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IMMIGRATION, OCCUPATIONAL CHOICE AND ELECTORAL RULES THEORY AND EVIDENCE ON DUAL BALLOT OPENNESS

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JEL Classification: D72, J24, J61, R23

Keywords: Electoral Rules, Immigration, Occupational choice, SPRAR

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Immigration, Occupational Choice and Electoral Rules

Theory and Evidence on Dual Ballot Openness*

Matteo Gamalerio† Massimo Morelli‡ Margherita Negri§

June 6, 2020

Abstract

Do institutions affect the level of openness of immigration policies? We study theoretically and empirically how different electoral systems affect the reception of refugees, comparing Single Round Plurality with Dual Ballot systems. We focus on mayoral elections at the municipality level. Our model predicts that municipalities that elect the mayor with a Dual Ballot system receive more refugee- related fiscal transfers from the central government and are more likely to host refugees, compared to municipalities that use a Single Round Plurality system. Using data from Italian municipalities and regression discontinuity design, we provide empirical evidence that confirms the predictions of the theoretical model.

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1 Introduction

Even though western democracies have recently experienced a general increase of anti-globalization and anti-immigration attitudes,[1] there remains a large variation in such attitudes, both within and across countries, determining variations also in terms of immigration policy positions by democratically elected country leaders.[2] Differences in individual attitudes or group attitudes towards immigrants may depend on cultural preferences, economic conditions and perception biases. Some of these sources of variation are persistent, while some are subject to rapid changes.[3] An understudied source of variation is institutions.[4] Different institutions can affect policy outcomes on immigration through the effects that they may have on election outcomes and on the relative influence of different groups on policy decisions.

This paper aims to provide a clear example of *how* and *how much* different electoral rules can affect policy decisions on immigration. The key insight is that different occupations generate different preferences on immigration policies, and different electoral rules give different relative power to such different occupational groups. The theory (explaining the how) as well as the empirical analysis (explaining the how much) are the novel contributions of the paper.

[1] see e.g. the survey on populism by Guriev and Papaioannou (2020) and references therein.

[2] For evidence on the economic and noneconomic factors that drive attitudes towards migration, see Mayda (2006), Facchini and Mayda (2009), Dustmann and Preston (2007), Card et al. (2012). For papers that have studied how these individual attitudes influence policy outcomes see Benhabib (1996), Dolmas and Huffman (2004), Facchini and Mayda (2008), Facchini et al. (2011), and Tabellini (2020). For evidence on the relationship between immigration and anti-immigrant attitudes and voting behavior, the literature has produced conflicting results: some papers have found a positive effect of immigration on anti-immigrant attitudes and voting (e.g., Barone et al., 2016; Tabellini, 2020), other papers have provided evidence of a negative effect (Vertier and Viskanic, 2019), and other papers evidence of a mixed effect (Dustmann et al., 2019; Steinmayr, 2020; Mayda et al., 2020).

[3] For example, Guiso et al. (2020) show that economic insecurity can affect the vote for populist parties through induced changes on cultural factors such as trust in political parties and attitudes towards immigrants. On perception biases, Alesina et al. (2019), running large-scale surveys in six countries, show that natives have large misperceptions about the number and characteristics of immigrants, and that these misperceptions drive preferences for redistribution and immigration policies.

[4] As discussed below, two recent exceptions are Russo and Salsano (2019), and Morelli and Negri (2019), who provide theoretical models on the influence of proportional and plurality electoral systems on immigration policies.

Electoral rules can affect equilibrium policy outcomes through the effects they have on the relative power of different classes of citizens. In particular, if the electoral base for a labor party (the class of dependent workers and unemployed citizens actively looking to work for a wage) constitutes the plurality but not the absolute majority in the population, as it is almost always the case, then plurality rule may give full power to such party, while with proportional representation or dual ballot systems some other class or party is necessary or even pivotal in policy decision making. Thus, if the labor class has generally a greater hostility towards immigrants with respect to the other classes, we should expect polities that use plurality rule elections to be less likely, ceteris paribus, to display openness in immigration policies. We will explore this mechanism with a model where occupational choices determine political affiliation and we will test this mechanism using a quasi-natural experiment.

An inflow of labor force can (depending on the distribution of abilities) help the viability of the social security system, and even the opening of a refugee center can have positive spillovers on the hosting polity, as we describe below. However, even if the total net welfare benefit of admitting some economic migrants or hosting refugees can be positive, the citizens who work (or want to work) for a wage may fear a negative effect through the labor market (subject to well documented misperceptions). While the traditional left-right divide in political economy models (dating back to Meltzer and Richard, 1981) was based on a high monotonic relation between income and political preferences (with the poor more likely to vote for more redistributive democratic parties and the rich more likely to prefer small-government type parties), the divide that emerges in our model on immigration preferences and decisions turns out not to imply a monotonic relation. While on taxation policies the pivotal voter is the standard median income voter, when the salient dimension of political conflict becomes immigration, the poorest and richest individuals may well be more in favor of open borders, while the middle class of dependent workers tends to be the class most likely to support closed borders. Thus, the pivotal voter in a decision to open or close borders may

turn out to be an individual outside of the labor force when a polity is not run by a policy maker elected with plurality rule.

In our model, we assume that there are three parties: the party of those out of the labor force (including pensioners and inactive persons who do not look for a job); the party of those who aim to be entrepreneurs; and the party of those who aim to work for a wage (including employees and unemployed who actively look for a job). When a polity uses plurality elections to determine the policy-maker (the mayor in our municipalities application), the party with the largest support calls the shots, and hence on each policy dimension the expected policy outcome should be the one preferred by such plurality winner party. With the partition in three parties defined above, it is clear that the party of all those who want to earn a wage, the labor party, is usually the party whose preferences one should look at in order to form expectations about the policy that will emerge. On the other hand, when a polity uses a different electoral system, like a dual ballot as in our model,[5] holding the plurality of votes no longer suffices unless the largest party has an absolute majority of support. In such cases, therefore, the pivotal decision maker could be a different party. In particular, in a municipality that uses a dual ballot system, the labor party can be defeated in the second round by an opponent that attracts the votes of employers and individuals out of the labour force. In a period in which immigration policies are among the most salient, a municipality with a dual ballot system should therefore be more likely to be open to immigration than municipalities dominated by the party of workers, i.e. with a plurality rule system.

To reiterate, the theoretical prediction of our model is that cities ruled by mayors elected via dual ballot systems tend to be more open to immigration than cities using plurality rule, and this difference turns out to bite exactly when comparing cities where the labor party has the plurality of support but not the absolute majority. This general insight of our theory can be tested in countries that use different electoral rules for different regional or

[5]Similar conclusions hold when studying proportional representations elections, like in Morelli and Negri (2019).

municipal elections, in order to (1) avoid the general problems of cross country studies that one would have to face if comparing countries' decisions and (2) avoid the greater likelihood of confounding factors when looking at national politics. The Italian 1993 reform of electoral rules for municipalities described below offers an opportunity to evaluate the theory well, using the outcome of the procedure for the selection of municipalities that end up opening a refugee center through "The Protection System for Asylum Seekers and Refugees" (called SPRAR) as the dependent variable. Since the SPRAR procedure involves a bidding process by elected mayors, and the chosen bid implies a corresponding fiscal transfer from the national government to cover the set-up costs, we introduce this endogenous selection step in the theoretical model. This modeling choice makes our general theoretical insight apply more directly to the context that we study empirically.

In the empirical analysis, we first use survey data from Italy to provide evidence on the preferences over immigration policies of the three occupations described in the theoretical model. More specifically, survey data from the Italian National Election Studies (ITANES) association shows that employers and people out of the labor force are more in favor of receiving more immigrants than employees and unemployed. This evidence is consistent with the model and the migration literature, which shows that immigration inflows can have an overall positive effect on the economy (Peri, 2016) and, at the same time, create winners and losers (Guriev and Papaioannou, 2020). Specifically, the literature suggests that the losers are more likely to be the low-skilled native workers that fear the competition from migrants in the labor market (Dustmann et al., 2013; Borjas, 2014; Borjas and Monras, 2017; Monras, 2019; Clemens and Hunt, 2019; Edo et al., 2019; Mayda et al., 2020), and that may have the largest misperceptions about immigrants (Alesina et al., 2019).[6]

[6]For example, Alesina et al. (2019) show that the misperceptions about the number and characteristics of immigrants are more substantial among those with lower levels of education and who work in sectors that employ more immigrant workers. Mayda et al. (2020) show that the vote shares of the Republican Party increase following an inflow of low-skilled immigrants and that this effect is more substantial in areas with higher shares of low-skilled natives. Mayda et al. (2020) interpret this result as evidence that low-skilled

Second, using data from the European Social Survey (ESS) for Italy, we show that, once we control for cohort effects, the age of the respondents positively correlates with pro-immigration positions.[7] This evidence is consistent with the idea that pensioners should be in favor of immigration in countries that use pay-as-you-go pension systems, through which the contributions of today workers pay current pension benefits (Calahorrano, 2013; Schotte and Winkler, 2018; Dotti, 2020).

Third and most importantly, we use data from Italian municipalities to test the theoretical model's central prediction. Specifically, we exploit two institutional features of Italian municipalities. First, we take advantage of the refugee allocation policy developed by the Italian Home Office through the SPRAR system. The features of SPRAR are that municipal governments decide whether to submit a bid to open a refugee center or not, and municipalities that accept to host refugees and asylum seekers receive fiscal grants from the central government (Gamalerio, 2019). Second, we exploit the fact that Italian municipalities' electoral system changes from a plurality rule to a dual ballot system when the municipal population moves above 15,000 inhabitants (Bordignon et al., 2016). We use this framework to implement a regression discontinuity design (RDD) analysis to study the effect of different electoral systems on the probability of opening a refugee center.

The results of the RDD analysis confirm the prediction of the theoretical model. When the labor party has the plurality of support, but not the absolute majority, dual ballot municipalities receive more refugee-related fiscal transfers from the central government, and they are more likely to host refugees, compared to municipalities that use a plurality system. We find that the probability of opening a SPRAR refugee center is approximately 15 percentage points higher for dual ballot municipalities. In the cases in which the labor party has the absolute majority, or it does not have the plurality of support, we do not find differences

voters feel more in competition with low-skilled immigrants than other voters. Edo et al. (2019) show that low-educated immigrants from non-Western countries drive the positive effect of immigration on the vote shares of far-right candidates in France.

[7]The data on this is taken from Guiso et al. (2020).

between the dual ballot and plurality municipalities. Finally, we show that our results are robust to the use of different bandwidths and specifications and that they are not due to random chances. We also show that our results do not change if we control for potential confounding factors studied in the literature, such as the role extreme political parties and the number of candidates (Bordignon et al., 2016), total fiscal grants (Bracco and Brugnoli, 2012; Ferraresi et al., 2015; Cipullo, 2019) and electoral turnout (Barone and De Blasio, 2013).

The paper is organized as follows: section 2 will describe the context and institutional background of the application we focus on in order to evaluate our theory. Section 3 contains our theoretical model; section 4 highlights the main predictions of the model, and the following sections display the empirical analysis. We conclude with some general remarks and connecting our findings and approach with the existing literature.

2 Context

We begin by describing the Italian institutional context where the empirical analysis will be performed. The goal of describing the context first is to introduce the specific concepts and variables that we will use also in the model that follows.

2.1 Italian municipalities: general features and electoral systems

In Italy today there are around 8000 municipalities. They manage a series of essential services, such as garbage collection, water supply, infrastructure, transport, welfare, housing, and municipal police. Municipal governments fund these services through a mix of local taxes and grants from higher levels of government. The mayor is the most crucial figure inside the municipal government, especially after Law 81/1993 introduced the direct election of the mayor. Mayors can freely choose the ministries of the municipal government, and if

the municipal Council wants to dismiss the mayor, it needs to call for new elections. The electoral term of a mayor lasts five years, and second-term mayors cannot run for a third consecutive election.

Law 81/1993 introduced the current electoral rules for Italian municipalities. Before 1993, municipalities below 5,000 inhabitants were using a plurality system with panachage, while municipalities above 5,000 inhabitants were using a party-list proportional system (Gulino, 2020). The new electoral rules introduced in 1993 established that municipalities below the 15,000 inhabitants threshold elect the mayor and the municipal council using a plurality system with a single round;[8] on the other hand, municipalities above 15,000 inhabitants use a dual ballot electoral system.[9]

The identification strategy used in this paper exploits the sharp change in the electoral rules at the 15,000 inhabitants threshold. The crucial assumption behind this strategy is that no other policies change at the same threshold during the period studied. As indicated by Cipullo (2019), up until 2010, municipalities with more than 15,000 inhabitants could nominate a CEO (Direttore Generale) at the top of the administrative bureaucracy. Municipalities below the threshold did not have such a prerogative. For this reason, as explained in more detail below, we exclude the period before 2010 from our analysis. As far as we know, no other policies change at the same threshold starting from 2010. Finally, as described by Bordignon et al. (2016), the closest policy population thresholds are 10,000 (at which vari-

[8]In this system, mayoral candidates receive the support of only one list for the municipal council, and voters can express only one preference for the mayor and the list. The mayoral candidate who attracts the greatest share of votes is elected mayor. The system assigns a majority of 2/3 of the council seats to the list connected to the winning candidate. The remaining seats are distributed proportionally.

[9]Under this system, every mayoral candidate can receive the support of more than one list for the municipal council. In the first round, voters vote for the mayoral candidate and the municipal councilors, and the two votes can be disjoint. The mayoral candidate who at the first round gets more than 50 percent of the votes is elected mayor. If no candidate gets more than 50 percent of the votes, the first two candidates go to the second round, where they can be supported also by the lists associated with the mayoral candidates excluded from the second round. During the second round, voters vote only for the mayoral candidates. The candidate who gets the biggest shares of votes is elected mayor. The dual ballot system assigns 60 percent of the seats of the municipal council to the lists connected to the winning candidate, while the remaining seats are distributed proportionally.

ous policy like the wage of the mayor, the size of the council and the municipal government change) and 30,000 (at which the wage of the mayor and the size of the council change). As described below, we exclude the data outside this interval from the sample used in the analysis.

2.2 Refugee reception in Italy

In Italy, the system for hosting refugees and asylum seekers rests on two levels of reception. At the first level, we find three types of refugee centers: CPSA (Centri di primo soccorso e accoglienza, i.e., First aid and hospitality centers), CDA (Centri di accoglienza, i.e., Hospitality centers) and CARA ("Centri di accoglienza per richiedenti asilo", i.e., Reception centers for asylum seekers). These three types of centers receive asylum seekers who have just arrived in Italy: they identify them, provide medical assistance, and collect applications for asylum. The Italian central government manages CPSA, CDA, and CARA, and municipalities do not have powers on them. From 2014, to deal with the escalation of the refugee crisis, the Italian government has introduced an additional type of first-level reception center, called CAS (Centri di accoglienza straordinaria, i.e., Centres for extraordinary reception). The central government manages CAS through the provincial offices ("Prefetture") of the Home Office, which allocate refugees and asylum seekers across the provincial territory, and entrust the management of the refugee centers to private cooperatives and firms.[10]

In this paper, we study a type of refugee center that represents the second level of reception, called "The Protection System for Asylum Seekers and Refugees" (SPRAR), introduced in 2002 by Law 189/2002. As second-level reception centers, SPRARs have more long-term aims, compared to first-level reception centers. In particular, the purpose of SPRAR centers is to host refugees and asylum seekers arriving from first-level reception centers and to help

[10]Between 2011 and 2013, the Italian central government opened another type of temporary center (ENA, Emergency North Africa) to deal with the wave of migrants coming from North Africa following the Arab Spring.

them to integrate into the society, by providing services such as Italian language courses and job market orientation. Over the period studied, SPRAR and CAS centers have represented the two main types of refugee centers diffused on the Italian territory. In the last years, CAS centers have counted for approximately 75-80% of all places available in reception centers. SPRAR centers for roughly 15-20%.[11]

We focus on SPRAR refugee centers because these are the only type of refugee centers that Italian municipalities directly manage, a feature that enables us to study how electoral institutions affect the decision of municipal governments relative to the reception of refugees and asylum seekers. When the Home Office needs to allocate refugees and asylum seekers in new SPRAR centers, it issues a tender, calling for competition among municipalities interested in opening a new center. The tender indicates the period during which municipalities can submit the bids, the rules of the competition, and the total funds available. Municipal governments decide whether to participate to the tender by submitting a bid, in which they provide details on the management costs, the location of the center, the number of places, the services provided, and the cooperatives or firms that will provide these services. The Home Office evaluates the bids submitted by the municipalities, and it creates a ranking that indicates which municipalities will receive the grants for covering the costs, the exact amount of money they will get, and which bids are instead rejected. Table 1 provides a brief description of the tenders studied in this paper.[12]

A small share (called "pocket money") of the SPRAR fiscal grants transferred by the central government to the municipal governments is assigned directly to the refugees and the

[11]For example, in April 2018, CAS centers were hosting 138,503 refugees and asylum seekers and SPRAR centers 25,657, over a total of 173,150 migrants (sources: Openpolis and Documento di Economia e Finanza (DEF), 2018, Italian Ministry of Economy). Besides, as reported by the 2018 "Atlante SPRAR", total available places in SPRAR centers have been 35,881, which have allowed SPRAR centers to host 41,113 refugees and asylum seekers over the year.

[12]Starting from 2017, the Italian Home Office has started to accept bids for SPRAR centers on a rolling basis (see Ministerial Decree 10 August 2016, n. 200). We include all bids submitted over 2017 in our analysis, collapsing them to one observation at the municipality level for all towns in our data.

Table 1: SPRAR tenders

(1)	(2)	(3)	(4)	(5)	(6)
Tender	Year	Date starts	Date ends	Date opens	Years active
1	2010	30/09/2010	30/10/2010	21/01/2011	2011-2013
2	2013	04/09/2013	19/10/2013	29/01/2014	2014-2016
3	2015	23/05/2015	22/07/2015	04/12/2015	2016
4	2015-2016	14/10/2015	14/02/2016	31/05/2016	2016-2017
5	2016	27/08/2016	30/10/2016	19/01/2017	2017-2019
6	2017	-	-	-	2017-2020

Notes. Sources: Home Office, SPRAR, and Gamalerio (2019). Description columns: 1) In column 1, Tender is the number assigned by this paper; 2) In column 2, Year is the year in which the tender is issued by the Home Office; 3) The starting date of the tender in column 3 (Date starts); 4) The deadline for application to the tender is in column 4 (Date ends); 5) The date of opening of the refugee centre is in column 5 (Date opens); 6) If municipality i participates to the tender, then the refugee centre remains active for the years indicated in column 6 (Years active). The last row (i.e., tender 6) refers to year 2017, during which the Italian Home Office accepted bids for SPRAR centers on a rolling basis (see Ministerial Decree 10 August 2016, n. 200).

asylum seekers for small personal expenses.[13] Depending on the tender, SPRAR fiscal grants cover between 80% and 100% of the costs of the refugee centers.[14] The municipalities use the SPRAR fiscal grants' significant share to fund the activities of the SPRAR centers, such as teaching Italian, providing job market orientation, and health support. The implementation of these activities funded by SPRAR fiscal grants, and the opening of SPRAR centers in general, can potentially generate positive spillovers spread out across the municipal population for various reasons.

First, the grants represent a source of income for firms, health and social professionals, and cooperatives that provide services to the reception center. Second, SPRAR centers typically use flats to host refugees. The owners of these flats may be residents who can benefit from renting out their property. Third, the money spent to buy goods and services for refugees and asylum seekers represents revenues for local shops and services providers (e.g., food, clothes,

[13]The estimate is that the total daily cost for hosting one refugee is, on average, 35 euros. The "pocket money" is, on average, 2.5 euros per day. See for example the article "Dai 35 euro ai tagli del decreto sicurezza, quanto si spende (davvero) per limmigrazione?" from Corriere della Sera on 03/12/2018 (in Italian).

[14]Municipalities usually cover their part of the costs figuratively, like, for example, using municipal buildings and flats to host refugees or asking municipal employees to dedicate some hours to the refugee center. Also, municipalities demand cooperatives and firms that manage the center to cover these costs. Hence, these costs do not usually represent a monetary expense for municipalities.

local transport). Besides, the social and health services provided to refugees and asylum seekers can also benefit the local population, as they can complement and reinforce the local welfare system.[15] Fourth, there is anecdotal evidence that the arrival of refugees and asylum seeker has helped municipalities to keep alive local public services like schools, especially in municipalities with a declining population.[16] Fifth, municipalities sometimes employ refugees and asylum seekers hosted in SPRAR centers in public utility works and, thanks to the job orientation services provided by SPRAR centers, refugees and asylum seekers may end up being hired by local firms.[17] Finally, Law 225/2016 introduced an additional yearly bonus of approximately 500-700 euros per refugee hosted that municipalities can freely spend in other services and goods.[18]

We can now turn to theory, showing that the different electoral systems are very relevant for the determination of the bidding behavior of municipalities, and we will show in particular that municipalities using the dual ballot system should be expected to display a higher willingness to bid for the opening of a SPRAR center with respect to municipalities using single round plurality rule.

[15]For information on the services provided by SPRAR centers, the relationship with local socio-economic actors and the types of accommodation used, see the various editions of the "Atlante SPRAR" published over the years in the SPRAR webpage.

[16]See for example the article "Sono i profughi a far rivivere borghi abbandonati" from Linkiesta on 22/11/2014 (in Italian).

[17]For example, the 2018 "Atlante SPRAR" indicates that, in that year, 9845 refugees and asylum seekers hosted by SPRAR centers attended at least one professional training course. Besides, in the same year, 5363 refugees and asylum seekers hosted by SPRAR centers found a job. The main sectors of employment were catering/food services, agriculture, and industry. In terms of regulation, since the introduction of Decree-Law 142/2015, asylum seekers can work after 60 days they have applied for asylum. Before Decree-Law 142/2015, they had to wait for six months since the application.

[18]In the model, we assume that these spillovers accrue to the native population in a uniform way. For the purposes of our theoretical results, the only thing that matters is that they do not alter the relative position of the three occupations on the matter of immigration.

3 Model

We consider the problem of opening a SPRAR center in one of two municipalities. The two municipalities are denoted by D and P and they only differ in the way they elect their mayor. In municipality D, the mayor is elected through a dual ballot system, while municipality P uses plurality rule. We will describe the electoral systems more in details later in the paper.

We assume each municipality has a mass one of native individuals. If the SPRAR center is open in one municipality, $q \in (0,1)$ immigrants will move there. We denote by Q_M the number of immigrants in municipality $M \in \{D, P\}$, with $Q_M = q$ if the center is open, $Q_M = 0$ otherwise. Since there is only one SPRAR center to open, $Q_M = q$ implies $Q_{M'} = 0$, $M \neq M'$. All individuals (natives and immigrants) are characterised by a type $\theta \in (0, \bar{\theta})$. The distribution of types in the population of natives is assumed to be uniform on the support. The q immigrants moving to the municipality are sampled from a distribution $h(\theta)$. For the moment, we only impose that $\theta h(\theta)$ is non-decreasing in θ. We impose additional constraints in Assumption 1 below.

Within each municipality, individuals can decide to work or to be out of the labour force (o). If they decide to work, they can choose to become employers (e) or employees (l). All individuals looking for a job (either as employee or as employer) have to pay a cost of searching $c > 0$. An individual of type θ finds a job in their chosen occupation with probability $\pi(\theta)$. We assume $\pi'(\theta) > 0$ and $\lim_{\theta \to 0} \pi(\theta) > 0$.

If an individual of type θ manages to become an employer, she can employ L units of labor to produce an amount $F(L, \theta)$ of consumption good, which is assumed to be the only good consumed in the economy and whose price is normalized to one. The function $F(\cdot, \cdot)$ is at least twice differentiable, strictly increasing in both arguments, strictly concave in L and strictly convex in θ. We also assume $\partial^2 F / \partial \theta \partial L > 0$, for all $\theta > 0$, and $\lim_{\theta \to 0} \partial F / \partial \theta = 0$. Letting w_M be the wage paid for each unit of labor in municipality M, an employer's gross

income is

$$y_e(L, w_M, \theta) = F(L, \theta) - w_M L.$$

For any wage level w_M and any type θ, $L(w_M, \theta)$ denotes the amount of labour that maximizes an employer's net income. Given the assumptions on the production function, $L(w_M, \theta)$ is strictly decreasing in w_M and strictly increasing in θ. Since from now on we will only consider the optimal amount of labour demanded by employers, we will sometimes simplify notation by using L instead of $L(w_M, \theta)$.

If an individual finds a job as an employee, she inelastically provides θ units of labor and receives a gross income

$$y_l(w_M, \theta) = \theta w_M.$$

Labor income is taxed at a rate $\tau \in [0, 1]$. The tax rate is fixed at the national level and taxes are collected by the central government.

The location of the SPRAR center is decided through a first price sealed bid auction. Each municipality M can submit a bid γ_M to the central government. We denote by $\gamma = (\gamma_D, \gamma_P)$ the vector of submitted bids. Submitting a bid is costless. The municipality that submits the lowest bid receives transfers equal to its bid in exchange for opening the center on its territory. The other municipality receives nothing. Ties are broken by a coin toss. Transfers received by a municipality are used to cover the cost of the center and to finance lump-sum benefits redistributed to the native population residing in the municipality. We assume that no debt can be accumulated. Each immigrant receives a "pocket money" equal to $\alpha > 0$, so that the total sum of money distributed to migrants is αq. The additional transfers received by the municipality are used to finance the services of the SPRAR center, as described in Section 2.2. We assume these activities generate positive spillovers that uniformly benefit the native population. For convenience, we measure these spillovers as the net per-capita transfer received by the municipality, after pocket money has been distributed. More formally, let

$b(Q_M, \alpha, \gamma)$ denote the benefits received by a native individual living in a municipality. Then, $b(Q_M, \alpha, \gamma) = \gamma_M - \alpha q$ if municipality M wins the auction, $b(Q_M, \alpha, \gamma) = 0$ otherwise.[19]

Combining everything, the expected net income $x_j(\cdot, \theta)$ of a native individual of type θ in occupation $j \in \{e, l, o\}$ in municipality M is

$$x_e(w_M, Q_M, \alpha, \gamma, \theta) = \pi(\theta)(1-\tau)y_e(L, w_M, \theta) + b(Q_M, \alpha, \gamma) - c$$

$$x_l(w_M, Q_M, \alpha, \gamma, \theta) = \pi(\theta)(1-\tau)y_l(w_M, \theta) + b(Q_M, \alpha, \gamma) - c$$

$$x_o(w_M, Q_M, \alpha, \gamma, \theta) = b(Q_M, \alpha, \gamma)$$

Let $\lambda_j(w_M, Q_M)$ denote the set of individuals in occupation $j \in \{e, l, o\}$. Notice that, for $j \in \{l, e\}$, $\lambda_j(w_M, Q_M)$ represents the set of individuals *aiming to* find a job as employee or employer. Definition 3 adapts the concept of *sorting equilibrium* contained in Austen-Smith (2000) (AS henceforth) to our framework. More precisely, our definition takes into account the uncertainty faced by individuals when looking for a job. An *expected sorting equilibrium* is a wage rate at which expected labour demand equals expected labour supply, when all agents act rationally.

Definition. *At any fixed tax rate $\tau \in [0, 1]$ and number of immigrants $Q_M \in \{0, q\}$, an expected sorting equilibrium in municipality M is a wage rate $w_M^* = w_M^*(Q_M)$ such that*

$$\int_{\lambda_e(w_M^*, Q_M)} \pi(\theta) L(w_M^*, \theta) \left[\frac{1}{\bar{\theta}} + Q_M h(\theta)\right] d\theta = \int_{\lambda_l(w_M^*, Q_M)} \pi(\theta)\theta \left[\frac{1}{\bar{\theta}} + Q_M h(\theta)\right] d\theta$$

and for all $\theta \in (0, \bar{\theta})$, for all $j, j' \in \{e, l, o\}$, $\theta \in \lambda_j(w_M^*, Q_M)$ implies $x_{jM}(\cdot, \theta) \geq x_{j'M}(\cdot, \theta)$.

In the remainder of the paper, we make the following assumptions

Assumption 1. *For all M,*

[19] This formulation of benefits completely disregards redistribution at the local level.

a) $\left[\int_{\lambda_e(w_M^*,Q_M)} \frac{\theta}{\theta} d\theta\right]_{Q_M=0} < 1/3.$

b) The distribution of immigrant types $h(\theta)$ *is such that*

$$\left[\int_{\lambda_l(w_M^*,Q_M)} \pi(\theta)\theta h(\theta) d\theta - \int_{\lambda_e(w_M^*,Q_M)} \pi(\theta) L(w_M^*,\theta) h(\theta) d\theta\right]_{Q_M=q} \geq 0$$

The first item in Assumption 1 states that the set of individuals hoping to become employers when no SPRAR center is open is never the relative majority in society. Our data confirm this assumption (see Section 5.3.1). The second item imposes more structure on the distribution of immigrant types, $h(\theta)$: it states that the immigrants moving to a municipality contribute relatively more to the supply side of the labour market.

The bid submitted in each municipality is decided by its elected mayor. We assume there exist three parties, representing the three different occupations. We denote by $\mathcal{E}$ the party of individuals aiming to become employers, by $\mathcal{L}$ the party of individuals aiming to become employees and by $\mathcal{O}$ the one of individuals who decide to remain out of the labour force. All three parties have active branches in both municipalities and have one candidate running for mayor. Each party (and therefore each candidate mayor) wants to maximise the average utility of the native individuals in the occupation it represents, in the municipality in which it is running. That is, in municipality M,

$$u_{\mathcal{E}}(w_M^*, Q_M, \alpha, \gamma) = (1-\tau)\hat{y}_e(L, w_M, Q_M) + b(Q_M, \alpha, \gamma) - c$$

$$u_{\mathcal{L}}(w_M^*, Q_M, \alpha, \gamma) = (1-\tau)\hat{\theta}_l(w_M^*, Q_M) w_M^* + b(Q_M, \alpha, \gamma) + -c$$

$$u_{\mathcal{O}}(w_M^*, Q_M, \alpha, \gamma) = b_M(Q_M, \alpha, \gamma)$$

where

$$\hat{y}_e(L, w_M^*, Q_M) = \frac{\int_{\lambda_e(w_M^*,Q_M)} \pi(\theta) y_e(L, w_M^*, \theta) d\theta}{\int_{\lambda_e(w_M^*,Q_M)} d\theta}$$

$$\hat{\theta}_l(w_M^*, Q_M) = \frac{\int_{\lambda_l(w_M^*, Q_M)} \pi(\theta)\theta d\theta}{\int_{\lambda_l(w_M^*, Q_M)} d\theta}$$

Assumption 2.

a) $\frac{\partial \hat{y}_e(L, w_M^*, Q_M)}{\partial w} < 0$

b) $\frac{\partial}{\partial w}[\hat{\theta}_l(w_M^*, Q_M) w_M^*] > 0$

The assumption states that the average expected employer's income is decreasing in wage, while the average expected employee's income is increasing. We will return to the assumption and comment further once we have introduced some preliminary results.

Each party receives the votes of the native individuals choosing the occupation they represent. We assume migrants have no voting rights. In municipality P, the mayor is elected by plurality rule. In municipality D, the mayor is elected with a dual ballot system: if one candidate obtains more than 50%, he/she will be elected. If no candidate obtains more than 50%, the two candidates with the largest share of votes will compete (by majority rule) in a second round. In the second round, the excluded candidate transfers his/her votes to the remaining candidate guaranteeing the highest expected payoff. We assume ties are resolved in favor of party $\mathcal{L}$.[20]

The timing is as follows: first, mayors are elected. Then, each elected mayor decides whether to participate to the auction and which bid to submit. All decisions are taken simultaneously and a mayor cannot observe whether the other has entered the auction before submitting the bid. Finally, the SPRAR center is opened and transfers are implemented.

4 Results

We begin by proving the existence and uniqueness of an expected sorting equilibrium and by characterizing it. Proposition 1 is an adaptation of the equivalent proposition in AS. Its

[20]This is to avoid unnecessary complications in the analysis of highly unlikely scenarios.

proof can be found in the Appendix.

Proposition 1. *For all $\tau \in [0,1)$ and $Q_M \in \{0,q\}$, there exists a unique expected sorting equilibrium, $w_M^* = w_M^*(Q_M)$. The equilibrium is characterized by an ordered pair of types $\theta_M^1 = \theta_M^1(w_M^*, Q_M)$ and $\theta_M^2 = \theta_M^2(w_M^*, Q_M)$, such that*

$$\begin{aligned} \lambda_o(w_M^*, Q_M) &= (0, \theta_M^1) \\ \lambda_l(w_M^*, Q_M) &= [\theta_M^1, \theta_M^2] \\ \lambda_e(w_M^*, Q_M) &= (\theta_M^2, \bar{\theta}). \end{aligned}$$

An individual of type θ_M^1 is indifferent between remaining out of the labor force and trying to become an employee in municipality M. The type satisfies

$$\pi(\theta_M^1)(1-\tau)\theta_M^1 w_M^* = c \tag{1}$$

An individual of type θ_M^2 is indifferent between trying to become an employee and trying to become an employer in municipality M. This type is implicitly defined by

$$F(L(w_M^*, \theta_M^2), \theta_M^2) - w_M^* L(w_M^*, \theta_M^2) = w_M^* \theta_M^2 \tag{2}$$

Lemma 1. *$\frac{\partial \theta_M^1}{\partial w} < 0$ and $\frac{\partial \theta_M^2}{\partial w} > 0$.*

Both results are part of the proof of Proposition 1. We are now in a better position to comment on Assumption 2. An increase in the wage rate increases labor costs and therefore decreases expected profits for any given employer of type θ. At the same time, however, higher wages make employment more attractive, inducing low-type employers to change occupation. This decreases the average. Assumption 2.a requires the first effect to be stronger than the second.

When the wage rate increases, labor income increases for all types. Moreover, as low-

type employers become employees, average expected income increases. At the same time, higher wages attract lower types of individuals, who would otherwise decide to remain out of the labour force. These individuals have a negative effect on the average expected income. Assumption 2.b requires this effect to be small enough. The assumption is equivalent to imposing the following upper bound on the elasticity of θ_M^1 with respect to the wage rate:

$$\left| \frac{\partial \theta_M^1}{\partial w} \frac{w}{\theta_M^1} \right| < \frac{\theta_M^2 - \theta_M^1}{\theta_M^1}.$$

From Definition 3, the wage rate w_M^* satisfies

$$\int_{\theta_M^2}^{\bar{\theta}} \pi(\theta) L(w_M^*, \theta) \left[\frac{1}{\bar{\theta}} + Q_M h(\theta) \right] d\theta = \int_{\theta_M^1}^{\theta_M^2} \pi(\theta) \theta \left[\frac{1}{\bar{\theta}} + Q_M h(\theta) \right] \theta \tag{3}$$

Notice that Assumption 1.a can be rewritten as

$$[\theta_M^2(w_M^*, Q_M)]_{Q_M=0} > 1/3.$$

Similarly, the condition on $h(\theta)$ stated in Assumption 1.b is equivalent to

$$\left[\int_{\theta_M^1(w_M^*, Q_M)}^{\theta_M^2(w_M^*, Q_M)} \pi(\theta) \theta h(\theta) d\theta - \int_{\theta_M^2(w_M^*, Q_M)}^{\bar{\theta}} \pi(\theta) L(w_M^*, \theta) h(\theta) d\theta \right]_{Q_M=q} \geq 0.$$

Under this assumption,[21]

Lemma 2. $w_M^*(q) < w_M^*(0)$.

To simplify notation, let $\underline{w}^* = w_M^*(q)$ and $\bar{w}^* = w_M^*(0)$. Lemmas 1 and 2 imply

$$\theta_M^1(\bar{w}^*, 0) < \theta_M^1(\underline{w}^*, q) < \theta_M^2(\underline{w}^*, q) < \theta_M^2(\bar{w}^*, 0).$$

[21] For the purposes of our model, what matters is that native individuals *believe* that migrants will lower their expected wage (i.e., that $h(\theta)$ satisfies Assumption 1.b). This is in line with the documented misperceptions of natives about immigrant characteristics discussed in the introduction.

Let us now consider the minimum bid that each of the candidates would be willing to submit if elected. This is the bid that would make a party indifferent between winning the auction or not. We denote it by $\underline{\gamma}_{\mathcal{P}}$, for $\mathcal{P} \in \{\mathcal{O}, \mathcal{L}, \mathcal{E}\}$. Then

$$\begin{aligned}
\underline{\gamma}_{\mathcal{O}} &= \alpha q \\
\underline{\gamma}_{\mathcal{L}} &= \alpha q + (1-\tau)[\hat{\theta}_l(\bar{w}^*, 0) - \hat{\theta}_l(\underline{w}^*, q)] \\
\underline{\gamma}_{\mathcal{E}} &= \alpha q + (1-\tau)[\hat{y}_e(L, \bar{w}^*, 0) - \hat{y}_e(L, \underline{w}^*, q)]
\end{aligned}$$

The minimum bid for party $\mathcal{O}$ corresponds to the amount that is just enough to cover the expenses for the opening of the SPRAR center. In addition to that, the bid for party $\mathcal{L}$ must cover the decrease in the average expected income generated by the arrival of migrants. This is represented by the second term in $\underline{\gamma}_{\mathcal{L}}$, which is positive because of Assumption 2. Then, $\underline{\gamma}_{\mathcal{O}} < \underline{\gamma}_{\mathcal{L}}$. Assumption 2 also states that migrants increase average expected income among individuals aiming to become employers, so that the second term $\underline{\gamma}_{\mathcal{E}}$ is negative. This implies $\underline{\gamma}_{\mathcal{O}} > \underline{\gamma}_{\mathcal{E}}$.

Consider the moment at which elected mayors decide whether to participate to the auction and which bid to submit.

Lemma 3. *In equilibrium, mayors always participate to the auction. Moreover,*

- *If the mayors elected in the two municipalities belong to the same party $\mathcal{P}$, then $\gamma_M = \underline{\gamma}_{\mathcal{P}}$ for all M.*

- *If a mayor from party $\mathcal{P}$ is elected in municipality M, a mayor from party $\mathcal{P}' \neq \mathcal{P}$ is elected in municipality M' and $\underline{\gamma}_{\mathcal{P}} > \underline{\gamma}_{\mathcal{P}'}$, then $\gamma_M = \underline{\gamma}_{\mathcal{P}}$ and $\gamma_{M'} = \underline{\gamma}_{\mathcal{P}} - \epsilon$, with $\epsilon \to 0$.*

The proof of the lemma is very intuitive and is based on a standard race to the bottom argument *à la Bertrand*. If mayors belong to the same party, then, each municipality wins the auction with probability one-half. If the mayors in the two municipalities belong to different

parties, the auction will be won by the municipality whose mayor has the lowest minimum bid.

Proposition 2. *The equilibrium bids submitted by the two municipalities are*

$$(\hat{\gamma}_P, \hat{\gamma}_D) = \begin{cases} (\underline{\gamma}_{\mathcal{L}}, \underline{\gamma}_{\mathcal{L}}) & if \ \frac{\theta^2_M(\bar{w}^*,0)-\theta^1_M(\bar{w}^*,0)}{\bar{\theta}} \geq \frac{1}{2} \\ (\underline{\gamma}_{\mathcal{L}}, \underline{\gamma}_{\mathcal{L}} - \epsilon), \epsilon \to 0 & if \ \frac{\theta^1_M(\bar{w}^*,0)}{\bar{\theta}} \leq \frac{\theta^2_M(\bar{w}^*,0)-\theta^1_M(\bar{w}^*,0)}{\bar{\theta}} < \frac{1}{2} \\ (\underline{\gamma}_{\mathcal{O}}, \underline{\gamma}_{\mathcal{O}}) & if \ \frac{\theta^2_M(\bar{w}^*,0)-\theta^1_M(\bar{w}^*,0)}{\bar{\theta}} < \frac{\theta^1_M(\bar{w}^*,0)}{\bar{\theta}} \end{cases}$$

Proposition 2 has the following important corollary.

Corollary 1. *If*

$$\frac{\theta^1_M(\bar{w}^*,0)}{\bar{\theta}} \leq \frac{\theta^2_M(\bar{w}^*,0) - \theta^1_M(\bar{w}^*,0)}{\bar{\theta}} < \frac{1}{2},$$

municipality D opens the SPRAR center and receives strictly more transfers than municipality P.

5 Empirical evidence

5.1 Empirical strategy

We use a sharp regression discontinuity design (RDD) to test the effect of different electoral systems on SPRAR fiscal grants and on the probability of opening a SPRAR refugee center. We exploit an institutional feature introduced by the Italian government in 1993 (see Law 81/1993), such that municipalities with less than 15,000 inhabitants elect the mayor and the municipal council using a single round plurality electoral system, while cities above the threshold use a dual ballot electoral system. This institutional set up represents an interesting framework already exploited in the literature (Bordignon et al., 2016), which enables us to estimate the following specification:

$$Y_{it} = \rho_0 + \rho_1 POP^*_{it} + \beta_0 DB_{it} + \beta_1 DB_{it} * POP^*_{it} + \varepsilon_{it} \quad (4)$$

where the dependent variable Y_{it} captures the SPRAR fiscal grants and the probability of opening a SPRAR refugee center for municipality i at time t. The treatment variable DB_{it} is equal to 1 for municipalities with more than 15,000 inhabitants (i.e., dual ballot municipalities) and 0 for towns below the threshold (i.e., WTA cities). The running variable POP^*_{it}, which we obtain subtracting 15,000 from the population of the municipalities measured from the most recent census (i.e., either the 2001 or the 2011 Censuses), determines the assignment to treatment. At the threshold $POP^*_{it} = 0$ the electoral system sharply changes from a plurality to a dual ballot electoral system.

Following Gelman and Imbens (2018), we estimate the coefficient of interest β_0 by local linear regression (LLR). In practice, we run equation 4 on the subsample $POP^*_{it} \in [-h, +h]$ around the 15,000 inhabitants threshold, where the optimal bandwidth h is obtained using the Calonico, Cattaneo and Titiunik (2014) and Calonico, Cattaneo and Farrell (2018) MSE-optimal bandwidth selector. Besides, we repeat the analysis using the entire bandwidth between 10,000 and 20,000 inhabitants and either a quadratic, cubic or quartic polynomial function. In all the tables, we report conventional RDD estimates with a conventional variance estimator (Conventional), bias-corrected RDD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RDD estimates with a robust variance estimator (Robust). We cluster standard errors at the local labor area level.

5.2 Data, descriptive statistics, and balance tests

Our dataset contains information on municipal socio-economic features, on the characteristics of the elected mayors, and on SPRAR fiscal grants and refugee centers opened by Italian towns. The source of the data on municipal socio-economic characteristics is the Italian

Statistical Office (Istat), and more specifically, 1991, 2001, and 2011 Censuses. Data on the balance sheets of Italian municipalities comes from the Aida PA dataset (Bureau van Dijk). The Italian Home Office provides data on the characteristics of the elected mayors. Finally, Gamalerio (2019) built the dataset on SPRAR fiscal grants and refugee centers, collecting the data from different sources such as the Italian Home Office, the official webpage of the SPRAR program, and the Briguglio archive, an online archive with documents about migration. Table A1 describes the variables in the dataset and the sources used.

The initial dataset comes from Gamalerio (2019), and it contains data at the municipality and tender levels for all Italian towns and SPRAR tenders over the period 2005-2017. For this paper, we keep towns between 10,000 and 20,000 inhabitants. This choice enables us to work with a balanced sample around the 15,000 inhabitants threshold and to stay away from other population thresholds at which other policies change (Bordignon et al., 2016). We also drop municipalities from three Special Statute Regions (i.e., Trentino-Alto Adige, Valle d'Aosta, and Friuli-Venezia Giulia), because electoral rules are different in these regions. Relative to the time dimension, we collapse the data at the municipality and electoral term levels, and we keep electoral terms from 2010 up to 2017.[22] We exclude all terms before 2010 because, up to that year, municipalities with more than 15,000 inhabitants could nominate a CEO (Direttore Generale) at the top of the administrative bureaucracy (Cipullo, 2019), a factor that represents a potential confounding policy. Finally, we keep electoral mandates for which we do not have missing values in the dependent variables and the main municipal and mayoral characteristics used as covariates in the empirical analysis.[23]

[22]For the Special Region Sicilia, we drop electoral mandates outside the period 2011-2016, during which different electoral rules applied. For the Special Region Sardegna, we keep electoral terms from 2012, because before 2012 the electoral laws were different compared to the other Regions.

[23]The municipal population from the 2001 Census assigned a specific electoral law to the municipalities for elections up to 2012, the population from the 2011 Census assigned the electoral law for elections since 2013. For a few observations at the electoral term-tender level, for which the election's date falls between the initial and the final date of a tender, and for which the population used is different from the one of the previous election, it is not clear whether to use the 2001 or 2011 Census to calculate the running variable POP^*_{it} and the treatment DB_{it}. Therefore, before collapsing the data at the electoral mandate level, we have

All these choices leave us with a sample of 740 observations and 585 municipalities. Table A2 reports the descriptive statistics of all the variables in the sample. As indicated by Proposition 2 and Corollary 1 in the theoretical model, our analysis must distinguish between municipalities in which employees (l) are the biggest group, but not the absolute majority, and municipalities in which either employees (l) represent more than 50% of the adult population or individuals out of the labor force (o) are the biggest group. In the first group of municipalities, municipalities P and D submit different bids, while in the second group, they submit the same bid. To distinguish between these two groups of municipalities, we use data from the 2011 Census, which enables us to calculate the share of employers (e), employees (l), and out of the labor force (o) over the municipal adult population composed by natives and EU nationals (i.e., those who can vote at municipal elections).[24] As we can see from Panel B of Table A2, 89% of the observations in our sample enter in the first group, which we call Corollary 1 sample, and the remaining observations form the other group, labeled here No Corollary 1 sample. Panel B of Table A2 reports also the shares of employers (e), employees (l), and out of the labor force (o) in our data.[25]

Finally, the empirical strategy used in this paper relies on two main identification assumptions. First, pre-treatment municipal characteristics need to behave continuously across the 15,000 inhabitants threshold. We test this assumption in Tables A3, which shows that municipal characteristics taken from the 2001 Census do not change discontinuously across the 15,000 inhabitants threshold. We repeat the same balance tests for Corollary 1 and No Corollary 1 samples in Tables A4 and A5. Second, there must not be sorting of municipalities

dropped these observations to deal with this measurement error issue. Keeping these cases leaves the results quantitatively and qualitatively unchanged.

[24]More in detail, the share of employees (l) is equal to the sum of employees and unemployed individuals actively looking for a job divided by the municipal adult population. The share of out of the labor force (o) is the sum of pensioners and inactive persons who do not look for a job divided by the municipal adult population. In the employers (e) group, we find entrepreneurs and self-employed individuals.

[25]The shares of employers (e), employees (l), and out of the labor force (o) do not sum up to 1 in all municipalities. The reason is that we do not consider in our analysis students and homeworkers, occupations for which our theoretical model does not have clear and unambiguous predictions relative to their preferences over migration policies. For this reason, we exclude them from the analysis.

across the 15,000 inhabitants threshold, i.e., municipalities must not be able to manipulate their population numbers to self-select on their preferred side of the threshold. The manipulation tests (Cattaneo, Jansson, and Ma, 2018) in Figure A1 show that this is not the case, given that the density of the running variable in the three different samples does not change discontinuously at the 15,000 inhabitants threshold.

5.3 Main results

We divide the main results of our empirical analysis in three parts. First, we present descriptive statistics and results from survey data, which provide evidence on the shares over the total municipal population and on the policy preferences of the three occupations described in the theoretical model. Second, we describe the main results of the RDD analysis. Third, we show that the main results hold even if we keep only the subsample of municipalities that submit a bid for a SPRAR center with a positive probability during an electoral term, as described in the theoretical model.

5.3.1 Survey evidence

We present here evidence that supports some of the claims made in the theoretical model. First, in the model, we assume that employers (e) are never the relative majority in the society, and that out of the labor force (o) and employees (l) are the most prominent groups (Assumption 1.a). Table A2, Panel B, verifies this claim: employers are on average 11% of the adult population, while out of the labor force and employees are 31% and 42%, respectively. Besides, employers in our sample reach a maximum value equal to 23% of the adult population, so they never represent the relative majority. Second, the main result of the theoretical model (i.e., Proposition 2 and Corollary 1) indicates that municipalities P and D submit different bids only when employees (l) are the biggest group, but they are not the absolute majority. In the other cases, municipalities P and D submit the same bid. Panel B

of Table A2 shows that 89% of the observations in our sample satisfy the conditions under which municipalities P and D submit different bids.

Third, in the model, the bids by the different political parties are ranked in a way such that $\underline{\gamma}_{\mathcal{E}} < \underline{\gamma}_{\mathcal{O}} < \underline{\gamma}_{\mathcal{L}}$. These inequalities suggest that employers (e) and individuals out of the labor force (o) are more in favor of receiving refugees and asylum seekers, compared to employees (l). In contrast, they should have different preferences over other policies (for example, taxation, as shown in Austen-Smith, 2000).

We verify these claims using survey data from the organization ITANES. More specifically, we use the survey realized in occasion of the 2013 national elections, through which ITANES interviewed a nationally representative sample of 1508 individuals across Italy. The advantage of this survey is that it allows us to precisely identify the occupation of all individuals in the survey, making it possible to split the interviewed persons in the three groups.[26] Besides, the survey contains questions relative to the policy preferences and the voting behavior during the 2013 elections. We analyze how the opinions of individuals in different occupations vary over six dependent variables. First, *close border*, a dummy variable measuring openness towards migrants across the three different occupations. The variable is constructed from the question "Is Italy receiving too many immigrants?", whose possible answers range from 1 (= we receive too many immigrants) to 7 (= we could host more immigrants). *Close border* takes value 1 if the individual provided an answer in between 1 and 3, it is equal 0 if the individual replied with a neutral (i.e., a value of 4) or favorable position (values 5-7). Second, *taxes*, a dummy variable equal to 1 if the respondent thinks that taxation is the first issue in Italy. We investigate the opinion on this issue because taxes and fiscal policies are relevant issues at the municipal level. Third, *jobs*, a dummy variable equal to 1 if the respondent thinks that finding a job is the first issue in Italy. We analyze the views on this issue because the vast majority of the respondents indicated finding a job as the most crucial issue in Italy

[26] In the survey analysis, we also control for a dummy variable equal to 1 for all other residual occupations.

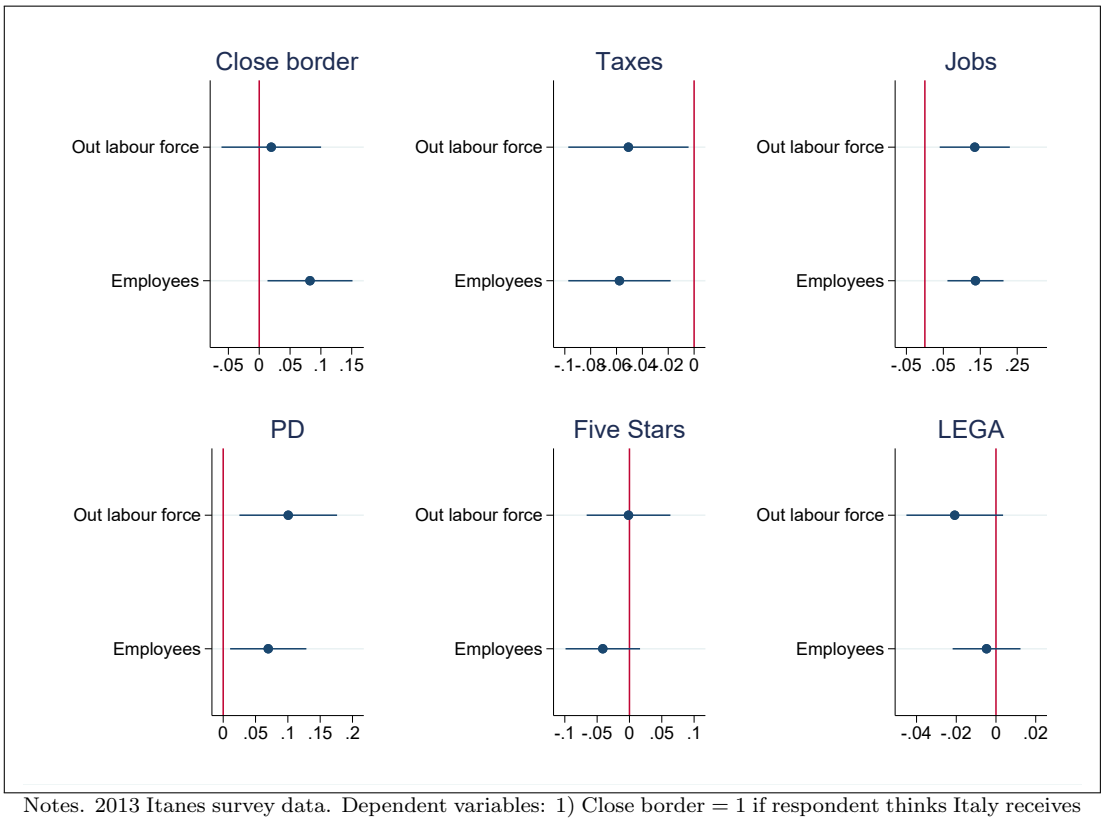
in 2013. Finally, we study three dummy variables equal to 1 if the interviewed person voted for one of the actual three main Italian political parties (i.e., Partito Democratico, Five Stars Movement, and Lega) during the 2013 elections.

We regress these six dependent variables on the *out of the labor force* dummy variable (= 1 if the respondent is a pensioner or inactive) and on the dummy variable for employees (= 1 if the respondent is an employee or an unemployed actively looking for a job). We leave the dummy variable for employers as the default category. Besides, we control for a series of individual characteristics such as professional background, education, gender, age, home ownership, religiosity, marital status, and the number of children. The results of these regressions in Table 2 and in Figure 1 seem to support the claims made in our theoretical model. First, the coefficients in column (1) show that employees (l) are those more likely to think that Italy was receiving too many migrants in 2013, while employers (e) and individuals out of the labor force (o) do not present different opinion on this issue. Second, while employers (e) and individuals out of the labor force (o) express similar views over migration, they tend to have different opinions over *taxes* and *jobs* (columns 2-3). They also vote differently for Partito Democratico (column 4) and Lega (column 6), even though this last coefficient is not statistically different from zero.

Finally, within the out of the labor force (o) population, a group of particular interest is pensioners, since for them both fiscal policy and immigration policy affect the sustainability of their incomes. Data from the European Social Survey (ESS) for Italy shows that age and anti-immigration sentiments are negatively correlated, confirming our assumptions (see Table 3). In the Italian system today's pensions are paid for in part with the contributions made by today workers; hence pensions are the safer and the more generous the larger is the number of employed people, native or immigrant.[27]

[27]The finding extends beyond Italy: Calahorrano (2013) studies the relationship between aging and individual attitudes towards immigrants using German survey data, and Schotte and Winkler (2018) use instead the European Social Survey, to both conclude that controlling for cohort effects the negative correlation between age and pro-immigration positions found without such controls becomes a positive correlation in

Figure 1: Survey data: policies preferences and voting by occupation



Notes. 2013 Itanes survey data. Dependent variables: 1) Close border = 1 if respondent thinks Italy receives too many migrants; 2) Taxes = 1 if respondent thinks taxes first issue in Italy; 3) Jobs = 1 if respondent thinks jobs first issue in Italy; 4) pd = 1 if respondent votes for Partito Democratico at 2013 elections; 5) five stars = 1 if respondent votes for Movimento Cinque Stelle at 2013 elections; 6) lega = 1 if respondent votes for Lega Nord at 2013 elections. Independent variables: 1) out labour force = 1 for pensioners and inactive persons; 2) employees = 1 for employees and unemployed; 3) default category are self-employed individuals.

Table 2: Survey data: policies preferences and voting by occupation

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Close Border	Taxes	Jobs	pd	five stars	lega
Out labour force	0.020	-0.051*	0.135**	0.101**	-0.001	-0.021
	(0.049)	(0.028)	(0.058)	(0.046)	(0.039)	(0.015)
Employees	0.082**	-0.058**	0.137***	0.070*	-0.041	-0.005
	(0.042)	(0.024)	(0.046)	(0.036)	(0.035)	(0.010)
Observations	1,508	1,508	1,508	1,508	1,508	1,508
Control variables	Yes	Yes	Yes	Yes	Yes	Yes

Notes. 2013 Itanes survey data. Dependent variables: 1) Close border = 1 if respondent thinks Italy receives too many migrants; 2) Taxes = 1 if respondent thinks taxes first issue in Italy; 3) Jobs = 1 if respondent thinks jobs first issue in Italy; 4) pd = 1 if respondent votes for Partito Democratico at 2013 elections; 5) five stars = 1 if respondent votes for Movimento Cinque Stelle at 2013 elections; 6) lega = 1 if respondent votes for Lega Nord at 2013 elections. Independent variables: 1) out labour force = 1 for pensioners and inactive persons; 2) employees = 1 for employees and unemployed; 3) default category are self-employed individuals. Control variables in the regressions: dummy for residual professions, dummy variables for educaton, dummy for gender, age, dummy variables work situation, dummy variables house ownership, dummy variables for religiosity, dummy variables for marital status, number of children. Standard errors robust to heteroskedasticity in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

5.3.2 RDD analysis

Proposition 2 in the theoretical model indicates that municipalities P and D submit different bids when employees (l) are the biggest group, but they are not the absolute majority. Under these circumstances, the relevant party for the bid is party $\mathcal{O}$ (representing individuals out of the labor force) in municipality D, and party $\mathcal{L}$ (representing employees) in municipality P. In this situation, given that $\mathcal{O}$ submits a lower bid, municipality D should win the auction, receive the SPRAR grants and open the SPRAR center (Corollary 1). In the other two cases indicated by Proposition 2, municipalities P and D submit the same bid and have the same probability of receiving the SPRAR grants and opening the SPRAR center.

We test the predictions in Proposition 2 and Corollary 1 using the Italian municipalities set up, in which municipalities with more than 15,000 inhabitants elect the mayor using a dual ballot electoral system (municipality D), and municipalities with less than 15,000 inhabitants use a first-round plurality system (municipality P). We exploit the 15,000 in-

most of the countries in the sample. That means that the same cohort becomes more pro-immigration when aging. The only exceptions are some countries like the UK, Czech Republic, Ireland, Israel and Slovakia, in which the correlation remains negative even after controlling for cohort effects.

Table 3: ESS: attitudes towards migrants in Italy

Dependent variables	(1) Few immigrants from non-EU	(2) Few immigrants from different race and	(3) Few immigrants from same race	(4) Immigrants make country worse
ln(age)	-0.800*	-1.764***	-1.383***	-1.791
	(0.393)	(0.364)	(0.279)	(1.464)
ln(education)	0.342	0.355*	-0.208	-0.679
	(0.230)	(0.195)	(0.182)	(0.901)
TV total	-0.0118	0.0145	-0.0221	-0.129
	(0.0261)	(0.0270)	(0.0235)	(0.0918)
TV politics	0.136*	0.0534	0.128**	0.481
	(0.0772)	(0.0835)	(0.0505)	(0.430)
Right wing	0.0458	0.122**	0.0828***	0.263***
	(0.0369)	(0.0472)	(0.0270)	(0.0917)
Regional population	-9.27e-08*	-9.92e-10	-8.64e-09	1.63e-08
	(4.99e-08)	(5.14e-08)	(3.31e-08)	(1.48e-07)
Economic insecurity	0.688*	0.726*	0.605	1.662
	(0.399)	(0.397)	(0.415)	(1.408)
Constant	4.380***	7.290***	7.230***	11.66**
	(1.487)	(1.299)	(1.129)	(4.520)
Observations	107	107	107	107
Cohort FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES

Notes: The table shows pseudo-panel fixed effect regressions of attitudes towards immigrants on log(age) and controls. Dependent variables: column 1 = respondent wants less non-EU immigrants; column 2 = respondent wants less immigrants from different race and ethnicity from majority; column 3 = respondent wants less immigrants from same race and ethnicity from majority; column 4 = respondent think immigrants make country worse. Control variables: ln(education) = log of education; TV total = hours per week people devote to watching TV in general; TV politics = hours per week people devote to watching politics in TV; Right wing = right wing political orientation; Regional population = population at regional level; Economic insecurity = index of economic insecurity. Robust standard errors clustered at the cohort level are shown in parenthesis, *** p<0.01, ** p<0.05, * p<0.1. For more information see Guiso et al. (2020).

habitants threshold to run model (4) by RDD and to estimate the coefficient of interest β_0. We implement the analysis using three samples. First, the entire sample of municipalities between 10,000 and 20,000 inhabitants. Second, municipalities satisfying the conditions of Corollary 1 (Corollary 1 sample). Third, municipalities for which Corollary 1 does not hold. By Proposition 2, these municipalities should submit the same bid (No Corollary 1 sample).

We use two dependent variables in our analysis, which we collapse at municipal and electoral term levels. First, we test whether municipalities across the 15,000 inhabitants threshold receive a different average amount of SPRAR fiscal grants over a specific electoral

term. Second, we study whether municipalities just below and just above the threshold have a different probability of opening a SPRAR refugee center. The second dependent variable in the original dataset is a dummy variable equal to 1 for municipalities that submit a bid for a SPRAR center during a specific tender and that win that tender (i.e., municipalities that get the SPRAR fiscal grants and open the center). To measure the probability of opening a SPRAR center during an electoral term, we collapse this dummy variable at municipal and electoral term levels. If the predictions of the theoretical model are correct, we should find that municipalities just above the threshold should receive more SPRAR grants and should be more likely to open a SPRAR refugee center, compared to municipalities just below the threshold.[28]

For both dependent variables, we run four specifications. First, we estimate β_0 by local linear regression (LLR), using the Calonico, Cattaneo and Titiunik (2014) and Calonico, Cattaneo and Farrell (2018) MSE-optimal bandwidth selector. This specification is our preferred one, given that, as the literature suggests, LLR represents the more reliable way of implementing an RDD analysis (Gelman and Imbens, 2018). As indicated in Panel B of Table A2, 89% of the observations in our sample enters in the Corollary 1 sample. Hence, we can run model (4) by LLR on the No Corollary 1 sample only using a small number of observations. To verify that the results found using this sample are not due to the small number of observations, we also repeat the analysis using the entire bandwidth between 10,000 and 20,000 inhabitants and either a quadratic, a cubic or a quartic polynomial function. Using this larger bandwidth also allows us to add control variables for the No Corollary 1 sample, which is not possible in the in the LLR analysis due to the small number of observations. For all the four specifications, we report conventional RDD estimates with a conventional

[28]Some municipalities open SPRAR centers together, through municipalities' unions, which are local institutions introduced by groups of towns that want to provide local public goods jointly. For these situations, we have assigned the dependent variables' values to all municipalities in the union. When possible, we have verified which towns within the union effectively opened the SPRAR center, using sources from the web. For these cases, we have assigned the dependent variables' values only to the municipalities that effectively received the refugees and the grants.

variance estimator (Conventional), bias-corrected RDD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RDD estimates with a robust variance estimator (Robust).

We report the main results of the empirical analysis in Table 4 and Figure 2, in which we run the LLR model without control variables and using the Calonico, Cattaneo, and Titiunik (2014) and Calonico, Cattaneo and Farrell (2018) MSE-optimal bandwidth selector. We report the results obtained with all four specifications in Tables A6-A7. In Table 5, we repeat the LLR analysis adding municipal and mayoral characteristics, which enable us to exclude the potential influence of local characteristics and the quality of the local political class (Barone and De Blasio, 2013; Galasso and Nannicini, 2017; De Benedetto, 2018). We include the results obtained with all four specifications and adding municipal and mayoral characteristics in Tables A8-A9.

The results of the LLR analysis in Table 4 and Figure 2 confirm the predictions of our theoretical model. Municipalities that elect the mayor using a dual ballot electoral system receive more SPRAR grants and are more likely to open a SPRAR refugee center. The effect on both dependent variables is positive and statistically significant for both the entire sample of municipalities and for towns in the Corollary 1 sample. Tables A6-A7 show that these results are robust across different specifications. For No Corollary 1 sample, the coefficients are not statistically different from zero. Besides, as shown in Tables A6-A7, the coefficients are never statistically significant and present signs and magnitudes that vary across different specifications.

The results obtained through the LLR analysis for Corollary 1 sample indicate that municipalities with a dual ballot electoral system receive SPRAR specific fiscal grants that are, on average, 11 euros per capita higher compared to the grants received by municipalities just below 15,000 inhabitants. The probability of opening a SPRAR refugee center is approximately 15 percentage points higher for municipalities just above the threshold compared

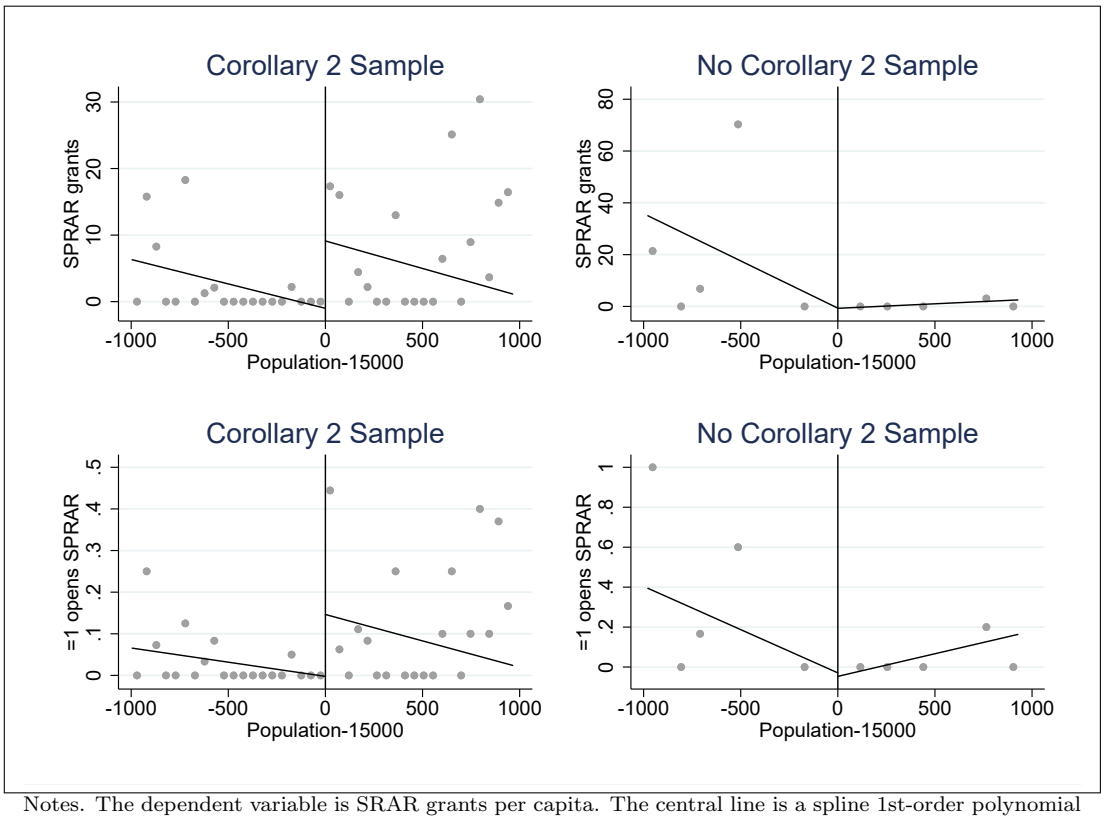
to municipalities below the threshold. Finally, the results do not change when we control for municipal and mayoral covariates, as shown in Table 5 for the LLR analysis and Tables A8-A9 for all four specifications.

Table 4: The effect on SPRAR grants and refugee centre: plurality vs dual ballot

	(1)	(2)	(3)
Polynomial	Linear	Linear	Linear
Covariates	No	No	No
Sample	Entire sample	Corollary 1 sample	No Corollary 1 sample
Panel A: SPRAR grants per capita			
Conventional	8.347*	9.922**	-17.702
	(4.438)	(4.690)	(15.512)
Bias-corrected	9.841**	11.427**	-19.725
	(4.438)	(4.690)	(15.512)
Robust	9.841**	11.427**	-19.725
	(5.001)	(5.169)	(16.859)
Observations	740	661	79
BW Loc. Poly. (h)	1383	1370	1966
Effective Observations	191	172	20
Panel B: =1 open SPRAR centre			
Conventional	0.122*	0.135*	-0.018
	(0.071)	(0.074)	(0.105)
Bias-corrected	0.139**	0.153**	0.030
	(0.071)	(0.074)	(0.105)
Robust	0.139*	0.153*	0.030
	(0.082)	(0.085)	(0.147)
Observations	740	661	79
BW Loc. Poly. (h)	1380	1412	1167
Effective Observations	190	179	16

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable: grants linked to SPRAR programme in Panel A; outcome variable = 1 if mayor opens SPRAR refugee centre in Panel B. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Figure 2: The effect on SPRAR grants: plurality vs dual ballot



Notes. The dependent variable is SRAR grants per capita. The central line is a spline 1st-order polynomial in the normalized population size (i.e., population minus 15,000).

Table 5: The effect on SPRAR grants and refugee centre: plurality vs dual ballot
Controlling for municipal and mayoral characteristics

	(1)	(2)	(3)	(4)
Polynomial	Linear	Linear	Linear	Linear
Covariates	Yes	Yes	Yes	Yes
Sample	Entire sample	Corollary 1 sample	Entire sample	Corollary 1 sample
Dependent variables	SPRAR grants per capita		=1 open SPRAR centre	
Conventional	9.093**	10.456**	0.120*	0.136**
	(4.260)	(4.614)	(0.065)	(0.069)
Bias-corrected	10.300**	11.692**	0.132**	0.148**
	(4.260)	(4.614)	(0.065)	(0.069)
Robust	10.300**	11.692**	0.132*	0.148*
	(4.994)	(5.423)	(0.076)	(0.081)
Observations	740	661	740	661
BW Loc. Poly. (h)	1252	1176	1139	1182
Effective Observations	178	154	167	154

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable: grants linked to SPRAR programme in columns 1-2; outcome variable = 1 if mayor opens SPRAR refugee centre in columns 3-4. Municipal covariates: % children, % elderly, % graduate, area, % foreign, altitude, longitude, latitude, north, special region. Mayoral covariates: age, female, postgraduate, center-left, center-right, five stars movement. Table A1 describes the variables used. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

5.3.3 Municipalities that submit a SPRAR bid only

We deal here with a small discrepancy between the empirical analysis and the theoretical model. More specifically, in the theoretical model, municipalities always submit a bid, while in the data, there are municipalities that never submit a bid. We could interpret the group of municipalities that never submit a bid as municipalities in which the relevant political party would submit a bid to cover the expenses of the SPRAR that would be too high to have any chance of winning the tender. For this reason, these municipalities do not participate in any tender during an electoral term. As a robustness check, we exploit the fact that some municipalities that submit a bid do not receive the SPRAR grants and do not open a SPRAR center, and we repeat here the analysis keeping only the subsample of municipalities

that submit a bid with a positive probability during an electoral term, as described in the theoretical model. As in the analysis above, the dependent variables are the average SPRAR grants and the probability of successfully opening a SPRAR center over an electoral term. We report the results of this analysis in Table 6, which further confirms the predictions of our theoretical model.

Table 6: The effect on SPRAR grants and refugee centre: plurality vs dual ballot
Municipalities that submit a SPRAR bid only

	(1)	(2)	(3)	(4)
Polynomial	Linear	Linear	Linear	Linear
Covariates	Yes	Yes	Yes	Yes
Sample	Entire sample	Corollary 1 sample	Entire sample	Corollary 1 sample
Dependent variables	SPRAR grants per capita		=1 open SPRAR centre	
Conventional	27.406***	66.882***	0.358**	0.251
	(6.510)	(7.480)	(0.162)	(0.167)
Bias-corrected	37.884***	85.073***	0.480***	0.368**
	(6.510)	(7.480)	(0.162)	(0.167)
Robust	37.884***	85.073***	0.480**	0.368*
	(12.065)	(12.353)	(0.215)	(0.221)
Observations	165	142	165	142
BW Loc. Poly. (h)	982.8	1150	1055	1132
Effective Observations	34	36	36	36

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities that apply for a SPRAR centre in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable: grants linked to SPRAR programme in columns 1-2; outcome variable = 1 if mayor opens SPRAR refugee centre in columns 3-4. Municipal covariates: % children, % elderly, % graduate, area, % foreign, altitude, longitude, latitude, north, special region. Mayoral covariates: age, female, postgraduate, center-left, center-right, five stars movement. Table A1 describes the variables used. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

5.4 Robustness checks

In this subsection, we describe the results of a series of robustness checks. First, we show how the RDD coefficients change if we use different bandwidths. Specifically, Figure A2 provides

evidence of the "bias-variance trade-off" (Cattaneo, Idrobo, Titiunik, 2019) that usually characterizes RDD estimates: when we consider smaller bandwidths, both the coefficients and the standard errors become bigger. The evidence in Figure A2 is reassuring, as it indicates that our results are robust to the choice of the local bandwidths around the 15,000 inhabitants threshold. Second, in Figure A3, we show that our results are not due to random chances. More in detail, we run a series of RDD regressions at 500 fake thresholds below the 15,000 inhabitants cut-off and 500 fake thresholds above the cut-off (i.e., thresholds between 13,500 and 14,000 inhabitants and between 16,000 and 16,500 inhabitants). Figure A3 reports the c.d.f. of the t-statistics from these regressions. Most of the t-statistics lie in the interval (-2,2). This result suggests that it is not possible to find statistically significant coefficients at these fake thresholds.

Third, recent literature has studied the differential impact of the dual ballot and plurality electoral systems on a series of outcomes, such as fiscal grants (Bracco and Brugnoli, 2012; Ferraresi et al., 2015; Cipullo, 2019), electoral turnout (Barone and De Blasio, 2013), and the number of candidates (Bordignon et al., 2016). In Tables A10-A11, we repeat the analysis described in Tables A6-A7 controlling for these factors. We control for the number of candidates and the electoral turnout during the municipal elections in our sample. We also add two covariates to control for the potential confounding role of the total amount of grants received by a municipality from higher levels of government. First, we control for the average total fiscal grants per capita received by the municipality over the period 2000-2010. Second, we control for the revenues per capita that a municipality received in 1992 through a property tax (Imposta Straordinaria sugli Immobili, ISI), which are a proxy for fiscal autonomy and local taxation (Bordignon et al., 2020), and which are potentially negatively correlated with fiscal grants from higher levels of government. Adding these variables allows us to control for the role of fiscal grants received by a municipality both during a period in which electoral systems were already different across the 15,000 inhabitants threshold (i.e., 2000-2010) and

during a period in which the electoral system was the same (i.e., before 1993). Finally, to exclude the potential role of other types of refugee centers managed by the Italian Central Government, we also add two dummy variables for the first level centers (CPSA, CDA, and CARA) and centers for extraordinary reception (CAS and ENA).[29] Tables A10-A11 show that controlling for all these factors does not change the results of our analysis.

Finally, Bordignon et al. (2016) show that fiscal policy volatility is lower in dual ballot municipalities than in plurality ones. More specifically, they find that the time and cross-sectional variances of the municipal business property tax is lower in dual ballot municipalities. They interpret this result as a consequence of the smaller influence of extreme political parties under dual ballot. To rule out this alternative mechanism, we run model 4 using the time and cross-sectional variance of SPRAR grants and of the probability of opening a SPRAR center as dependent variables. If the mechanism indicated by Bordignon et al. (2016) was driving our results, we should observe a lower variance of these dependent variables in dual ballot municipalities. The results in Table A12 exclude this possibility, given that the dual ballot system has a positive or no effect on the two dependent variables.[30]

[29]The Italian Home Office provides information about the location of CPSA, CDA, and CARA. Openpolis has reconstructed the data on the presence of CAS and ENA centers at the municipal level, using sources such as the National database of public contracts (Bdncp, Banca dati nazionale dei contratti pubblici) of the National Anti-Corruption Authority (ANAC, Autorit Nazionale Anti-Corruzione), and the webpages of the provincial offices of the Italian Home Office ("Prefetture").

[30]We could explain this positive effect in two ways. First, it may be a mechanical consequence of the fact that municipalities above the threshold receive more SPRAR fiscal grants and have a higher probability of opening a SPRAR refugee center. Second, it could be due to a more significant influence of extreme political parties on the refugee policy in dual ballot municipalities, contrary to what Bordignon et al. (2016) found for the property tax. If true, the second explanation would be consistent with our theoretical model, especially for the Corollary 1 sample, in which two parties decide over the refugee policy in dual ballot municipalities. In contrast, in towns below the threshold, only one political party takes the decision. In any case, the mechanism described by Bordignon et al. (2016) does not seem in place for refugee policies.

6 Concluding remarks

In summary, this paper aims to contribute to the literature on the factors that affect attitudes toward migrants and immigration policies. As mentioned above, the existing literature has studied economic and noneconomic factors that drive attitudes towards migration. Besides, the literature has provided evidence on how these individual attitudes can influence immigration policies.

However, the potential influence of (electoral) institutions on immigration policies has been understudied. Russo and Salsano (2019) and Morelli and Negri (2019) are two recent exceptions. The first paper develops a theoretical model explaining how plurality electoral systems may lead to more open immigration policies than proportional systems. They also provide empirical evidence from OECD countries, which shows that the correlation between plurality systems and per-capita immigration inflows is positive and statistically significant. In contrast, Morelli and Negri (2019) show that the ordering becomes the opposite, namely a proportional system is more open than plurality, if one takes into account also fiscal policy. As taxation modifies individuals' occupational choices, it changes the balance of power across different groups. More precisely, higher tax rates make employment less attractive for low-skilled individuals who leave the labor force to enjoy the increased benefits generated by higher levels of redistribution. Since proportional representation is associated with higher levels of taxation (Austen-Smith, 2000), individuals out of the labor force tend to be a relatively more powerful group under this system. As these individuals are less opposed to immigration than employees, proportional representation systems result in more openness.

Our paper differs from those papers in that we theoretically study dual ballot vs. plurality systems. We also provide empirical evidence from one country based on a quasi-natural experiment, which allows us to estimate a causal effect. We test the predictions of our theoretical model using data from Italian municipalities and RDD. The use of data from

one single country enables us to avoid the usual drawbacks of cross-countries studies. RDD allows us to estimate a causal effect of electoral systems on immigration policies. Hence, the data and methodology reinforce the internal validity of our analysis. However, the cost is the potential limitation in terms of external validity. This potential limitation calls for further investigation, through both cross-countries analysis and the use of (local) data from other countries. Further research would enable scholars to understand whether our model's intuitions could be generalized to other contexts.

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Appendix A1

Table A1: Variables definition and sources

Variable	Definition	Sources
	SPRAR and refugee reception variables	
SPRAR grants	SPRAR related fiscal grants per capita	Gamalerio (2019)
SPRAR center	=1 if municipality opens SPRAR center	
First level reception	=1 for municipalities that hosted a first level reception center	Italian Home Office
CAS/ENA	=1 for municipalities that hosted a CAS/ENA refugee centers	Openpolis
	Mayoral characteristics	
Postgraduate	= 1 if mayor has a college degree	Italian Home
Age	age of mayor	Office (*anagrafe amministratori locali)*
Female	= 1 if mayor is a woman	
Center-left	= 1 if mayor is from center-left coalition	
Center-right	= 1 if mayor is from center-right coalition	
Five stars movement	= 1 if mayor is from five stars movement	
Independent	= 1 if mayor is from local independent party (Civic Lists)	
# candidates	# candidates at municipal elections	
	Municipal characteristics	
% foreign	% foreign population living in the municipality	Italian Statistical Office (ISTAT)
Longitude	longitude of the municipality	2001 Census
Latitude	latitude of the municipality	
Altitude	altitude of the municipality	
Area	municipal area in square kilometers	
% graduate	% graduate municipal population	
# firms	# firms per capita at municipal level	
% children	% municipal population < 14	
% elderly	% municipal population > 65	
Population	municipal population at the beginning of electoral term	
North	=1 for municipalities in the north Regions	
Special region	=1 for municipalities in Special Statute Regions	
Turnout	electoral turnout = ratio between valid ballots casted during the first round and adult municipal population	Italian Home Office (*archivio elezioni)*
# candidates	number of candidates during municipal elections	
	Shares occupations	
% out of labor force	pensioners and inactives as a share adult population	Italian Statistical Office (ISTAT)
% employees	employees and unemployed as a share adult population	2011 Census
% employers	employers as a share adult population	
	Balance sheets data	
Total transfers	current + capital per capita transfers from higher levels of government	Aida Pa (Bureau van Dijk)
Isi revenues	per capita muncipal revenues from ISI property tax	Bordignon et al. (2020)

Table A2: Descriptive statistics

	(1) Obs.	(2) Mean	(3) St. dev.	(4) min	(5) max
Panel A: Sprar dependent variables					
Sprar grants	740	6.93	17.64	0.00	138
Sprar centre	740	0.08	0.19	0	1
Panel B: Shares occupations					
% out labor force	740	0.31	0.04	0.19	0.43
% employees	740	0.42	0.04	0.28	0.55
% employers	740	0.11	0.03	0.05	0.23
Corollary 1 sample	740	0.89	0.31	0	1
Panel C: Municipal characteristics					
% children	740	0.15	0.03	0.08	0.25
% elderly	740	0.17	0.04	0.06	0.29
% graduate	740	0.05	0.02	0.01	0.16
Area	740	52.41	54.65	2.00	305
% foreign	740	0.02	0.02	0.00	0.11
Altitude	740	167.71	170.78	1.00	1049
Longitude	740	12.41	2.80	7.35	18.36
Latitude	740	43.08	2.46	36.73	46.14
North	740	0.48	0.50	0	1
# firms	740	951	350	291	2807
Special Region	740	0.06	0.23	0	1
Isi revenues	717	62.35	31.89	4.68	211.83
Total transfers	736	302.15	178.26	104.62	2460
Turnout	681	0.69	0.08	0.47	0.92
# candidates	681	4.19	1.38	2.00	10.00
CAS/ENA	740	0.25	0.43	0.00	1.00
First level reception	740	0.00	0.05	0.00	1.00
Panel D: Mayoral characteristics					
Age	740	50.54	9.24	28.00	73.50
Female	740	0.12	0.32	0	1
Postgraduate	740	0.60	0.49	0	1
Centre-left	740	0.25	0.43	0	1
Centre-right	740	0.17	0.38	0	1
Five stars movement	740	0.01	0.07	0	1
Independent	740	0.57	0.49	0	1

Notes. Municipalities between 10,000 and 15,000 inhabitants. Electoral terms between 2010 and 2017.

Table A3: Balance tests on municipal covariates

Dependent Variables	(1) Children	(2) Elderly	(3) Graduate	(4) Area	(5) Foreign Population	(6) Altitude	(7) Longitude	(8) Latitude	(9) North	(10) # firms	(11) Special Region
Conventional	0.008	0.006	-0.005	17.081	0.001	-4.758	1.144	-1.228	-0.169	-50.084	0.043
	(0.009)	(0.014)	(0.005)	(18.558)	(0.004)	(48.792)	(0.978)	(0.762)	(0.154)	(85.260)	(0.069)
Bias-corrected	0.009	0.008	-0.005	19.237	0.001	-13.588	1.436	-1.362*	-0.205	-51.649	0.056
	(0.009)	(0.014)	(0.005)	(18.558)	(0.004)	(48.792)	(0.978)	(0.762)	(0.154)	(85.260)	(0.069)
Robust	0.009	0.008	-0.005	19.237	0.001	-13.588	1.436	-1.362	-0.205	-51.649	0.056
	(0.011)	(0.016)	(0.006)	(22.183)	(0.005)	(57.086)	(1.122)	(0.883)	(0.179)	(98.784)	(0.082)
Observations	740	740	740	740	740	740	740	740	740	740	740
BW Loc. Poly. (h)	1646	1390	1675	1978	1410	1196	1896	1513	1741	1552	1762
Effective Observations	226	191	230	281	196	172	263	202	240	209	241

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimatesc with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variables: share of children (<=14), share elderly (>=65), share of graduate, area (sq km), share of foreign population, altitude, longitude, latitude, dummy for north regions, number of firms, dummy for special regions. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Balance tests on municipal covariates
Corollary 1 sample

Dependent Variables	(1) Children	(2) Elderly	(3) Graduate	(4) Area	(5) Foreign Population	(6) Altitude	(7) Longitude	(8) Latitude	(9) North	(10) # firms	(11) Special Region
Conventional	0.009	0.001	-0.005	8.329	0.002	7.662	1.339	-1.156	-0.150	-57.611	0.010
	(0.010)	(0.012)	(0.006)	(21.074)	(0.004)	(52.127)	(1.007)	(0.780)	(0.161)	(85.624)	(0.050)
Bias-corrected	0.011	0.001	-0.006	8.369	0.002	0.017	1.649	-1.242	-0.191	-66.732	0.021
	(0.010)	(0.012)	(0.006)	(21.074)	(0.004)	(52.127)	(1.007)	(0.780)	(0.161)	(85.624)	(0.050)
Robust	0.011	0.001	-0.006	8.369	0.002	0.017	1.649	-1.242	-0.191	-66.732	0.021
	(0.011)	(0.014)	(0.006)	(24.675)	(0.005)	(60.758)	(1.150)	(0.906)	(0.186)	(98.530)	(0.060)
Observations	661	661	661	661	661	661	661	661	661	661	661
BW Loc. Poly. (h)	1622	1700	1550	1697	1347	1198	1799	1497	1723	1679	1631
Effective Observations	206	213	191	213	170	156	231	184	217	213	207

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimatesc with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variables: share of children (<=14), share elderly (>=65), share of graduate, area (sq km), share of foreign population, altitude, longitude, latitude, dummy for north regions, number of firms, dummy for special regions. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Balance tests on municipal covariates
No Corollary 1 sample

Dependent Variables	(1) Children	(2) Elderly	(3) Graduate	(4) Area	(5) Foreign Population	(6) Altitude	(7) Longitude	(8) Latitude	(9) North	(10) # firms	(11) Special Region
Conventional	-0.029	0.027	0.006	105.657*	-0.006	-100.306	-0.714	-1.842	-0.384	-124.089	0.469
	(0.042)	(0.079)	(0.009)	(54.829)	(0.014)	(90.134)	(2.427)	(2.406)	(0.477)	(180.892)	(0.401)
Bias-corrected	-0.048	0.048	0.010	113.886**	-0.008	-131.966	-1.018	-1.702	-0.307	-153.191	0.548
	(0.042)	(0.079)	(0.009)	(54.829)	(0.014)	(90.134)	(2.427)	(2.406)	(0.477)	(180.892)	(0.401)
Robust	-0.048	0.048	0.010	113.886*	-0.008	-131.966	-1.018	-1.702	-0.307	-153.191	0.548
	(0.048)	(0.090)	(0.010)	(63.462)	(0.015)	(94.964)	(3.106)	(2.945)	(0.551)	(220.715)	(0.501)
Observations	79	79	79	79	79	79	79	79	79	79	79
BW Loc. Poly. (h)	940.5	1586	1539	1485	1831	1646	1469	1766	1644	1288	1762
Effective Observations	11	18	18	17	19	18	17	19	18	16	19

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimatesc with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variables: share of children (<=14), share elderly (>=65), share of graduate, area (sq km), share of foreign population, altitude, longitude, latitude, dummy for north regions, number of firms, dummy for special regions. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A6: The effect on SPRAR grants: plurality vs dual ballot

	(1)	(2)	(3)	(4)
Dependent Variable	SPRAR grants per capita			
Polynomial	Linear	Quadratic	Cubic	Quartic
Covariates	No	No	No	No
Panel A: entire sample				
Conventional	8.347*	1.445	8.608*	11.911**
	(4.438)	(3.614)	(4.735)	(5.917)
Bias-corrected	9.841**	8.608**	11.911**	12.420**
	(4.438)	(3.614)	(4.735)	(5.917)
Robust	9.841**	8.608*	11.911**	12.420*
	(5.001)	(4.726)	(5.905)	(7.103)
Observations	740	740	740	740
BW Loc. Poly. (h)	1383	5000	5000	5000
Effective Observations	191	740	740	740
Panel B: Corollary 1 sample				
Conventional	9.922**	2.918	10.471**	14.057**
	(4.690)	(3.491)	(4.659)	(6.240)
Bias-corrected	11.427**	10.471***	14.057***	13.369**
	(4.690)	(3.491)	(4.659)	(6.240)
Robust	11.427**	10.471**	14.057**	13.369*
	(5.169)	(4.649)	(6.227)	(7.408)
Observations	661	661	661	661
BW Loc. Poly. (h)	1370	5000	5000	5000
Effective Observations	172	661	661	661
Panel C: No Corollary 1 sample				
Conventional	-17.702	-15.592	-13.674	-11.661
	(15.512)	(12.868)	(17.198)	(14.762)
Bias-corrected	-19.725	-13.674	-11.661	1.032
	(15.512)	(12.868)	(17.198)	(14.762)
Robust	-19.725	-13.674	-11.661	1.032
	(16.859)	(16.991)	(14.581)	(14.954)
Observations	79	79	79	79
BW Loc. Poly. (h)	1966	5000	5000	5000
Effective Observations	20	79	79	79

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable: grants linked to SPRAR programme. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A7: The effect on SPRAR refugee centre: plurality vs dual ballot

	(1)	(2)	(3)	(4)
Dependent Variable	=1 open SPRAR centre			
Polynomial	Linear	Quadratic	Cubic	Quartic
Covariates	No	No	No	No
Panel A: entire sample				
Conventional	0.122*	0.056	0.123*	0.161*
	(0.071)	(0.050)	(0.069)	(0.095)
Bias-corrected	0.139**	0.123**	0.161**	0.178*
	(0.071)	(0.050)	(0.069)	(0.095)
Robust	0.139*	0.123*	0.161*	0.178
	(0.082)	(0.069)	(0.095)	(0.119)
Observations	740	740	740	740
BW Loc. Poly. (h)	1380	5000	5000	5000
Effective Observations	190	740	740	740
Panel B: Corollary 1 sample				
Conventional	0.135*	0.075	0.149**	0.182*
	(0.074)	(0.051)	(0.071)	(0.100)
Bias-corrected	0.153**	0.149***	0.182**	0.178*
	(0.074)	(0.051)	(0.071)	(0.100)
Robust	0.153*	0.149**	0.182*	0.178
	(0.085)	(0.071)	(0.099)	(0.123)
Observations	661	661	661	661
BW Loc. Poly. (h)	1412	5000	5000	5000
Effective Observations	179	661	661	661
Panel C: No Corollary 1 sample				
Conventional	-0.018	-0.190	-0.183	-0.075
	(0.105)	(0.150)	(0.177)	(0.200)
Bias-corrected	0.030	-0.183	-0.075	0.145
	(0.105)	(0.150)	(0.177)	(0.200)
Robust	0.030	-0.183	-0.075	0.145
	(0.147)	(0.175)	(0.197)	(0.193)
Observations	79	79	79	79
BW Loc. Poly. (h)	1167	5000	5000	5000
Effective Observations	16	79	79	79

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable = 1 if mayor opens SPRAR refugee centre. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A8: The effect on SPRAR grants: plurality vs dual ballot
Controlling for municipal and mayoral characteristics

	(1)	(2)	(3)	(4)
Dependent Variable	SPRAR grants per capita			
Polynomial	Linear	Quadratic	Cubic	Quartic
Covariates	Yes	Yes	Yes	Yes
Panel A: entire sample				
Conventional	9.093**	1.962	9.887**	12.294**
	(4.260)	(3.288)	(4.345)	(5.573)
Bias-corrected	10.300**	9.683***	12.278***	12.445**
	(4.260)	(3.288)	(4.345)	(5.573)
Robust	10.300**	9.683**	12.278**	12.445*
	(4.994)	(4.353)	(5.561)	(6.669)
Observations	740	740	740	740
BW Loc. Poly. (h)	1252	5000	5000	5000
Effective Observations	178	740	740	740
Panel B: Corollary 1 sample				
Conventional	10.456**	3.449	11.965***	14.936**
	(4.614)	(3.363)	(4.450)	(5.934)
Bias-corrected	11.692**	11.735***	14.933***	14.351**
	(4.614)	(3.363)	(4.450)	(5.934)
Robust	11.692**	11.735***	14.933**	14.351**
	(5.423)	(4.460)	(5.922)	(6.983)
Observations	661	661	661	661
BW Loc. Poly. (h)	1176	5000	5000	5000
Effective Observations	154	661	661	661
Panel C: No Corollary 1 sample				
Conventional	-	-8.248	-4.586	-9.381
		(9.755)	(13.033)	(14.982)
Bias-corrected	-	-5.584	-8.104	-14.287
		(9.755)	(13.033)	(14.982)
Robust	-	-5.584	-8.104	-14.287
		(12.917)	(14.577)	(14.318)
Observations	-	79	79	79
BW Loc. Poly. (h)	-	5000	5000	5000
Effective Observations	-	79	79	79

Notes. Estimated coefficients capture the effect of a dual ballot, compared to a plurality. Estimates: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable: grants linked to SPRAR programme. Municipal covariates: % children, % elderly, % graduate, area, % foreign, altitude, longitude, latitude, north, special region. Mayoral covariates: age, female, postgraduate, center-left, center-right, five stars movement. Table A1 describes the variables used. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A9: The effect on SPRAR refugee centre: plurality vs dual ballot
Controlling for municipal and mayoral characteristics

	(1)	(2)	(3)	(4)
Dependent Variable		=1 open SPRAR centre		
Polynomial	Linear	Quadratic	Cubic	Quartic
Covariates	Yes	Yes	Yes	Yes
Panel A: entire sample				
Conventional	0.120*	0.061	0.134**	0.161**
	(0.065)	(0.043)	(0.058)	(0.080)
Bias-corrected	0.132**	0.132***	0.161***	0.170**
	(0.065)	(0.043)	(0.058)	(0.080)
Robust	0.132*	0.132**	0.161**	0.170*
	(0.076)	(0.058)	(0.080)	(0.101)
Observations	740	740	740	740
BW Loc. Poly. (h)	1139	5000	5000	5000
Effective Observations	167	740	740	740
Panel B: Corollary 1 sample				
Conventional	0.136**	0.080*	0.159***	0.183**
	(0.069)	(0.045)	(0.062)	(0.086)
Bias-corrected	0.148**	0.157***	0.183***	0.182**
	(0.069)	(0.045)	(0.062)	(0.086)
Robust	0.148*	0.157**	0.183**	0.182*
	(0.081)	(0.062)	(0.086)	(0.105)
Observations	661	661	661	661
BW Loc. Poly. (h)	1182	5000	5000	5000
Effective Observations	154	661	661	661
Panel C: No Corollary 1 sample				
Conventional	-	-0.164*	-0.044	-0.065
		(0.095)	(0.107)	(0.164)
Bias-corrected	-	-0.078	-0.057	-0.089
		(0.095)	(0.107)	(0.164)
Robust	-	-0.078	-0.057	-0.089
		(0.108)	(0.159)	(0.158)
Observations	-	79	79	79
BW Loc. Poly. (h)	-	5000	5000	5000
Effective Observations	-	79	79	79

Notes. Estimated coefficients capture effect of a dual ballot, compared to a plurality. Estimates: conventional RD estimates with conventional variance estimator (Conventional), bias-corrected RD estimates with conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with robust variance estimator are reported (Robust). The sample includes municipalities in period 2010-2017 within optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome = 1 if mayor opens SPRAR centre. Municipal covariates: % children, % elderly, % graduate, area, % foreign, altitude, longitude, latitude, north, special region. Mayoral covariates: age, female, postgraduate, center-left, center-right, five stars movement. Table A1 describes the variables used. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A10: The effect on SPRAR grants: plurality vs dual ballot
Controlling for other mechanisms

	(1)	(2)	(3)	(4)
Dependent Variable	SPRAR grants per capita			
Polynomial	Linear	Quadratic	Cubic	Quartic
Covariates	Yes	Yes	Yes	Yes
Panel A: entire sample				
Conventional	9.679**	1.293	8.649*	12.730**
	(4.717)	(3.755)	(4.916)	(6.057)
Bias-corrected	11.396**	8.514**	12.745***	14.172**
	(4.717)	(3.755)	(4.916)	(6.057)
Robust	11.396**	8.514*	12.745**	14.172**
	(5.484)	(4.900)	(6.041)	(7.086)
Observations	655	655	655	655
BW Loc. Poly. (h)	1140	5000	5000	5000
Effective Observations	151	655	655	655
Panel B: Corollary 1 sample				
Conventional	11.327**	3.213	11.375**	14.641**
	(5.038)	(3.716)	(4.927)	(6.439)
Bias-corrected	12.728**	11.209***	14.662***	14.184**
	(5.038)	(3.716)	(4.927)	(6.439)
Robust	12.728**	11.209**	14.662**	14.184*
	(5.847)	(4.903)	(6.425)	(7.464)
Observations	588	588	588	588
BW Loc. Poly. (h)	1142	5000	5000	5000
Effective Observations	138	588	588	588
Panel C: No Corollary 1 sample				
Conventional	-	-8.031	-9.812	2.979
		(12.035)	(16.365)	(16.155)
Bias-corrected	-	-9.704	2.116	22.676
		(12.035)	(16.365)	(16.155)
Robust	-	-9.704	2.116	22.676
		(16.010)	(15.720)	(16.418))
Observations	-	67	67	67
BW Loc. Poly. (h)	-	5000	5000	5000
Effective Observations	-	67	67	67

Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable: grants linked to SPRAR programme. Covariates: isi revenues, total transfers, turnout, # candidates, CAS/ENA, first level reception. Table A1 describes the variables used. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A11: The effect on SPRAR refugee centre: plurality vs dual ballot
Controlling for other mechanisms

	(1)	(2)	(3)	(4)
Dependent Variable		=1 open SPRAR centre		
Polynomial	Linear	Quadratic	Cubic	Quartic
Covariates	Yes	Yes	Yes	Yes
Panel A: entire sample				
Conventional	0.136*	0.050	0.113*	0.166*
	(0.071)	(0.049)	(0.066)	(0.088)
Bias-corrected	0.158**	0.112**	0.167**	0.202**
	(0.071)	(0.049)	(0.066)	(0.088)
Robust	0.158*	0.112*	0.167*	0.202*
	(0.082)	(0.066)	(0.088)	(0.108)
Observations	655	655	655	655
BW Loc. Poly. (h)	1183	5000	5000	5000
Effective Observations	154	655	655	655
Panel B: Corollary 1 sample				
Conventional	0.151**	0.075	0.148**	0.188**
	(0.074)	(0.050)	(0.069)	(0.094)
Bias-corrected	0.170**	0.147***	0.188***	0.201**
	(0.074)	(0.050)	(0.069)	(0.094)
Robust	0.170**	0.147**	0.188**	0.201*
	(0.086)	(0.069)	(0.093)	(0.113)
Observations	588	588	588	588
BW Loc. Poly. (h)	1270	5000	5000	5000
Effective Observations	147	588	588	588
Panel C: No Corollary 1 sample				
Conventional	-	-0.073	-0.053	0.183
		(0.120)	(0.160)	(0.212)
Bias-corrected	-	-0.054	0.169	0.316
		(0.120)	(0.160)	(0.212)
Robust	-	-0.054	0.169	0.316
		(0.155)	(0.207)	(0.210)
Observations	-	67	67	67
BW Loc. Poly. (h)	-	5000	5000	5000
Effective Observations	-	67	67	67

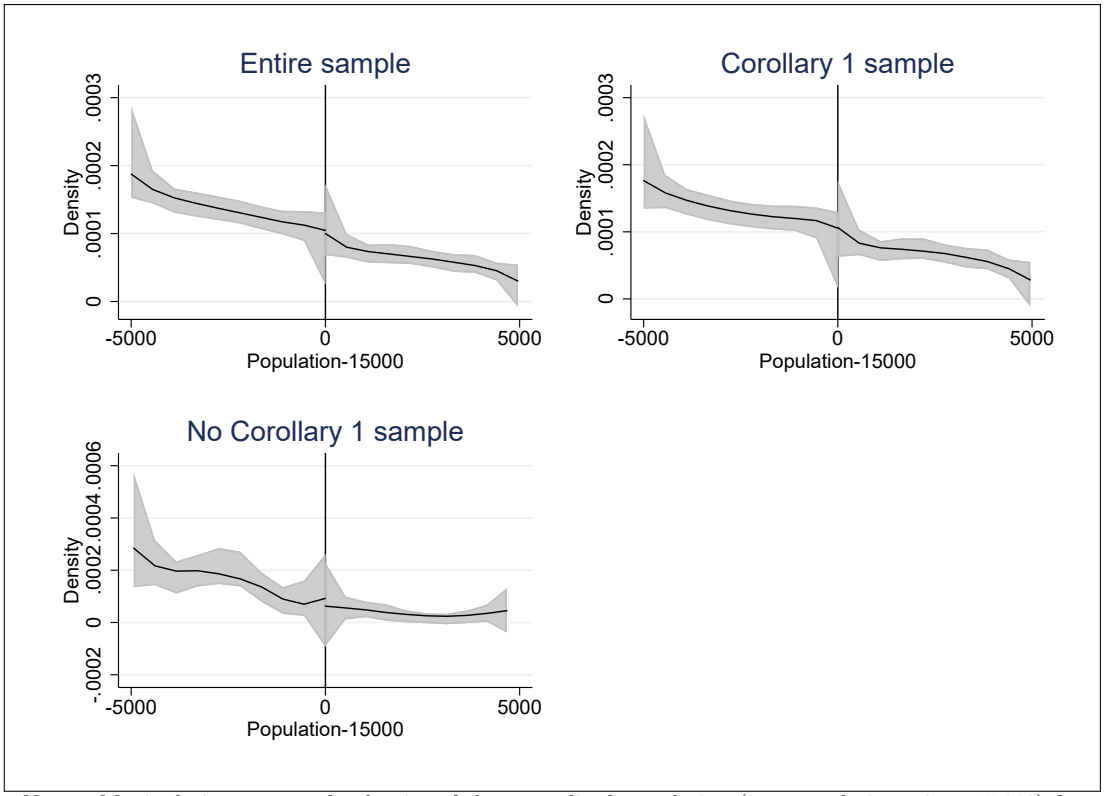
Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimates with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes municipalities in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. Outcome variable = 1 if mayor opens SPRAR refugee centre. Covariates: isi revenues, total transfers, turnout, # candidates, CAS/ENA, first level reception. Table A1 describes the variables used. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table A12: Alternative stories: the effect on policy volatility

	(1)	(2)	(3)	(4)
Dependent	Time variance	Time variance	Cross-sectional variance	Cross-sectional variance
Variables	SPRAR grants	SPRAR centre	SPRAR grants	SPRAR centre
Conventional	1,410.5	0.064	1,991.5	0.118**
	(1,031.8)	(0.040)	(1,401.9)	(0.053)
Bias-corrected	1,707.5*	0.071*	2,494.6*	0.144***
	(1,031.8)	(0.040)	(1,401.9)	(0.053)
Robust	1,707.5	0.071	2,494.6	0.144**
	(1,179.4)	(0.047)	(1,542.8)	(0.061)
Observations	676	676	97	97
BW Loc. Poly. (h)	1343	1314	960.9	992.3
Effective Observations	172	169	19	19

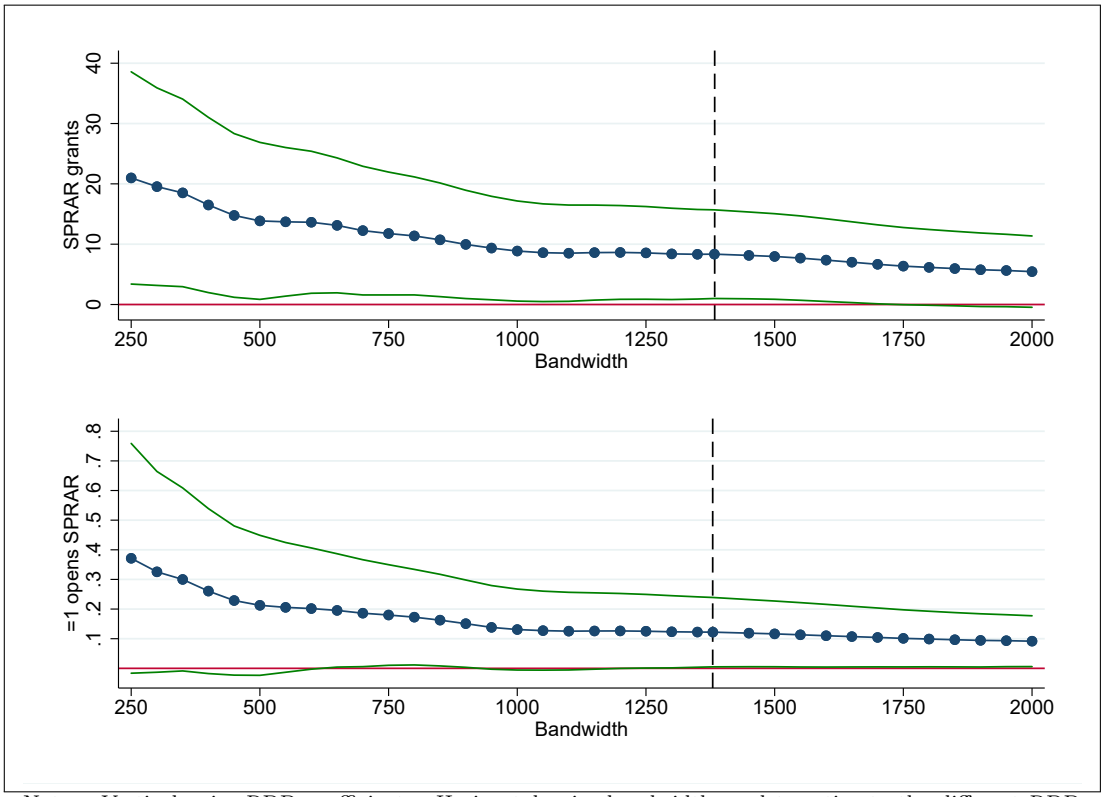
Notes. The estimated coefficients capture the effect of a dual ballot electoral system, compared to a plurality electoral system. Estimates reported: conventional RD estimates with a conventional variance estimator (Conventional), bias-corrected RD estimatesc with a conventional variance estimator (Bias-corrected), and bias-corrected RD estimates with a robust variance estimator are reported (Robust). The sample includes all municipalities from ordinary statute regions in the period 2010-2017 within the optimal bandwidth selected by one common MSE-optimal bandwidth selector (Calonico et al., 2017) around the cut-off of 15,000 residents. The dependent variables are: 1) in Columns 1-2, the variance of the the dependent variables over time within municipalities and electoral terms; 2) in Column 3-4, the variance of the dependent variables across municipalities averaged over bins of 100 inhabitants. Standard errors clustered at local labour area level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Figure A1: Manipulation test on the density of running variable



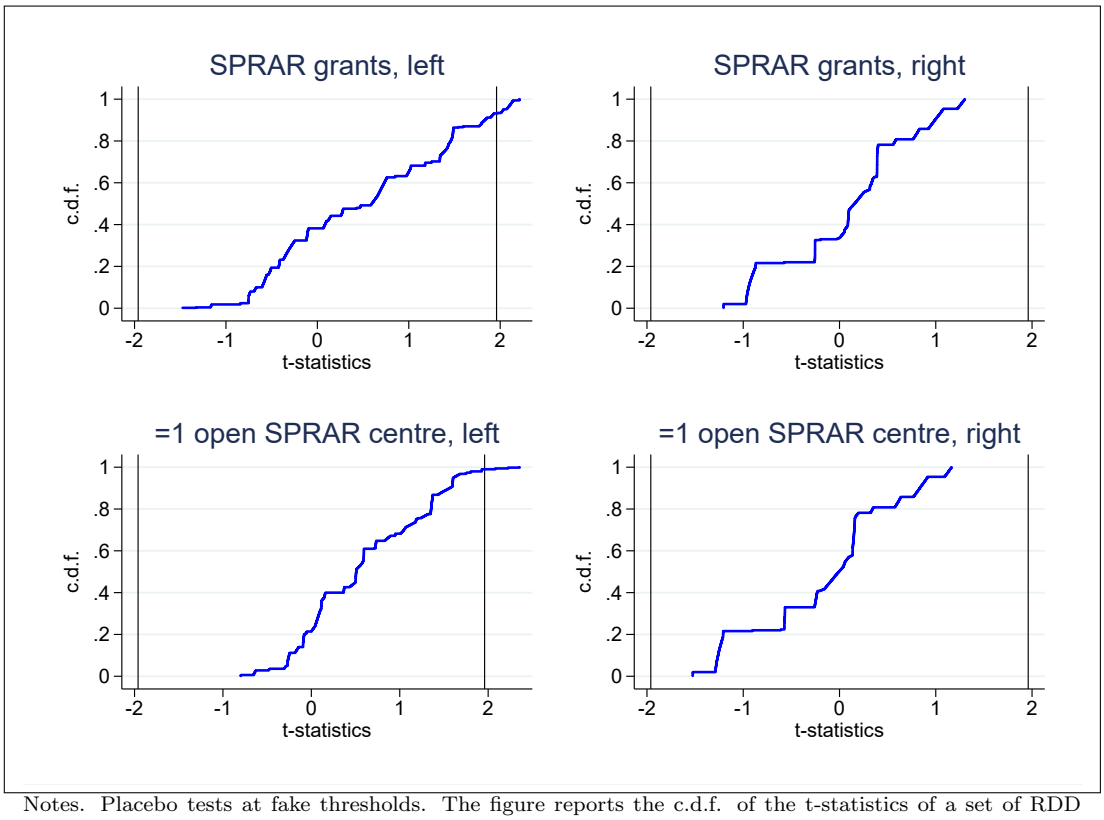
Notes. Manipulation test on the density of the normalized population (i.e., population minus 15,000) for the entire sample, the Corollary 1 sample, and the No Corollary 1 sample. The manipulation test uses the procedure developed by Cattaneo, Jansson, and Ma (2018). T-statistics: the conventional test statistics for the entire sample is -0.17, while the robust one is 1.09; the conventional test statistics for the Corollary 1 sample is 0.04, while the robust one is 1.11; the conventional test statistics for the No Corollary 1 sample is -0.36, while the robust one is -0.07.

Figure A2: RDD estimates with different bandwidths



Notes. Vertical axis: RDD coefficients. Horizontal axis: bandwidth used to estimate the different RDD coefficients. The dashed vertical line represents the CCT optimal bandwidth. The central blue line represents the estimates. The green lateral lines capture the 90% confidence interval.

Figure A3: Placebo tests at fake thresholds



Notes. Placebo tests at fake thresholds. The figure reports the c.d.f. of the t-statistics of a set of RDD regressions at 500 fake thresholds below and 500 fake thresholds above the 15,000 inhabitants threshold (i.e. thresholds from 13,500 to 14,000, and from 16,000 to 16,500). The RDD model is run using a local linear regression. The vertical lines indicate t-statistics of -2 and 2. The top graphs report the c.d.f. of the t-statistics for SPRAR grants (respectively to the left and to the right of the 15,000 threshold). The bottom graphs report the c.d.f. of the t-statistics for the SPRAR centre dependent variable (respectively to the left and to the right of the 15,000 threshold).

Appendix A2

Proof of Proposition 1. The proof closely follows the proof of Proposition 1 in AS. We begin by showing that, at any sorting equilibrium, the set of types must be partitioned as described in the statement of the proposition. Suppose w_M is a sorting equilibrium in municipality M. Since $x_d(w_M, Q_M, \alpha, \gamma, \theta)$ is constant in θ,

$$\frac{\partial x_l(w_M, Q_M, \alpha, \gamma, \theta)}{\partial \theta} = (1-\tau)[\pi'(\theta)\theta w + \pi(\theta)w] > 0$$

and $x_l(w_M, Q_M, \alpha, \gamma, 0) = b(Q_M, \alpha, \gamma) - c < x_d(w_M, Q_M, \alpha, \gamma, 0)$, there must exist a type $\theta_M^1 = \theta_M^1(w_M, Q_M)$ such that $x_l(w_M, Q_M, \alpha, \gamma, \theta_M^1) = x_d(w_M, Q_M, \alpha, \gamma, 0)$. This type is uniquely defined by (1).

Now notice that $x_l(w_M, Q_M, \alpha, \gamma, \theta) \geq x_e(w_M, Q_M, \alpha, \gamma, \theta)$ if and only if

$$(1-\tau)y_e(L, w_M, \theta) + b(Q_M, \alpha, \gamma) - c \geq (1-\tau)\theta w_M + b(Q_M, \alpha, \gamma) - c$$

These are the incomes of an employer or employee, respectively, as considered by AS. Then, by Proposition 1 in the paper, there exists a unique type $\theta_M^2 = \theta_M^2(w_M, Q_M)$ such that $x_l(w_M, Q_M, \alpha, \gamma, \theta_M^2) \leq x_e(w_M, Q_M, \alpha, \gamma, \theta_M^2)$, for all $\theta \leq \theta_M^2$ and $x_l(w_M, Q_M, \alpha, \gamma, \theta_M^2) \geq x_e(w_M, Q_M, \alpha, \gamma, \theta_M^2)$ for all $\theta \geq \theta_M^2$.[1] This type is implicitly defined by (2). Finally, as in AS, the fact that w_M is a sorting equilibrium implies that $\theta_M^1 < \theta_M^2$. Then,

$$\begin{aligned}
\lambda_o(w_M^*, Q_M) &= (0, \theta_M^1) \\
\lambda_l(w_M^*, Q_M) &= [\theta_M^1, \theta_M^2] \\
\lambda_e(w_M^*, Q_M) &= (\theta_M^2, \bar{\theta}).
\end{aligned}$$

as stated in the proposition. We now show that a sorting equilibrium exists and is unique.

[1] AS, proof of Proposition 1, page 1258.

For any wage level w, expected labor demand now can be written as

$$\int_{\theta_M^2}^{\bar{\theta}} \pi(\theta) L(w,\theta) \left[\frac{1}{\bar{\theta}} + Q_M h(\theta)\right] d\theta.$$

Differentiating with respect to w we get

$$\int_{\theta_M^2}^{\bar{\theta}} \pi(\theta) L_w(w,\theta) \left[\frac{1}{\bar{\theta}} + Q_M h(\theta)\right] d\theta - \pi(\theta_M^2) L(w,\theta_M^2) \left[\frac{1}{\bar{\theta}} + Q_M h(\theta_M^2)\right] \frac{\partial \theta_M^2}{\partial w}$$

As proven in AS,[2]

$$\frac{\partial \theta_M^2}{\partial w} = \frac{L(w,\theta_M^2) + \theta_M^2}{F_\theta(L(w,\theta_M^2),\theta_M^2) - w} > 0$$

and, since $L_w(w,\theta) < 0$, expected labor demand must be decreasing in w. Consider labor supply now. Using the results above, this can be written as

$$\int_{\theta_M^1}^{\theta_M^2} \pi(\theta)\theta \left[\frac{1}{\bar{\theta}} + Q_M h(\theta)\right] \theta.$$

As before, differentiating with respect to w gives

$$\pi(\theta_M^2)\theta_M^2 \left[\frac{1}{\bar{\theta}} + Q_M h(\theta_M^2)\right] \frac{\partial \theta_M^2}{\partial w} - \pi(\theta_M^1)\theta_M^1 \left[\frac{1}{\bar{\theta}} + Q_M h(\theta_M^1)\right] \frac{\partial \theta_M^1}{\partial w} \tag{5}$$

Using (1), we get

$$\frac{\partial \theta_M^1}{\partial w} = -\frac{\pi(\theta_M^1)\theta_M^1}{w[\pi'(\theta_M^1)\theta_M^1 + \pi(\theta_M^1)]} < 0,$$

which in turn implies that (5) is positive. Then, expected labor supply is increasing in the wage rate. Finally, since $\lim_{w\to 0} \theta_M^1 = \bar{\theta}$, $\lim_{w\to\infty} \theta_M^1 = 0$ and $\lim_{w\to\infty} \theta_M^2 = \bar{\theta}$, expected labor demand must be larger than expected labor supply at $w = 0$, while the contrary must hold for w large enough. Then, the two functions must cross at one unique sorting equilibrium wage w_M^*.

[2] AS, Proof of Proposition 1, page 1258.

□

Proof of Lemma 2. The wage rates $w_M^*(0)$ and $w_M^*(q)$ are implicitly defined by

$$\int_{\theta_M^2(w_M^*(0),0)}^{\bar{\theta}} \pi(\theta) L(w_M^*(0),\theta) \frac{1}{\bar{\theta}} d\theta - \int_{\theta_M^1(w_M^*(0),0)}^{\theta_M^2(w_M^*(0),0)} \pi(\theta)\theta \frac{1}{\bar{\theta}} d\theta = 0$$

and

$$\int_{\theta_M^2(w_M^*(q),q)}^{\bar{\theta}} \pi(\theta) L(w_M^*(q),\theta) \left[\frac{1}{\bar{\theta}} + qh(\theta)\right] d\theta - \int_{\theta_M^1(w_M^*(q),q)}^{\theta_M^2(w_M^*(q),q)} \pi(\theta)\theta \left[\frac{1}{\bar{\theta}} + qh(\theta)\right] d\theta = 0$$

respectively. Taking the difference between the two equations and rearranging terms, we get

$$\begin{aligned}\left[\int_{\theta_M^1(w_M^*(q),q)}^{\theta_M^2(w_M^*(q),q)} \pi(\theta)\theta q h(\theta) d\theta - \int_{\theta_M^2(w_M^*(q),q)}^{\bar{\theta}} \pi(\theta) L(w_M^*(q),\theta) q h(\theta) d\theta\right] \\ + \frac{1}{\bar{\theta}} \left[\int_{\theta_M^2(w_M^*(0),0)}^{\bar{\theta}} \pi(\theta) L(w_M^*(0),\theta) d\theta - \int_{\theta_M^2(w_M^*(q),q)}^{\bar{\theta}} \pi(\theta) L(w_M^*(q),\theta) d\theta\right] \\ - \frac{1}{\bar{\theta}} \left[\int_{\theta_M^1(w_M^*(0),0)}^{\theta_M^2(w_M^*(0),0)} \pi(\theta)\theta d\theta - \int_{\theta_M^1(w_M^*(q),q)}^{\theta_M^2(w_M^*(q),q)} \pi(\theta)\theta d\theta\right] = 0 \quad (6)\end{aligned}$$

Because of Assumption 1.b, the first term in square brackets is positive. By Lemma 1 and since employers' labour demand is a decreasing function of the wage rate, the second and third term in square brackets are a decreasing and increasing functions of w_M^*, respectively. If $w_M^*(q) > w_M^*(0)$, the second term would be positive and the third would be negative, leading to a contradiction.

□

Proof of Lemma 3. If the mayor of municipality M does not participate to the auction, the mayor of municipality M' wants to participate and bid the highest possible bid. But given this behavior, the mayor of municipality M prefers to participate too and submit a bid that is slightly below the one submitted by municipality M'. Then, in equilibrium, mayors always

submit a bid.

Suppose both elected mayors belong to party $\mathcal{P}$. If one mayor submits a bid $\gamma_M > \underline{\gamma}_{\mathcal{P}}$, the best response of the other is to submit a bid slightly below γ_M and win the auction for sure. Clearly, no mayor would submit a bid below $\underline{\gamma}_{\mathcal{P}}$, so the only equilibrium is one where $\gamma_M = \underline{\gamma}_{\mathcal{P}}$ for both mayors.

Suppose now that a mayor from party $\mathcal{P}$ is elected in municipality M and a mayor from party $\mathcal{P}' \neq \mathcal{P}$ is elected in municipality M'. Further, let $\underline{\gamma}_{\mathcal{P}} > \underline{\gamma}_{\mathcal{P}'}$. If $\gamma_M = \underline{\gamma}_{\mathcal{P}}$, then clearly the mayor in municipality M' wants to submit a bid that is as close as possible to $\underline{\gamma}_{\mathcal{P}}$, but still slightly lower. When $\gamma_{M'} = \underline{\gamma}_{\mathcal{P}} - \epsilon$, the mayor in municipality M will never underbid. Submitting any bid higher than $\underline{\gamma}_{\mathcal{P}}$ or not participating to the auction are as good as bidding $\underline{\gamma}_{\mathcal{P}}$. □

Proof of Proposition 2. To prove the proposition, it is enough to identify the winning mayors in each municipality. The result then follows from Lemma 3.

When the set of individuals aiming to become employees constitutes the absolute majority (first case in the proposition) party $\mathcal{L}$ wins the election in both municipalities.

If the set of individuals aiming to become employees only constitutes the relative majority in the country (second case in the proposition), party $\mathcal{L}$ will win in municipality M. In municipality D, party $\mathcal{L}$ will compete in a second round with one of the other two parties. Since $\underline{\gamma}_{\mathcal{E}} < \underline{\gamma}_{\mathcal{O}} < \underline{\gamma}_{\mathcal{L}}$, Lemma 3 implies that if either the candidate of party $\mathcal{O}$ or the one of party $\mathcal{E}$ are elected, municipality D will win the auction with a bid slightly below $\underline{\gamma}_{\mathcal{L}}$. If the candidate of party $\mathcal{L}$ wins, instead, then the two municipalities will win the auction with probability one-half. Then, parties $\mathcal{O}$ and $\mathcal{E}$ will always support each other in the second round.

Lastly, consider the last case in the proposition. Because of Assumption 1.a, party $\mathcal{D}$ must win the election in municipality P. In municipality D, two possible scenarios can occur. First, the set of individuals out of the labor force could constitute the absolute majority in

the population. In this case party $\mathcal{O}$ wins in municipality D too. In the second scenario, the set of individuals out of the labor force is only the relative majority. Then, party $\mathcal{O}$ competes in the second round with another party. If this party is $\mathcal{L}$, party $\mathcal{O}$ receives the support of party $\mathcal{E}$ and wins the election. This is a direct consequence of Lemma 3 as before. Suppose the other party competing in the second round is $\mathcal{E}$, instead. The winner of the election is the party that obtains the support of party $\mathcal{L}$. If $\mathcal{E}$ wins, Lemma 3 implies that municipality D will win the auction with a bid $\underline{\gamma}_{\mathcal{O}} - \epsilon < \underline{\gamma}_{\mathcal{L}}$. If $\mathcal{O}$ wins, then both submitted bids will be equal to $\underline{\gamma}_{\mathcal{O}}$ and each municipality will win with probability one-half. From the perspective of party $\mathcal{L}$, the second scenario leads to a smaller loss, so the party will support party $\mathcal{O}$. $\square$