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THE ELECTORAL MIGRATION CYCLE

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The electoral migration cycle

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Abstract

This paper puts forward a new test of Tiebout sorting that relies on the exogenous time structure of recurrent local elections. The test is based on the idea that the policy uncertainty that is associated with periodic competitive elections should be expected to induce delay of migration, thus generating an electoral migration cycle of relatively low rates of migration before the elections, followed by relatively high rates of migration when electoral uncertainty is resolved. Conversely, interjurisdictional migration flows that are unrelated to local public service provision motives ought to be orthogonal to the timing of local elections. Empirically, I study sorting patterns across several thousands of peninsular Italy's municipalities through the increasingly turbulent 2002-2013 decade. I find evidence of an electoral migration cycle in the sense that the timing of internal migration flows is systematically influenced by the schedule of recurrent mayoral elections.

JEL classification: D72; H77; C23.
Key words: Tiebout sorting; local elections; uncertainty.

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1   Introduction

The idea of mobile households sorting across localities according to their preferences for local public services, or "voting with their feet" (Tiebout, 1956), has played an important role in theoretical public economics as well as in the actual design of decentralized government structures during the past decades (Gill and Rodriguez-Pose, 2012).[1] However, testing the impact of local public good provision on households' location decisions empirically has proved difficult, with traditional econometric approaches following in either of the following two categories. The first is a direct testing approach attempting at modelling the actual flows of migration as a function of local provision of public goods and services - an approach that is well know to suffer from the endogeneity of local choices (Banzhaf and Walsh, 2008). The second is an indirect approach verifying some key implications of the Tiebout theory in terms of capitalization of local public policies (taxes and expenditures) into house prices and stratification of households by income or wealth, with those implications turning out over time to be less straightforward than was once thought (Oates, 2006). The most recent approaches are based on structural estimation of parametric general equilibrium models that study the sorting decisions of populations of heterogeneous agents, where the attributes of the available choice alternatives are determined endogenously as an indirect outcome of the very sorting process (Epple et al., 2001; Kuminoff et al., 2013).

This paper puts forward a novel and powerful test of Tiebout sorting that relies on the exogenous time schedule of recurrent elections that is typical of most local government arrangements in the democracies of the Western world. The idea that the calendar of elections can have an influence on the trajectory of a number of key aggregate economic variables and on the making of public

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[1]The stratification of localities as a result of sorting has spurred a heated debate too (Bishop and Cushing, 2008).

policy has a long tradition in economics.[2] Nordhaus (1975) was the first to formally and influentially argue that the fact that "the government be chosen in periodic competitive elections" (Nordhaus, 1975: 185) can induce incumbent politicians to exploit short-term macroeconomic trade-offs and produce political business cycles of low pre-election unemployment rates followed by after-election inflationary pressures. Later, Rogoff (1990) provided a dynamic signalling interpretation of the observed effect of election schedules on the economy, and focused on the timing of fiscal policy by noting a switch to more salient public consumption expenditures right before the elections. Starting with Rosenberg (1992), the subsequent literature investigated the presence of political business cycles on local government data too, as in the recent empirical analyses of Baleiras and Da Silva Costa (2004), Veiga and Veiga (2007) and Foremny and Riedel (2014).

In fact, the influence of periodic election schedules on the economy seems to go beyond the explicit attempts by opportunistic politicians to manoeuvre tax and expenditure policy to their own electoral advantage. Recent research found a number of dynamic business decisions to be systematically influenced by the very timing of elections, irrespective or even in the opposite direction as what political business cycles models would predict. In the presence of policy uncertainty induced by competitive elections (regarding, for instance, what kind of taxation, privatization, and labor-market regulation policies will be implemented by the newly elected government), corporate capital expenditures and costly-to-undo private investment appear to drop significantly before an election and stagnate until after the election, when political uncertainty is resolved (Julio and Yook, 2012; 2014). Such incentive for delay of large investments with high costs of reversal would partly offset any attempt of opportunistic election-year

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[2] Drazen (2001) reviewed the voluminous theoretical and empirical 'political business cycle' literature that appeared in the previous quarter century.

manipulation, and would explain the little empirical support for the political business cycle idea (Canes-Wrone and Park, 2012).

Indeed, the existence of a register of periodic competitive elections where candidates with different views of the world run for office implies that fiscal policy and public good provision are subject to hard to predict discrete changes over time, with those changes tending to occur in synchrony with the fixed electoral calendar. Moreover, government breaks and subsequent policy reversals in a local government structure might have consequences that seem to have been overlooked so far. In a world of mobile households that are willing to exit to consume their preferred bundles of public services elsewhere, the fixed time structure of local elections seems likely to affect the timing of interjurisdictional migration too. In particular, if we interpret the migration decision as an irreversible investment, the predetermined election schedule might give rise to a sorting cycle, with residents that are willing to shop elsewhere for the public services they require (e.g., schooling for their children, or care homes for their elderly relatives) delaying their exit decision to after an uncertain election. Plausibly, the reflection of the calendar of local elections into the timing of interjurisdictional migration flows will tend to be amplified by the policy radicalization that is usually observed in times of economic crises, with incumbents' defeats being followed by significant local policy changes. Conversely, interjurisdictional migration flows that are unrelated to local public service provision motives ought to be orthogonal to the timing and the outcomes of local elections.

The main objective of this paper is to test whether the schedule of local elections - an exogenous institutional feature in most environments, including the one we analyze empirically here - has an influence on the timing of migration decisions. I thus allow the fixed revenue-expenditure pattern that is typical of

a strict 'city manager' interpretation of the Tiebout model (Oates, 2006) to be subject to periodic perturbations at exogenous election dates, and verify empirically if the pattern of households' sorting across the available locations is affected by the time structure of municipal elections. The coexistence, using Hirschman's (1970) celebrated terminology, of a *voice* option that is dictated by an arguably exogenous schedule of periodic mayoral elections and of a roughly continuous *exit* option that is available in every year of the term of office creates the conditions for an 'electoral migration cycle,' where the timing of local elections tends to have an impact on the timing of moving decisions.

I formalize the electoral migration cycle idea within a simple model whose basic insight can be traced back to the models of irreversible investment in the presence of uncertainty of Cukierman (1980), Bernanke (1983) and Rodrik (1991), and whose structure is similar to Canes-Wrone and Park (2012). In the multi-jurisdictional structure of the model, migration is a costly irreversible choice, and its return depends on the outcome of an uncertain election. The degree of electoral uncertainty constitutes a potentially important determinant of the likelihood of unsatisfied households to move in order to consume their desired mix of public services: the more uncertain is the election, the higher is the gain for residents to wait until after the election before making their migration decision, when such high uncertainty will be resolved, thus reducing migration before the elections. Conversely, low electoral uncertainty makes early exit the only credible way of increasing one's welfare. As a result, the probability of migrating out of a locality tends to be higher in the aftermath than on the eve of a close election, that is after the electoral uncertainty concerning the type of public good that will be provided has been resolved. In empirical terms, the above reasoning offers a novel way of testing the Tiebout hypothesis of voting with one's feet: if households' sorting decisions were not affected by local public

good provision over which local communities vote recurrently, then the timing of local elections would simply have no impact on internal migration rates, and no electoral migration cycle would arise. The advantage of an empirical strategy using the exogenous timing of staggered local elections to explain the pattern of interjurisdictional sorting is that it does not suffer from the endogeneity problems that plague typical empirical tests of Tiebout sorting.

I perform the empirical analysis on a large dataset of Italian local governments. I make use of the staggered election schedule to first test the hypothesis that the fixed timing of recurrent municipal elections affects the timing of internal migration flows, thus generating an electoral migration cycle. Next, I construct a number of indicators of electoral uncertainty at each of over 15,000 municipal elections, and test the effect of those electoral uncertainty indicators on migration decisions. As far as the first objective of the empirical analysis is concerned, I find robust evidence of an electoral migration cycle: the estimation results based on over 80,000 municipal-year observations point to significantly higher outmigration rates in the years following than in those preceding municipal elections, compatibly with the hypothesis of a role of local public good provision in influencing households' exit decisions. As for the second objective of the empirical analysis, I find that electoral uncertainty in terms of the degree to which an election is contested is a key determinant of exit decisions: uncontested elections are accompanied by higher rates of outmigration, confirming the hypothesis that the early exercise of the more dramatic exit option is more likely when the more flexible voice option has little or no chance of being effective.

The rest of the paper is structured as follows. Section **2** develops a stylized theoretical model and derives a number of empirical predictions. Section **3** illustrates the institutional framework and the 2002-2013 panel dataset. Section **4** studies empirically the patterns of sorting across Italian municipalities in

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search of evidence of an electoral migration cycle. Section **5** explores the impact of electoral uncertainty on exit patterns. Finally, section **6** concludes.

2   Migrating under uncertainty

I succinctly formalize the mechanism giving rise to an electoral migration cycle in a local government structure by means of a simple model whose basic insight can be traced back to the irreversible investment models of Cukierman (1980), Bernanke (1983) and Rodrik (1991), and whose structure is roughly similar to Canes-Wrone and Park (2012). In those models, increased uncertainty on the returns to an investment (due, for instance, to uncertainty on future fiscal, trade, and exchange-rate policies) causes a decrease in the current level of investment even by risk-neutral investors by making it more profitable to wait longer and gather more information on the distribution of the relevant parameters. In particular, the incentive to delay an investment depends inversely on the precision with which the uncertain outcome can be predicted and on the cost of delay (in terms of foregone profits), and it depends directly on the degree to which the optimal features of the investment (e.g., the size or location of a plant) are affected by the realization of the stochastic event.

Here, I consider the irreversible investment that is represented by households' migration decisions in the presence of uncertainty on local election outcomes. I analyze a decentralized structure of government, where each jurisdiction $n = 1, ..., N$ is inhabited by overlapping generations of agents that are born of either of two types - $\theta = \{l, r\}$ - in terms of their preferences for local public goods. Denoting by $u_\theta(x_n)$ the utility function of a voter of type θ, and by $x_n = \{l, r\}$ the public good type that is supplied in the jurisdiction where the voter resides, I assume that: $u_\theta(x_n) = \overline{u}$ if $x_n = \theta$, and $u_\theta(x_n) = \underline{u}$ if $x_n \neq \theta$, with $\Delta u \equiv$

$\overline{u} - \underline{u} > 0.$[3] In each locality, expenditure on the public good is entirely funded by lump-sum federal grants,[4] and the public good to be provided, l or r, is selected by majority voting.[5] Recurrent elections are simultaneously held at the end of every period in all localities.[6] A voter of type θ always votes for θ-type public goods, and newly born individuals acquire the right to vote on local public good provision either in the locality they were born in or in the locality they decide to migrate to.

Any resident experiencing $x_n \neq \theta$ can either stay in the locality where he is born and content with low utility $\underline{u}$, or migrate to a locality where $x_n = \theta$ by incurring a moving cost c. Moving amounts to an irreversible investment (e.g., due to changing house and job) that can either be made immediately, or be delayed at the cost of renouncing to consume the desired public good in the current period. There exists at least one locality j providing the public good $x_j = \theta$ for any voter-type θ, and the cost of moving is unrelated to the geographic distance between two jurisdictions. Agents do not take into account the effects of their own movements on future local policies.

When a voter is born, nature selects θ (voter's type) and c (cost of moving). Of course, no voter moves for whom $x_n = \theta$ in his own jurisdiction of residence if the cost of moving is positive. On the other hand, consider the moving calculus of an individual whose preferences do not match the majority of his community's preferences $(x_n \neq \theta)$, and assume first that no uncertainty exists about the outcome of elections, meaning that public good x_n will be provided with certainty in the next period too. If an individual moves immediately to

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[3] For instance, the two public goods might refer to business versus household services respectively.

[4] To simplify things, no local taxes exist. The only local choice concerns which of the two public good types to provide.

[5] In principle, as in Kollman et al. (1997), polities might have to take a binary position on several issues. I focus on a one-dimensional and binary issue for simplicity.

[6] This is not the case in the empirical set-up I analyze below, where the fortunate circumstances of a staggered election schedule play a fundamental role in identifying the electoral migration cycle separately from common year effects.

a locality providing the desired public good θ, utility is $\overline{u} - c$ in the current period, and $\rho\overline{u}$ in the next period, with $\rho < 1$ a time discount factor. If he delays exit to after the election, he has low utility $\underline{u}$ in the current period, and $\rho(\overline{u} - c)$ in the future period. As shown in equation (1) below, it is preferable to delay migration if the cost of delay - that is, the gain in utility Δu that he would get by migrating immediately - is smaller than the gain of delay, that in this simple, no uncertainty case is represented by the difference in the cost of migration between moving today (c) and moving in the next period (ρc):

$$\Delta u < c(1 - \rho) \tag{1}$$

Consider now the case of an uncertain election, and let π denote the probability that the election provokes a policy reversal.[7] If the individual migrates immediately to a locality providing $x_j = \theta$, he has utility $\overline{u} - c$ in the current period, and will have utility $\rho[(1 - \pi)\overline{u} + \pi\underline{u}]$ in the future period, after the election: utility in the next period is high if no policy change occurs, and is low in case of a policy change occurring with probability π. If the individual delays exit to after the election, he has low utility $\underline{u}$ in the current period, and will have utility $\rho[\pi\overline{u} + (1 - \pi)(\overline{u} - c)]$ in the future period, where the first term $(\pi\overline{u})$ picks the high utility level that the voter obtains without migrating in case of a policy change in the own jurisdiction that occurs with probability π; the second term $(1 - \pi)(\overline{u} - c)$ captures the utility level that can instead be obtained by exercising the costly exit option after the election if no policy change occurred in the own jurisdiction. As a result, the individual delays migration

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[7]I assume for the moment that the probability of a policy change is the same π in all localities, including the own jurisdiction of residence, though it is possible to generalize the analysis to heterogeneous degrees of electoral uncertainty across localities with no substantial consequences. Moreover, π could alternatively be interpreted as the probability that a restrictive fiscal policy (a fiscal consolidation) be opportunistically implemented after the election that reduces residents' utility to $\underline{u}$. The fundamental conclusions of the model would be the same under this alternative interpretation of electoral uncertainty.

if the cost of delay is smaller than a threshold cost level that accounts for the uncertain election result:

$$\Delta u < c \frac{1 - \rho(1 - \pi)}{1 - \rho\pi} \tag{2}$$

Equation (2) shows that delaying migration to after the election is more likely if the cost of migration (c) is high, if the cost of delaying ($\Delta u = \overline{u} - \underline{u}$) is low, and if the probability of a change of government (π) is high.

3 Institutional framework and dataset

The empirical analysis relies on a panel dataset of variables that are measured at the lowest (municipal) of the three tiers of the Italian local government structure.[8] The municipal level of government is in fact the oldest administrative jurisdiction in Italy, and municipal authorities - whose role as an autonomous and representative level of government is explicitly defined in the Constitution - are statutorily responsible, irrespective of their size, for the provision of a number of crucial public services in two main areas.[9] The first area concerns environment-related services and includes urban public transport, road maintenance and cleaning, waste collection and management, water and sewer services, environmental monitoring and protection, planning, zoning (including location of new productive plants), and management of industrial, agricultural and touristic infrastructures located within the municipal boundaries. The second area concerns personal social services including social care to the elderly and disabled, organization and management of pre-school services (kindergartens), cultural services (libraries, museums, sports infrastructures), and local police services.

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[8] The two upper tiers are constituted by twenty regions and over one-hundred provinces respectively.

[9] The sole exception is the possibility (or obligation in some instances) for small-sized municipalities to set up an intermunicipal cooperation institution for the provision of public services that require a minimum scale of production

The municipal level of government is highly fragmented, with average population size of around 7,000 inhabitants. While the total number of municipalities exceeds 8,000, we focus on the 6,702 municipalities that are situated in the fifteen "state law" continental Italy's regions. We therefore exclude the two island regions (Sardegna and Sicilia) and the three small regions in the Alps (Valle d'Aosta, Trentino-Alto-Adige and Friuli-Venezia-Giulia) that are entitled to larger autonomy - "home rule" - and that establish own limits and obligations on municipal governments located within their boundaries.

Most of the 6,702 municipalities that I track for over a decade are small. The number of cities above 100,000 inhabitants is only around 40, just two of them exceeding one million residents, with more than half of localities having less than 3,000 residents. For each municipality, I use yearly observations over the 2002 to 2013 time span on the demographic structure of the population residing there. Moreover, I observe the total number of people that outmigrated during each year. I have information on whether they migrated to other Italian localities or to foreign countries, but I have no information on their specific destination (table 1). Overall, the dataset has over 80,000 observations. All demographic variables are available from the Italian national statistics institute (ISTAT).

Table 2 reports the timing of elections, the number of municipalities going to the polls in any of the years 2002-2013, and a number of election statistics including the number of mayor candidates and the win margin of the elected mayor with respect to the opponent. The win margin is computed as the difference in votes between the elected mayor and his most voted opponent, divided by the number of total votes. It ranges from 0 in case of a tie to 100 in an uncontested election.

4 Election timing and migration

The first hypothesis that I test is whether the timing of municipal elections has an influence on the timing of intermunicipal migration. The schedule of local elections described in table 2 offers the opportunity to test this hypothesis by exploiting the arguably exogenous and staggered nature of municipal voting in Italy.

The more than a decade-long time span that I analyze saw the Italian economy move from moderate economic growth in the early 2000s to a deep and prolonged recession during the late 2000s and the early 2010s, and the average internal migration rates reported in table 1 show a moderate increase over the decade, from below 2.5% to close to 3%. Table 1 shows that foreign outmigration has been rising considerably over the decade too, a phenomenon that is mostly due to young unemployed searching for jobs abroad. The size of foreign migration appears negligible, though, relative to internal migration flows, and I disregard it in the rest of the analysis.

The empirical specification (3) below has the rate of outmigration from locality n to any other Italian locality in year t (m_{nt}) as the dependent variable (flow of people that are cancelled from the local list of residents because of moving to other Italian municipalities from January 1st to December 31st, expressed as a percentage of resident population on January 1st of each year), and controls for the macroeconomic trends mentioned above by including year effects (y_t):

$$m_{nt} = \sum_{l=1}^{L} \delta_l e(t-l)_{nt} + h_n + y_t + \varepsilon_{nt} \tag{3}$$

The staggered electoral schedule, with a considerable number of municipalities having elections in each year, allows me to identify the effect of the timing of voting (parameter δ_l in (3)) separately from common year effects. In par-

ticular, to test the impact of election timing on sorting, I build a vector of L dummy variables $e(t-l)$ that equal 1 if there was an election in the $l = 1, ..., L$ calendar years preceding the migration measurement year t in municipality n. I start from $L = 1$ and keep on adding further lagged election year dummies for up to an election having taken place four years back ($L = 4$). In the latter case, and given that the conventional term of office lasts five years, the fourth year after an election is in fact the eve of the next election and, according to the electoral migration model, should record low rates of outmigration. Finally, I build a composite 'after-election' dummy variable that equals 1 if the observation on internal migration refers to either of the two years following a municipal election. In order to consistently estimate (3) and control for locality-specific time-invariant traits (h_n), I take deviations from municipal-level means in all specifications.

The estimation results on the 2002-2013 panel dataset are reported in tables 3, 4, and 5. The results in table 3 are based on a standard specification that uses the entire panel of over 80,000 observations, and includes fixed locality and year effects, along with the above discussed dummy variables picking the timing of the elections. In all instances, it turns out that the timing of elections significantly influences the intensity of migration out of a municipality: migration is higher in the year following an election - column (3.2) - and, to an even larger extent, in the subsequent year - column (3.3). The estimates including dummies for three and four years after an election reveal that the rate of outmigration reverts to the average in the third year, and turns significantly negative in the fourth year, that is the year corresponding to the eve of the next election in a regular five-years term of office. Figure 1 depicts the outmigration trajectory between two elections - the electoral migration cycle - that the estimation results in column (3.5) suggest to be typical. Given the average rates of outmigration reported in

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table 1 - percentage of total resident population moving to other Italian localities during a year - the estimates in table 3 suggest that interjurisdictional migration is over two percent larger in post-election years than in pre-election ones.

The results in table 4 are based on a specification that includes an additional linear time trend that is specific of the regions of the North of Italy to capture the feature that those regions tend to be net recipients of migrants from the regions of the South. The trend is highly significant and points to a steady decline in migration rates out of the municipalities in the North regions. This is partly due to increasing population in those municipalities as a result of migration from the South regions. As for the role of the timing of elections, the results on the election year dummies are virtually unchanged, and confirm the presence of an electoral migration cycle as found in table 3.

Finally, table 5 excludes from the analysis all municipalities that did not abide to a regular, five-years interval between elections. An early election needs to be called either if the mayor resigns, or if he is no longer backed by a majority of the council members. In addition, the Ministry of Interior can command early elections if a council passes unlawful acts or incurs in excessive deficits. The intensity of the phenomenon can be gauged by looking at the difference between the number of municipalities having elections at a five-years interval in table 2. Over the twelve years, the phenomenon involves about a thousand out of over 15,000 elections. In fact, those early election observations might bias the results if the early call for elections and the subsequent rates of migration are in fact affected by common unobservables (say, the emergence of a corruption scandal or of a sizeable local debt determining both the early election call and an unusually large outflow of residents). The evidence reported in table 5 is virtually the same as the one in tables 3 and 4, thus confirming the significant impact of the timing of elections on migration in this restricted, fixed election

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schedule sample.

5 Electoral uncertainty

As sketched in section **2**, the mechanism that is hypothesized to drive the delay of migration to after the elections is the uncertainty that is associated with competitive mayoral races. The closer an election outcome is expected to be, the stronger is the incentive to wait and learn the outcome of the election, thus delaying the decision to migrate. In order to explicitly test that hypothesis, I would need an as accurate as possible proxy of closeness of an election outcome (Simonovits, 2012). Based on the available information on Italian municipal elections, I can rely on an ex post indicator of electoral closenss, and on an ex ante one. The former is the win margin of the elected mayor that is summarized in table 2. It is built as the difference in votes between the elected mayor and its most voted opponent, expressed as a percentage of the votes earned by the most voted candidate. The mean and median win margin are around 37% and 30% of the votes of the elected mayor respectively. Ideally, an ex ante measure of expected vote difference between the two most popular candidates would be preferable, but unfortunately no such polls are available for municipal elections. The oberved win margin clearly only reveals ex post the degree of closeness of an electoral race, and is related in an unknown way and via changes in the size and composition of the population of voters who actually turn out to vote with the perceived closeness before the election.[10]

Consequently, in order to better capture the ex ante closeness of an election, I employ a dummy variable that equals 1 in elections that are uncontested. Such variable has some limitations too. It is of course an accurate description

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[10]De Paola and Scoppa (2014) focus on dual ballot elections for larger (>15,000 inhabitants) municipalities, and use first round vote closeness as an instrument for second round closeness in a voter turnout equation. I cannot use that strategy here because the large majority of my observations refer to smaller municipalities that follow a single ballot electoral system.

of lack of competition in those local elections where a candidate runs unopposed, and has the advantage of revealing the degree of uncertainty on the outcome of an election before the election itself. On the other hand, its main weakness is due to the fact that it might understimate the true number of non-competitive outcomes by missing those races whose result is easily predictable even in the presence of more than one candidate. In our sample, uncontested elections are about 6% of total elections. In fact, the two electoral uncertainty indicators are related in the sense that as the win margin increases and approaches 100% of the votes of the elected mayor, the (ex post) win margin converges to the (ex ante) uncontested election indicator.

As for timing, given that the term of office lasts five years and that the incumbent can only affect the date of the next election by strategically resigning (an event that seems extremely unlikely to occur in the environment we study here), the date of the next election can in most circumstances be assumed to be common information throughout the length of term. On the other hand, the degree of competition at an election becomes known to voters only in the immediacy of an election (usually no later than a month before the date of the election) with the formal registration and announcement of candidates. As a result, and as long as election uncertainty plays a role in households' moving decisions, "low uncertainty" elections should neither influence migration decisions in the years preceding an election (based on the presumption that voters do not even know at that time whether the election will be contested or not) nor should induce delay to after the election in order to learn its outcome. Rather, since the news of "low uncertainty" election should have an immediate impact on potetial movers, we would expect the rate of outmigration to be higher in uncontested districts in the year elections are held.

Table 6 reports the estimation results of a migration equation that allows for

an effect from the two electoral uncertainty variables discussed above. I include dummies for the year after the election, for the year in which elections are held, and for the year before the election respectively. As for the win margin dummy, I build a low uncertainty (large win) dummy variable equaling 1 if the ex post win margin exceeds the median sample value of 30% of the votes of the elected mayor, and expect low uncertainty to raise (lower) outmigration immediately before (after) the election relative to what would happen in the proximity of an uncertain election, that is to flatten or cancel altogether any evidence of an electoral migration cycle. I tried with a number of thresholds and report here the results based on the median 30% win margin threshold. As argued above, the results converge to the uncontested election dummy specification as the win margin threshold is moved closer to 100%. Relatedly, I expect the uncontested election dummy to inflate the outmigration rate in the year when information on the candidates running at a municipal election is spread, that is in the proximity of the election year.

The first column of table 6 reports the results of a specification that only has the three election-time (before, at, after the election) dummies. The subsequent columns include the ex post electoral uncertainty indicator - (6.2) and (6.3) - and the ex ante one - (6.4) and (6.5). Given the long established evidence on the importance of life-cycle motives in Tiebout sorting processes (Polachek and Horvath, 1977), I include the demographic composition of the voting age population in columns (6.3) and (6.4) as a potential determinant of the fraction of people who move out (Farnham and Sevak, 2006; Epple et al., 2012; Kuminoff et al., 2013). The demographic groups are those reported in (4):

$$H = \{[18,25],[26,35],\cdot,[46,55]\,[56,65]\,[66,\cdot]\} \tag{4}$$

with the middle aged group $[36,45]$ playing the role of reference group. Migra-

tion is expressed as the percentage of the resident population at the beginning of the calendar year that migrates to other Italian municipalities during the year, as in tables 3 to 5.

With the win margin set at the median threshold of 30% of the incumbent's votes, the estimation results show in this case - columns (6.2) and (6.3) - that the low competition dummy has no significant impact on exit/outmigration on top of the effects generated by the pure election timing (slowdown of outmigration before the elections, followed by a rise in outmigration after the elections). On the other hand, when employing a dummy variable for an uncontested election (that is equivalent to raising the win margin threshold for building the low competition dummy to 100%), I find a significant positive impact of such variable on migration in the election year. This is compatible with the idea of an immediate effect on migration decisions as soon as news on whether elections are contested or not are spread, and suggests that lack of competition at an election lowers the incentive to wait and delay migration to after the election. The result is robust to the introduction of the demographic composition of the resident population among the potential determinants of internal migration, with younger cohorts being found to be significantly and expectedly more likely to exit than older ones.

6 Concluding remarks

This paper has proposed a novel test of local public good-induced sorting that relies on the time structure of periodic local elections as an exogenous source of policy uncertainty. The idea is that the policy uncertainty that is induced by competitive local elections generates an electoral migration cycle in terms of relatively low rates of migration before the elections, followed by relatively high rates of migration when the electoral uncertainty is resolved. On the other hand,

interjurisdictional migration flows that are unrelated to the provision of local public goods ought to be orthogonal to the timing of local elections. Second, I have explicitly investigated the role of electoral uncertainty - that I have proxied by an ex ante proxy of electoral uncertainty (uncontested elections) and by an ex post one (win margin) - in explaining the timing of the decision to migrate to other localities.

I have succinctly formalized the electoral migration cycle idea within a simple model whose basic insight can be traced back to the models of irreversible investment in the presence of uncertainty that have been recently employed to test the impact of electoral uncertainty on corporate investment (Canes-Wrone and Park, 2012; Julio and Yook, 2012; 2014). Increased electoral uncertainty causes a decrease in the level of migration before an election by making it more profitable to delay until uncertainty is resolved. The likelihood of delaying migration to after an election is higher if the cost of migration is high, if the cost of delay (in terms of the difference in utility caused by alternative local policies) is low, and if the degree of uncertainty on the outcome of the election is high.

Based on a large panel dataset of migration flows across Italian municipalities for over a decade, I have studied sorting patterns in a system of local governments where elections are dictated by an exogenous periodic schedule. The crucial identifying assumption on which the empirical analysis rests is the exogeneity of the staggered schedule of Italian municipal elections that I can exploit to verify the existence of an electoral migration cycle. The estimation results point to significantly higher outmigration rates in the years following rather than preceding municipal elections, thus lending support to the existence of an electorally driven cycle of sorting choices that is compatible with a role of local public good provision in influencing households' location decisions. Fi-

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nally, lack of electoral competition (uncontested elections) is estimated to inhibit households from delaying migration, thus reinforcing the hypothesis of exit as a substitute for voice when minority voters' chances of significantly affecting local policy through direct political participation are feeble.

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Tables

Table 1 Outmigration from Italian municipalities

year	internal	foreign	obs.
	% pop.	% pop.	
2002	2.44	0.08	6,700
2003	2.54	0.11	6,701
2004	2.69	0.12	6,702
2005	2.74	0.13	6,702
2006	2.85	0.15	6,702
2007	2.81	0.12	6,702
2008	2.76	0.14	6,702
2009	2.67	0.15	6,702
2010	2.65	0.15	6,702
2011	2.75	0.15	6,699
2012	3.10	0.19	6,699
2013	2.76	0.22	6,699
	2.73	0.14	80,412

Notes: Source: Ministero dell'Interno; ISTAT.

Table 2 Mayoral election outcomes

year	obs.	candidates	min	max	win margin (%)	min	max
2002	733	3.00	1	11	32.48	0	100
2003	321	3.19	1	10	34.62	0	100
2004	4,319	2.57	1	14	39.65	0	100
2005	367	3.08	1	11	33.82	0	100
2006	1,161	2.70	1	12	36.52	0	100
2007	773	3.20	1	11	33.89	0	100
2008	425	3.31	1	14	34.14	0	100
2009	4,081	2.65	1	13	38.99	0	100
2010	461	3.03	1	9	34.97	0	100
2011	1,176	3.07	1	13	35.17	0	100
2012	777	3.65	1	16	36.82	0	100
2013	528	3.60	1	19	36.21	0	100
	15,122	2.85	1	19	37.43	0	100

Notes: win margin = (vote difference between the two most voted candidates/votes of the elected mayor)*100; Source: Ministero dell'Interno, electoral data.

Table 3 Migration around elections

	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)
election(t-1,t-2)	0.0425***				
	(0.0069)				
election(t-1)		0.0330***	0.0372***	0.0387***	0.0157
		(0.0084)	(0.0089)	(0.0098)	(0.0127)
election(t-2)			0.0454***	0.0474***	0.0314***
			(0.0088)	(0.0096)	(0.0118)
election(t-3)				0.0105	-0.0051
				(0.0103)	(0.0122)
election(t-4)					-0.0336***
					(0.0126)
year effects	yes	yes	yes	yes	yes
municipality effects	yes	yes	yes	yes	yes
observations	67,011	73,712	67,011	60,309	53,607

Notes: dependent variable = % out-migration. 6,702 municipalities. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

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Table 4 Migration around elections: area-specific time trends

	(4.1)	(4.2)	(4.3)	(4.4)	(4.5)
election(t-1,t-2)	0.0386***				
	(0.0069)				
election(t-1)		0.0310***	0.0310***	0.0291***	0.0181
		(0.0084)	(0.0089)	(0.0098)	(0.0126)
election(t-2)			0.0439***	0.0413***	0.0280**
			(0.0089)	(0.0096)	(0.0118)
election(t-3)				0.0091	-0.0045
				(0.0103)	(0.0122)
election(t-4)					-0.0276**
					(0.0125)
North trend	-0.0346***	-0.0258***	-0.0347***	-0.0380***	-0.0382***
	(0.0021)	(0.0018)	(0.0021)	(0.0025)	(0.0029)
year effects	yes	yes	yes	yes	yes
municipality effects	yes	yes	yes	yes	yes
observations	67,011	73,712	67,011	60,309	53,607

Notes: dependent variable = % out-migration. North trend is a linear trend interacted with a dummy variable equal to 1 for municipalities located in Northern Italy. 6,702 municipalities. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Table 5 Migration around elections: regularly-spaced (5 years) elections only

	(5.1)	(5.2)	(5.3)	(5.4)	(5.5)
election(t-1,t-2)	0.0394***				
	(0.0070)				
election(t-1)		0.0314***	0.0325***	0.0301***	0.0161
		(0.0086)	(0.0090)	(0.0099)	(0.0129)
election(t-2)			0.0443***	0.0419***	0.0262**
			(0.0090)	(0.0098)	(0.0120)
election(t-3)				0.0089	-0.0074
				(0.0105)	(0.0124)
election(t-4)					-0.0316**
					(0.0128)
North trend	-0.0346***	-0.0260***	-0.0347***	-0.0380***	-0.0382***
	(0.0021)	(0.0018)	(0.0021)	(0.0025)	(0.0030)
year effects	yes	yes	yes	yes	yes
municipality effects	yes	yes	yes	yes	yes
observations	66,134	72,747	66,134	59,520	52,906

Notes: dependent variable = % out-migration. 6,702 municipalities. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

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Table 6 Migration determinants: electoral uncertainty

	(6.1)	(6.2)	(6.3)	(6.4)	(6.5)
election(t+1)	-0.0329***	-0.0296**	-0.0249**	-0.0336***	-0.0279***
	(0.0094)	(0.0120)	(0.0119)	(0.0095)	(0.0094)
election(t)	-0.0006	-0.0047	-0.0050	-0.0059	-0.0066
	(0.0091)	(0.0119)	(0.0117)	(0.0093)	(0.0091)
election(t-1)	0.0231***	0.0263**	0.0243**	0.0236***	0.0214**
	(0.0095)	(0.0120)	(0.0119)	(0.0096)	(0.0095)
large win(t+1)		-0.0061	-0.0027		
		(0.0141)	(0.0140)		
large win(t)		0.0082	0.0075		
		(0.0143)	(0.0141)		
large win(t-1)		-0.0063	-0.0066		
		(0.0143)	(0.0141)		
uncontested(t+1)				0.0072	0.0224
				(0.0308)	(0.0304)
uncontested(t)				0.1078***	0.1086***
				(0.0309)	(0.0306)
uncontested(t-1)				-0.0141	0.0148
				(0.0309)	(0.0306)
age 18-25			0.0295***		0.0289***
			(0.050)		(0.0050)
age 26-35			0.0247***		0.0248***
			(0.0036)		(0.0036)
age 46-55			-0.0519***		-0.0517***
			(0.0037)		(0.0037)
age 56-65			-0.0593***		-0.0594***
			(0.0040)		(0.0040)
age > 65			-0.0906***		-0.0907***
			(0.0040)		(0.0040)
year effects	yes	yes	yes	yes	yes
municipality effects	yes	yes	yes	yes	yes
obs.	67,013	67,013	67,011	67,013	67,011

Notes: dependent variable = outmigration (%). Large win: difference in votes between the two most voted candidates exceeds the median 30% threshold of the votes earned by the most voted candidate. 6,702 municipalities. Standard errors in parentheses. ***: p-value < 0.01; **: p-value < 0.05; *: p-value < 0.10.

Figure1 The electoral migration cycle

m

0.030

0.015

(election)   +1   +2   +3   +4   (election)   t