to 2006. Our estimate of the 2006 tax freeze impact would be biased if the unobserved forces driving tax rates up in the early 2000s would also shape the path of voter turnout in the subsequent years. In order to ascertain whether an omitted variable is affecting both municipal tax rates and turnout, thus provoking a spurious correlation between the latter variable and the tax freeze dummy, I can exploit the fact that income tax rates increased *before* the 2001 elections in a number localities, while in the other localities they only increased *after* the elections. If in reality the shock to local tax rates also affects turnout, I would expect the turnout change 2001-2006 to differ significantly between the two groups. Of the 794 authorities facing the tax freeze in 2006, 617 had already opted for a positive local income tax rate when the 2001 elections were held, while 177 of them had a zero tax rate in 2001. Arguably, the latter had not been hit by the tax rate shock yet. When allowing for a different 2001-2006 turnout trajectory between these two groups, no significant difference emerges: the turnout DiD between the early local income tax adopters and the latecomers is -0.66, with a standard error of 0.56. Similarly, neither the path of the number of candidates (-0.08, standard error $= 0.09$) nor of the mayors' win margins (-0.42, standard error $= 2.75$) diverge significantly in the two groups, lending support to the hypothesis that the 2006 tax freeze did have an own impact on election stakes that seems unlikely to be explained by earlier shocks to local authorities' income tax-setting policies that eventually led to rate capping.

6 Concluding remarks

This paper has explored the role of hierarchical fiscal limitations - a key determinant of the actual degree of fiscal decentralization in multi-tiered government structures - and found that they can have profound and unforeseen consequences on the functioning of local democratic processes in terms of voter turnout, candidate competition and the very results of local elections. I have first employed a model of voluntary, costly voting over two alternatives to show that fiscal restraints on local governments deemphasize position issues and make it more likely that voting occurs according to common values (signals about the competence of candidates) than to private values (ideological views on position issues). Such switch should be expected to lower turnout in local elections, yet raise the chances of success of higher valence nominees.

I have then performed an empirical analysis on a large panel dataset of Italian municipal governments' elections during the 2000s, a decade of varying degree of state control on municipal governments' budget making autonomy. By relying on tax limit changes having heterogeneous impact on local authorities, the decade-long panel data analysis and the quasi-experimental evidence exploiting the fiscal limitation treatment of municipalities in the year 2006 reveal that state-imposed fiscal limitations depress voter turnout and the degree of competition among mayor candidates, while raising elected mayors' valence proxy and win margins. The fact that local turnout in the concurrently held general elections exhibits no significantly differential trend in the constrained *versus* unconstrained samples lends further support to the hypothesis of tax limits being responsible for deemphasizing position issues, lowering turnout and favoring the prevalence of valence-based voting in local elections.

On one hand, the results in this paper pay lip service to the view that hierarchical fiscal limitations exacerbate the parochial, second-order character of municipal contests, discourage voter involvement in local issues, and interfere with the fundamental voice mechanism on which democracy is believed to rest. On the other hand, the claim of this paper is that, by fading the ideological stakes of local elections and favoring a switch from private value to common value voting, fiscal restraints tend in fact to facilitate rational voters' party line crossing in quest of competence in government, and falling local turnout rates can be interpreted as an innocuous reflection of secularized, pragmatic polities in fiscally centralized government structures. More generally, explicit consider-

ation of the position-valence dilemma in voting over hierarchically constrained local issues questions one of the fundamental postulates of the fiscal federalism lore, namely the widespread credence that decentralization of the power to tax and spend is a key ingredient to foster local government performance and accountability. Moreover, the implications of the position-valence mechanisms that have been highlighted here are likely to transcend the strict fiscal federalism context. It seems plausible that the impact of decentralization on the ideological *versus* pragmatic nature of local democratic processes be further magnified in possibly more salient and controversial policy domains.

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Descriptive statistics

Table 1 Turnout rate in Italian municipal elections

year	turnout (%)	obs.
2001	81.49	1,264
2002	76.60	793
2003	77.25	348
2004	79.28	4,325
2005	76.81	550
2006	74.59	1,261
2007	73.57	837
2008	78.89	459
2009	76.92	4,088
2010	73.09	636
	77.50	14,561

Notes: turnout rate = votes/electorate; includes all municipalities for which information on at least two elections is available. Source: Ministero dell'Interno, Municipal election data.

Table 2 Municipalities' population

year	<3,000	3,000-5,000	5,000-50,000	50,000-100,000	>100,000
2001	4,586	1,076	1,928	83	37
2002	4,586	1,076	1,928	83	37
2003	4,588	1,066	1,935	83	38
2004	4,581	1,040	1,966	85	38
2005	4,565	1,037	1,982	88	38
2006	4,550	1,037	1,996	88	38
2007	4,540	1,032	2,011	89	38
2008	4,524	1,027	2,026	91	39
2009	4,496	1,040	2,035	93	39
2010	4,541	1,020	2,010	93	39

Table 3 Ties

Municipality	region	year	votes
Valmala	Piemonte	2004	28
Monteleone Rocca Doria	Sardegna	2006	62
Margno	Lombardia	2009	96
Cortanze	Piemonte	2006	101
Aisone	Piemonte	2009	101
Serravalle Langhe	Piemonte	2004	121
Piazzatorre	Lombardia	2004	132
Roatto	Piemonte	2001	139
Vizzola Ticino	Lombardia	2004	163
Cerano d'Intelvi	Lombardia	2004	170
Loculi	Sardegna	2001	196
Borbona	Lazio	2004	196
San Giovanni in Galdo	Molise	2009	241
Corrido	Lombardia	2004	251
Miglierina	Calabria	2004	298
Spadola	Calabria	2007	300
Terravecchia	Calabria	2008	314
San Nicolò Gerrei	Sardegna	2005	332
Quingentole	Lombardia	2004	378
Roseto Valfortore	Puglia	2010	434
Scano di Montifierro	Sardegna	2006	446
Cazzano di Tramigna	Veneto	2004	450
Cerchiara di Calabria	Calabria	2009	593
Scanno	Abruzzo	2003	625
Calvagese della Riviera	Lombardia	2002	706
Orsara di Puglia	Puglia	2002	877
Sant'Angelo di Alife	Campania	2005	878
San Benedetto dei Marsi	Abruzzo	2008	968
Cannobio	Piemonte	2004	1,227
Arcene	Lombardia	2009	1,492
Monte San Vito	Marche	2009	1,653

Notes: votes = number of valid votes got by each of the two most voted candidates. Source: Ministero dell'Interno, Municipal election data.

Table 4 Close contests

win margin	number of elections
1 vote	46
2-5 votes	188
6-10 votes	236
11-50 votes	1,757
51-99 votes	1,625
<100 votes	3,852

Notes: Source: Ministero dell'Interno, Municipal election data.

Table 5 Municipal income surcharge rate

	mean (%)	limit (%)	freeze
2001	0.186	0.5	
2002	0.227	0.5	
2003	0.229	0.5	yes
2004	0.229	0.5	yes
2005	0.232	0.5	yes$^{\lozenge}$
2006	0.233	0.5	yes$^{\lozenge}$
2007	0.320	0.8	
2008	0.349	0.8	
2009	0.349	0.8	yes
2010	0.348	0.8	yes
	0.270		

Notes: $^{\lozenge}$: tax rate freeze only applies to authorities setting a positive tax rate in the previous year. Source: Ministero dell'Economia e delle Finanze.

Estimation results

Table 6 Panel data estimation results: tax limits and turnout

	(6.1)	(6.2)	(6.3)
TL dummy	-0.050***	-0.045***	-0.045***
	(0.015)	(0.018)	(0.018)
population (,000)		-0.003	-0.003
		(0.002)	(0.002)
mayor candidates		0.043***	0.043***
		(0.003)	(0.003)
win margin			-0.001
			(0.001)
year effects	yes	yes	yes
municipality effects	yes	yes	yes
observations	14,559	14,559	14,559

Notes: dependent variable = log of the odds transformation of the turnout rate; uses all municipalities for which information on at least two elections is available. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table 7 Estimated effects of tax limits on turnout

turnout	50%	60%	70%	80%	90%
TEL dummy	-1.26%	-1.22%	-1.06%	-0.81%	-0.46%

Notes: effects computed from the estimated coefficient on TL dummy in table 6, column (6.1), as the difference between predicted turnout levels at TL=0 and TL=1.

Table 8 Turnout 2001-2006: tax limitations

	turnout at Parliamentary elections			
	2001	2006	difference	observations
TL = 1	82.838	83.721	0.883	794
TL = 0	79.736	80.953	1.217	339
DiD_{TL}			-0.334	
			(0.469)	
	turnout at municipal elections			
TL = 1	82.613	75.064	-7.549	794
TL = 0	79.893	73.706	-6.187	339
DiD_{TL}			-1.362***	
			(0.427)	
$\text{DiD}^{\Diamond}_{TL}$			-1.248***	
			(0.421)	
observations				1,133

Notes: TL = 1: tax freeze applies in 2006; $^{\Diamond}$: control for population, mayor candidates, win margin, and turnout at Parliamentary elections (table A1 in Appendix). Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table 9 Number of candidates 2001-2006: tax limitations

	candidates 2001	candidates 2006	difference	observations
TL = 1	2.783	2.697	-0.086	794
TL = 0	2.416	2.475	0.059	339
DiD_{TL}			-0.145**	
			(0.070)	
$\text{DiD}^{\Diamond}_{TL}$			-0.145**	
			(0.070)	
observations				1,133

Notes: TL = 1: tax freeze applies in 2006; $^{\Diamond}$: control for population (table A1 in Appendix). Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table 10 Candidate valence 2001-2006: tax limitations

	DiD_{TL}
age (< 50)	-0.026
	(0.038)
gender (female)	-0.024
	(0.020)
education (graduate)	-0.030
	(0.034)
expertise (management, administration & law)	-0.026
	(0.026)
professional status (high)	0.040**
	(0.020)

Notes: 1,133 obs; 2001-2006 elections. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table 11 Win margin 2001-2006: tax limitations

	win margin 2001	win margin 2006	difference	observations
TL = 1	32.408	37.165	4.757	794
TL = 0	35.194	34.512	-0.682	339
DiD_{TL}			5.439***	
			(2.091)	
$\text{DiD}^{\Diamond}_{TL}$			4.584**	
			(2.056)	
observations				1,133

Notes: TL = 1: tax freeze applies in 2006; win margin (0-100) = vote difference standardized by the number of votes of the elected mayor; $^{\Diamond}$: control for population and number of mayor candidates (table A1 in Appendix). Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Appendix

Table A1 Tax limits and local elections: controls

	turnout table 8	candidates table 9	win margin table 11
population	-0.262***	-0.023	-0.075
	(0.091)	(0.015)	(0.436)
candidates	0.469***		-5.899***
	(0.180)		(0.874)
win margin	-0.006		
	(0.016)		
turnout (Parliament)	0.129***		
	(0.027)		
observations	1,133	1,133	1,133

Notes: Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table A2 Municipalities' characteristics: 2001-2006

		TL=1	TL=0	difference
population	2001	12,282	7,269	5,613
		(102,295)	(68,478)	(6,065)
	2006	13,133	7,541	5,592
		(102,519)	(71,504)	(6,120)
population growth (2001-2006)		2.350	0.781	1,567***
		(5.437)	(5.688)	(0.358)
South		0.356	0.467	-0.109***
		(0.479)	(0.499)	(0.031)
left-wing controlled region	2001	0.283	0.174	0.109***
		(0.451)	(0.380)	(0.028)
	2006	0.739	0.740	-0.001
		(0.439)	(0.439)	(0.028)
observations		794	339	

Notes: Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10. Source: ISTAT, National Institute of Statistics; Ministero dell'Interno, Regional election data.

Table A3 Mayor characteristics: 2001-2006

		TL=1	TL=0	difference
young	2001	0.684	0.664	0.020
		(0.465)	(0.473)	(0.030)
	2006	0.504	0.510	-0.006
		(0.500)	(0.501)	(0.032)
female	2001	0.082	0.088	-0.006
		(0.274)	(0.284)	(0.018)
	2006	0.082	0.112	-0.030
		(0.274)	(0.316)	(0.019)
education	2001	0.466	0.434	0.032
		(0.499)	(0.496)	(0.032)
	2006	0.442	0.440	0.002
		(0.497)	(0.497)	(0.032)
expert (management, administration & law)	2001	0.165	0.130	0.035
		(0.371)	(0.337)	(0.023)
	2006	0.145	0.136	0.009
		(0.352)	(0.343)	(0.023)
high professional status	2001	0.055	0.050	0.005
		(0.229)	(0.219)	(0.015)
	2006	0.119	0.074	0.045**
		(0.323)	(0.262)	(0.020)
observations		794	339	

Notes: Source: Ministero dell'Interno, Anagrafe degli Amministratori Locali. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table A4 Robustness analysis: 2001-2006

	turnout	candidates	win margin	observations
	removing bottom 5% and top 5% turnout rates (2006)			
DiD_{TL}	-1.423***	-0.153**	4.956**	1020
	(0.437)	(0.076)	(2.143)	
	removing bottom 10% turnout rate changes (2001-2006)			
DiD_{TL}	-1.276***	-0.145**	5.394***	1020
	(0.349)	(0.073)	(2.168)	
	removing uncontested elections (2006)			
DiD_{TL}	-1.452***	-0.166**	6.453***	1084
	(0.418)	(0.071)	(2.044)	
	removing 4 largest cities			
DiD_{TL}	-1.389***	-0.138**	5.202***	1129
	(0.427)	(0.070)	(2.093)	
	tax and expenditure limitations			
DiD_{TEL}	-1.622***	-0.184***	5.384***	1133
	(0.404)	(0.066)	(1.986)	

Notes: Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Figure 1: Win margin

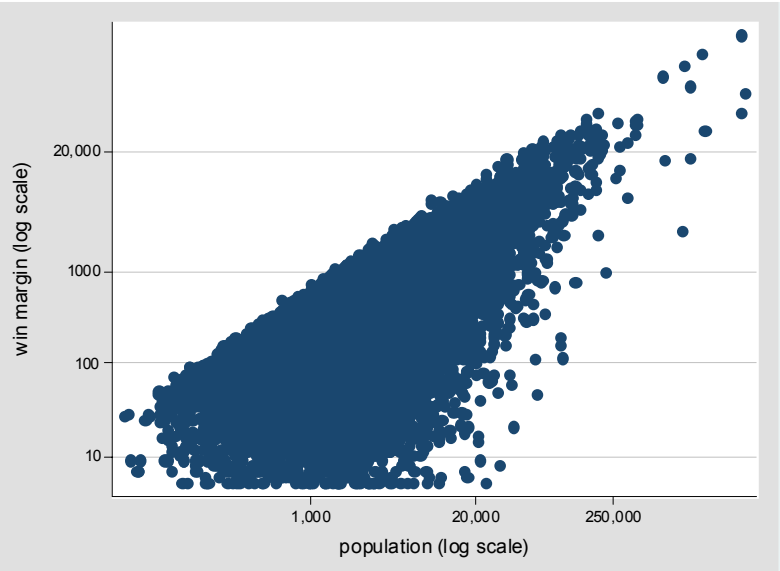

Figure 2: Turnout

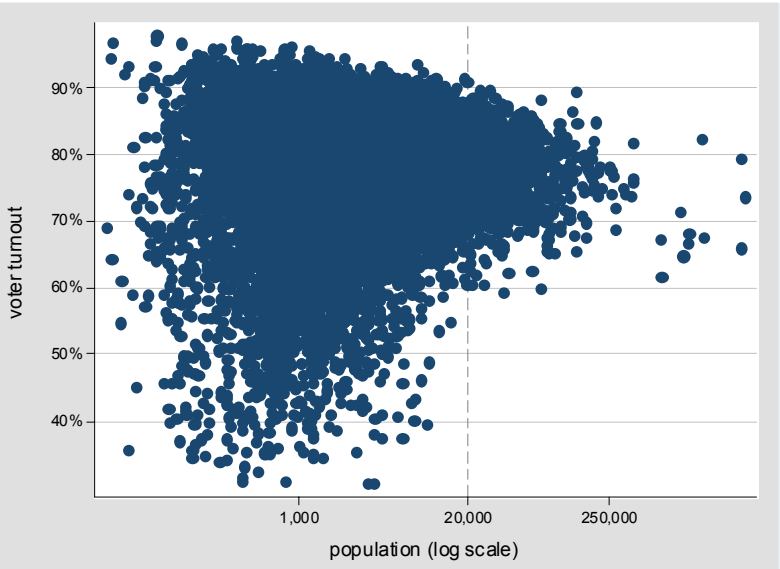

Figure 3: Mayor candidates