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ORIGINAL PAPER

Electoral Discrimination Against Immigrant-Origin Candidates

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Abstract This article explores the Electoral Discrimination thesis, according to which voters tend to discriminate against minority candidates. The free-list PR system used in Swiss elections—which allows voters to cast negative preference votes against candidates they do not want to support—offers a unique opportunity to test this thesis. Specifically, we analyze the relationship between immigrant-origin candidates bearing non-Swiss names and the negative preference votes allocated by voters to single candidates. Using a novel research strategy, based on election data stemming from our analysis of real ballots cast in the 2014 local elections in the Canton of Zurich, the article shows that candidates with non-Swiss names incur a significant electoral penalty. The effects of Electoral Discrimination are stronger, however, among supporters of parties from the Right and Center-Right. Interestingly, candidates bearing non-Swiss but Western names do not fare better than candidates with names of non-Western origin. We argue that our results have important implications for the comparative literature interested in electoral systems and minority representation.

Keywords Electoral systems · Electoral behavior · Minority representation · Immigrant-origin minorities · Discrimination

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Introduction

An increasing number of individuals living in Western democracies are of immigrant origin (Eurostat 2011). While their participation in politics is on the rise, they are still largely underrepresented in elective office (see, e.g., Bloemraad 2013; Dancygier 2017; Ruedin 2013). Scholars have pointed to a number of obstacles that immigrant-origin candidates face when seeking office (Bird et al. 2010; Bloemraad 2013; Dancygier et al. 2015; Dancygier 2017). They may have fewer financial resources to invest in their electoral campaigns than other candidates; they often possess less social capital as well, which can result in less media coverage and more arduous access to political and economic networks. Party gatekeepers may also be less open to inviting politicians of immigrant origin to party conventions, or reluctant to place their names higher in position on ballots.

In this article we ask if the problem at the root of underrepresentation lies less with the number of immigrant-origin candidates willing to run for political office (and able to get on electoral lists) than with an unwillingness on the part of the electorate to vote for them. We call this phenomenon "Electoral Discrimination". According to the Electoral Discrimination thesis, a significant number of voters tend to discriminate against minority candidates. Such electoral behavior can result in a systematic (descriptive) underrepresentation of minorities—in this case, citizens of immigrant origin—in legislative bodies and thereby undermine the legitimacy of institutions and the quality of democratic decisions (Mansbridge 1999).

There is a great deal of empirical literature on Electoral Discrimination, albeit not always labeled as such.[1] This is especially the case in Canada (e.g., Black 2008; Black and Erickson 2006) and in the United States, where the focus is on discrimination against African-American and Hispanic/Latino candidates (e.g., Highton 2004; Moskowitz and Stroh 1994; Sigelman et al. 1995). It has grown considerably since the election of Barack Obama in 2008 (e.g., Barth et al. 2017; Petrow et al. 2017; Piston 2010; Soltas and Broockman 2017). Only in more recent years have scholars started analyzing the phenomenon in Western Europe (Brouard and Tiberj 2011; Dancygier 2017; Fisher et al. 2015; Street 2014; Thrasher et al. 2017).

But measuring discrimination is problematic. No method is without its pitfalls (Blank et al. 2004; Thrasher et al. 2017, pp. 414–417). In the sphere of electoral politics, researchers have tried different methods of inquiry, the most significant being: the use of aggregate election data (Dancygier 2014; Highton 2004; le Lohé 1993; Riggle et al. 1992; Saggar and Geddes 2000; Street 2014; Voss and Lublin 1996); experimental tests in which selected participants vote in hypothetical elections (Butler and Broockman 2011; Rosenberg et al. 1986); and pre-electoral or post-electoral surveys (Brouard and Tiberj 2011; Fisher et al. 2015; Petrow et al. 2017).

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[1] Street (2014), for example, speaks of "voter discrimination". In our view this term is confusing as it can mean both discrimination *by* voters and discrimination *against* voters. Thrasher et al. (2017) use the term "name discrimination". This is an accurate description of the phenomenon but it can be used also in non-electoral domains of discrimination (e.g., the labor market, housing).

Against this backdrop, the present article contributes to the literature by offering a new approach to measure Electoral Discrimination in real elections. In fact, for the purposes of this study, we were able to access and analyze *actual* ballots cast in the 2014 local elections in the Canton of Zurich, Switzerland. Given the unique feature of the Swiss electoral system that allows voters to cast *negative* preference votes (by crossing undesired candidates off their ballots), our dataset allows us to test the Electoral Discrimination thesis in a novel way. In contrast to electoral surveys, where researchers famously face (among other difficulties) the problem of social desirability bias, our approach allows us to assess the actual electoral behavior of real voters. And compared to experiments in a laboratory, the advantage of this approach is that our "subjects" are being observed in a real-world environment. These are, we believe, important advantages. The disadvantage, of course, is that we cannot know the characteristics of individual voters (apart from the party they support), nor the motives behind their choices.

To make best use of our unique dataset we (1) identified candidates with immigrant background according to their family names, based on an online database containing the surnames of all Swiss citizens prior to 1800 and up to 1962 (for a similar approach see Black 2008; Dancygier 2014; Street 2014; Thrasher et al. 2017). We then (2) examined the degree of Electoral Discrimination by estimating multilevel hierarchical models of the effect of candidates' names on negative preference votes cast against them.

Our results present strong evidence in support of the Electoral Discrimination thesis. Candidates with non-Swiss names receive, *ceteris paribus*, more negative preference votes than candidates with typical Swiss surnames. Interestingly, this finding concerns not only candidates whose names suggest non-Western origins, but also candidates whose names indicate origins in Western countries with (supposedly) benign connotations in the minds of Swiss citizens (see Hainmueller and Hangartner 2013). Furthermore, we show that the impact of a non-Swiss name is stronger when a candidate runs for a party from the Center-Right or the Right. Our findings are strikingly robust across a wide range of model specifications.

We proceed as follows. We first discuss the Swiss context for this study, with regard to the particularities of both Switzerland's immigrant-origin population and its electoral system. We then explain our measurement strategy and introduce the data and estimation method. In the following section we discuss the electoral performance of candidates with non-Swiss names. Our last section is dedicated to the impact of names on negative and positive preference votes. In the conclusion we discuss the implications of our results.

The Swiss Context

Immigrants and Their Political Inclusion

Switzerland provides an interesting context in which to explore the electoral success of immigrant-origin candidates given that, after Luxembourg, it has the second

highest percentage of foreign-born residents in Europe (25% in 2015).[2] Furthermore, around 20% of the Swiss *electorate* have an immigrant background (Strijbis 2014, p. 613). If we apply this figure to the number of Swiss citizens who have the right to vote and who reside in the country,[3] we can estimate that approximately one million people living in Switzerland and enjoying all political rights have an immigrant background.

Yet, to date, hardly anyone has explored the electoral performance of immigrant-origin candidates in Switzerland. There are also no reliable statistics on these candidates' countries of origin. For purposes of the present article it will suffice to look at the people who received Swiss citizenship via naturalization between 1992 and 2010. Table 1 shows that a plurality (almost one third) of these naturalized Swiss citizens are of ex-Yugoslavian origin, followed by individuals of Italian, Turkish (mostly ethnic Kurds), German, French, Portuguese and Sri Lankan (mostly ethnic Tamils) origin. No other country's relative share exceeds 3%; the data on continent of origin, though, reveals that the share of naturalized Swiss from Asia (not counting Sri Lanka and Vietnam) and Africa (not counting Morocco and Tunisia, i.e. mostly sub-Saharan Africa), as well as from Latin America, is nonetheless considerable.

Foreign citizens who reside in Switzerland can neither vote nor run for political office at the federal level, and only in a limited number of cantons in subnational elections. They are not entitled to vote in local elections in the Canton of Zurich. However, we know little about Electoral Discrimination against candidates of immigrant origin who hold Swiss citizenship. Media reports suggest that in certain electoral contests candidates of immigrant origin were unsuccessful because of Electoral Discrimination.[4] Additionally, previous studies have shown that immigrant communities (especially from the former Yugoslavia and Turkey) face a certain degree of discrimination in the job market (Auer et al. 2015; Fibbi 2006; Fossati et al. 2017), and in terms of access to citizenship (Hainmueller and Hangartner 2013). Hainmueller and Hangartner (2013) have found a pattern of discrimination in referendums on naturalization held in 44 Swiss municipalities between 1970 and 2003. The authors show that the average of "no" votes was about 40% higher for applicants from the former Yugoslavia and Turkey than for comparable applicants from Northern and Western European countries. Although we analyze real elections in this article, not votes on naturalization, the results of that study confirm that some proportion of Swiss voters are name-sensitive (Hainmueller and Hangartner 2013, p. 164, fn. 17).

Before proceeding with our analysis, we shall say more about the particularities of the Swiss free-list PR electoral system. From a comparative perspective, such a system is quite unique and therefore warrants closer inspection in the context of the present article.

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[2] Swiss Federal Statistical Office (https://www.bfs.admin.ch/bfs/de/home/statistiken/bevoelkerung.html).

[3] In June 2015 there were 5,120,429 enfranchised Swiss citizens residing in the country, and an additional 144,691 living abroad. Source: https://www.admin.ch/ch/d/pore/va/20150614/det592.html.

[4] Daniel Schneebeli and Hélène Arnet, "'-ic' und 'gün' wurden fleissig gestrichen", *Tages-Anzeiger*, 5 April 2011. Philipp Hunziker and Simon Lanz, "Wenn der Name zur Fallgrube wird", *Neue Zürcher Zeitung*, 7 January 2014, p. 9.

Table 1 Countries and continents of origin of naturalized Swiss citizens, 1992–2010

	n	%
Former Yugoslavia	168,025	31.2
Italy	87,529	16.2
Turkey	46,724	8.7
Germany	21,926	4.1
France	20,321	3.8
Portugal	18,676	3.5
Spain	13,956	2.6
Austria	3963	0.7
Other European countries	*37,793*	*7.0*
Sri Lanka	18,609	3.5
Vietnam	7306	1.4
Other Asian countries	*33,690*	*6.3*
Morocco	4958	0.7
Tunisia	4013	0.9
Other African countries	*23,200*	*7.0*
Brazil	5460	1.0
United States	4106	0.8
Other N./S. American countries	*17,628*	*3.3*
Oceania	*732*	*0.1*
Stateless	*319*	*0.1*
All	538,934	100.0

Source Our calculations are based on Wanner and Steiner (2012, p. 32, Table 6)

Particularities of the Swiss Electoral System

In this article we test the Electoral Discrimination thesis by analyzing local elections in a Swiss canton. Switzerland is exceptionally interesting due to certain specific features of its list PR electoral system (Farrell 2011, pp. 86–87; IDEA 2005, pp. 90 and 118; Lutz 2011). In particular, its electoral system allows voters to cast both positive and *negative* preference votes for single candidates. It is a candidate-centered, rather than party-centered, system (Carey and Shugart 1995, p. 425).

To make use of negative preference votes, a voter chooses a party list and then crosses off, with a pen, the name(s) of one or more of the candidates who figure on the respective ballot. She can either simply eliminate a candidate, or go on to substitute the name of another candidate from the same or a different ballot. Surprisingly, this important feature of Swiss elections has been largely ignored in the comparative literature on electoral systems (e.g., Ahmed 2013; IDEA 2005; Klingemann 2009; Farrell 2011; an exception is Lutz 2010, 2011).

The *free*-list PR used in Swiss elections is a sub-type of open-list PR (IDEA 2005, pp. 118 and 155).[5] But it differs significantly from the typical form in four

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[5] Some authors (Lutz 2011; Selb and Lutz 2015, p. 331) call it "open ballot" (in contrast to "open list"). This, however, is potentially misleading, as other authors use the term "open ballot" to distinguish it from "secret ballot" (Engelen and Nys 2013).

specific aspects. First, voters can allocate multiple preference votes—as many preference votes as there are seats to be filled (e.g., 60 in the municipality of Winterthur). Second, voters of a given party have the option to cast preference votes not only for candidates running on the respective party list but, contrary to most other systems, also for candidates across all other party lists (*panachage*). Third, every candidate can receive one or two (positive) preference votes from a single voter. Finally, as already mentioned, voters can cast negative preference votes, by crossing off candidates on their ballot. For the purpose of the present article, the latter is the most striking feature of the Swiss electoral system. To our knowledge, only voters in Luxembourg have nearly all the options that Swiss voters have, *not including* negative preference votes.[6] Before we proceed, further clarifications and definitions are in order.

In a typical Swiss election, voters choose between several party lists, each printed on a separate ballot. Every party list contains the names of all the candidates running on that list.[7] Voters can cast only *one* party ballot. Therefore, from a voter's perspective, she has two options. She can vote for a party list, without allocating any preference votes—positive or negative—to individual candidates (*unmodified ballot*). In this case, each candidate on the party list automatically receives one vote. Alternatively, she can choose a party list but allocate preference votes to individual candidates (*modified ballot*). In this second scenario, each candidate on the selected party list automatically receives one vote, as well as any additional positive or negative preference votes indicated by the voter. For simplicity's sake, we shall refer to the votes received from modified lists as *preference votes*.

From a candidate's perspective, he or she can receive preference votes from *modified ballots* only as follows:

1. *Internal preference votes* from any voter of the candidate's party. These can be positive or negative. In the case of a positive preference vote, the candidate receives one extra vote in addition to the vote automatically allocated via the party list. If the voter casts a negative preference vote, the candidate receives zero votes from that ballot.
2. *External preference votes* (one or two) from a voter of any other party.

Table 2 gives an overview of the preference votes that candidates can receive. To sum up:

Votes received pro candidate = positive internal preference votes − negative internal preference votes + positive external preference votes.[8]

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[6] See IDEA (2005, p. 90). The only other electoral systems we are aware of that allow for negative preference votes can be found in Latvia (elections to the European parliament) and in municipal elections in a number of German *Länder* (e.g., Bavaria, Hesse, Rhineland-Palatinate). We are not aware of any study that has explored the impact of this option in German and Latvian elections.

[7] Voters can choose instead to vote for individual candidates on a blank ballot. However, the vast majority of voters opt for a party list (e.g., 93% in the 2015 Swiss national elections).

[8] A further complication arises from an option that *parties* have: to *pre-cumulate* candidates they want especially to support on their ballots. Pre-cumulated candidates can receive a maximum of two preference votes from voters of the respective party—both are automatically attributed to them via the party ballot. On the other hand, pre-cumulated candidates receive one vote if they are crossed off once and zero votes

Table 2 Preference votes in the Swiss electoral system

Internal (from voters of the candidate's party)	External (from voters of other parties)
Positive	Positive
(max. two preference votes)	(max. two preference votes)
Or	
Negative	–
(zero preference votes)	

We want to emphasize that such an electoral system provides ideal conditions for measuring Electoral Discrimination. In fact, it allows us not only to identify candidates who enjoy voters' support (via positive preference votes) but also to identify candidates to whom voters are averse (via negative preference votes). We turn now to the details of our measurement strategy.

Measurement Strategy

Measuring Electoral Discrimination

As we note in the introduction, measuring discrimination is a complex task. However, the Swiss electoral system offers a unique environment in which to examine Electoral Discrimination. For our purposes, we focus on the negative preference votes that voters can allocate to candidates in such an electoral system. A separate look at positive preference votes enables us to draw further conclusions with regard to the overall electoral performance of candidates.

Studies on the descriptive representation of immigrant-origin minorities have paid particular attention to local elections (Dancygier 2014; Jacobs et al. 2002; Thrasher et al. 2017). We follow this trend and analyze the elections that took place in Spring 2014 in six Swiss municipalities in the Canton of Zurich. Local elections are particularly suitable for testing the Electoral Discrimination thesis, as candidates are typically unestablished politicians, relatively unknown to the general public. Moreover, such elections—also called "second-order" elections—are usually considered to be of minor importance compared to national elections. Furthermore, a typical ballot in a Swiss municipal election contains a large number of candidates.[9] We can therefore reasonably assume that voters know little about the candidates beyond what they see on the ballot on election day. In such "low-information elections" voters tend to use various heuristic cues as cognitive shortcuts to make their choices (Matson and Fine 2006; see also Lau and Redlawsk

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Footnote 8 continued

if they receive two negative preference votes. We control for pre-cumulation in our models, but for the sake of simplicity did not include it in the definition given above.

[9] For example, in the local elections under scrutiny in this paper, the number of candidates on a ballot ranges from 6 to 60.

2006; Lupia 1994; Sniderman et al. 1991). Apart from party identification and incumbency cues, voters may rely on sociodemographic cues such as race and gender (Cutler 2002; McDermott 1998; Popkin 1991) that can be deduced by reading candidates' names or (if available on the ballot) studying their photographs (Banducci et al. 2008; Barth et al. 2017). As a result, in these elections, as recently noted by Achen and Bartels (2016, p. 313), "voters primarily look for politicians who match their identities".

In this article, then, we assume that the average voter relies on candidate-related information that is either explicitly stated on the ballot (party affiliation, position on the ballot, incumbency, age, profession) or can be deduced from it (immigrant-background, gender). This will allow us to control in our models for these additional factors that might influence the voter's choices.

Definition and Coding of Immigrant-Origin Candidates

We define minority candidates of immigrant origin as individuals with "non-Swiss" names. Relying solely on names is a strategy that has also been adopted by other scholars in similar studies. It certainly has its drawbacks, but alternative strategies seem even more problematic.[10]

Our main reason for this choice is that it is the most appropriate research method in the Swiss context. Swiss voters typically have very limited information on candidates: in the case of the 2014 municipal elections in Zurich, only their first and last names are provided on the ballot, alongside their date of birth, incumbency (for incumbents only), profession, and residential area. A candidate's name, therefore, provides the foremost heuristic shortcut that voters will tend to take into account.

To code candidates according to this method, we rely on the Register of Swiss Surnames (RSS), a free-access online database that contains the surnames of all individuals holding citizenship in at least one Swiss municipality up until 1962.[11] We use this database in order to distinguish the family names that are "typically" Swiss from those that we consider (for research purposes only) to be "non-Swiss." All candidates who ran in the 2014 elections in the six selected municipalities of the Canton of Zurich have been coded accordingly.

Our coding method consists of creating two main categories of candidates: (1) non-Swiss family names (naturalized in or after 1940), and (2) Swiss family names (naturalized before 1940). We chose 1940 as the year of reference in light of the migration flows prompted by the Second World War. To give an example, surnames such as Berset, Cassis, Leuthard, Maurer, Parmelin, Schneider-Ammann and Sommaruga count as "typically Swiss." In fact, these are the surnames of the current members of the Swiss federal executive, and according to the RSS, six out of

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[10] Women often change their family names upon marriage; the surnames (but not necessarily the first names) of immigrants from Italy, Germany, or France are sometimes identical to those considered as "typically" Swiss; individuals whose biological parents are, say, African or Asian, and whose adopted parents are Swiss, often have Swiss surnames, et cetera. See also remarks by Bloemraad (2013, pp. 655–657) and Street (2014, pp. 376–377).

[11] http://www.hls-dss-dss.ch/famn/?lg=e.

seven of these names were Swiss before 1800.[12] On the other hand, surnames such as Lumengo, Marković, Pereira or Türkilmaz do not appear in the RSS and are considered to be "non-Swiss."[13]

We further refine our coding in order to get a better picture of the origins of candidates with "non-Swiss" names.[14] The refined codes enable us to distinguish between the following name groups: Western European/Nordic/English, Southern European (e.g. Italian, Greek), Hispanic, Eastern European, South Slavic (i.e., Slavic names from the former Yugoslavia) and Albanian, Arabic and Turkish, and other non-European (Indian, Eastern Asian, Central Asian, and non-Arab African). For this coding we relied on the online database "forebears" and cross-checked, in case of ambiguous results, with the database "worldnames."[15] The former uses the relative frequency of surnames in a given country, while the latter, in addition, displays an indicator of the name origin based on the characteristics of a surname. These codes also give us the opportunity to test the robustness of our results stemming from the multivariate analyses and, thus, explore our findings in more detail.

Data and Estimation Method

Data, Sample and Variables

To construct an indicator of Electoral Discrimination, we focus on *negative* preference votes. To date, Swiss municipalities have never made available data on negative preference votes. For the present study, however, we were granted access to raw data stemming from the electoral software.[16] This data reveals, for each modified ballot, all changes made by the voter: It provides a list of all candidates who have been either crossed off or added to the ballot. A sign that indicates the modification introduced by the voter ("+" for added candidates and "−" for

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[12] The surname "Cassis" figures in the RSS for the first time in 1910. Indeed, Ignazio Cassis, elected in September 2017, is the first naturalized Swiss in the history of the Federal Council. His original nationality was Italian and he held both citizenships until Summer 2017. He voluntarily renounced to his Italian citizenship in order to be eligible to the Federal Council, even if this was not required by the law.

[13] Not all individuals that this approach will classify as minority candidates with immigrant origins would agree with their placement into that category. Nor do we claim that their assignment to this category implies that, if elected, they would represent the specific group interests of minority communities (supposing that such interests can be identified).

[14] For a similar approach in the German context, see Street (2014, p. 377).

[15] http://forebears.io/surnames/; http://worldnames.publicprofiler.org.

[16] On the basis of cantonal law regarding transparency and public availability of official documents, we were allowed to extract this data on the premises of the statistical office of the Canton of Zurich. The data had to be extracted as individual sheets of 50 copies of modified ballots, either in digital or paper form. We also signed an agreement that we would use the data for scientific purposes only. In one municipality (Dietikon) the local administration allowed us to photograph and scan all modified ballots cast in the 2014 election. The city of Zurich provided the data in paper form but not electronically.

crossed off candidates) is given for each "modified" candidate on the ballot.[17] Hence, our data shows the names of candidates who received negative preference votes, as well as positive preference votes.[18] As ballots are anonymous, we cannot know the identity of individual voters. Our approach, therefore, respects ethical concerns and does not violate the secrecy of the individual ballot. A drawback, of course, is that such data do not offer us insight into the motives behind voter choice.

The measure for negative preference votes has been built by aggregating the number of cross-offs on the ballots for each candidate. Bearing in mind that negative preferences votes are generated only if voters modify the pre-printed ballots by hand, in our main analysis we focus on the modified ballots.

Since our strategy for gathering the data is exceedingly time-consuming we have been obliged to confine our sample to six municipal elections. We selected a stratified random sample of six out of the twelve municipalities of the Canton of Zurich where the legislative branch is elected by popular vote.[19]

Overall, in the six municipal elections under scrutiny 36% of voters modified their ballots. The figure varies between 32% (Zurich) and 51% (Bülach), resulting in approximately 45,000 modified ballots. Our sample consists of 90 party lists and 1633 candidates.[20] On average there are 26 candidates on a list, but the number

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[17] We coded by hand the data from the municipality of Dietikon and from all electoral districts in the city of Zurich. For each modified ballot, we recorded whether a candidate was crossed off (1) or not (0). The data from the other municipalities was processed electronically.

[18] Since our data also reveals the party of each modified candidate, it is possible to extract information about internal and external preference votes. In contrast to negative preference votes, the Zurich cantonal statistical office has processed data on internal and external preference votes from the electoral software and aggregated this data at the level of candidates. With the official permission of the municipal administrations we could gain access to this data and use it for additional analyses. This data shows the number of (a) internal preference votes and (b) external preference votes for all candidates.

[19] In 156 municipalities the legislative branch is the *Gemeindeversammlung*, in which all enfranchised citizens are entitled to participate. We stratified the remaining 12 municipalities along three variables: population size, share of foreign-born population and the results from direct-democratic popular votes. The last variable is an indicator for voters' attitudes on immigration policy. We built the indicator with means of a factor analysis including five direct-democratic popular votes on immigration issues (see Table 4, Appendix). We split the municipalities into subgroups according to these three variables, by applying cluster analysis (using Euclidean distance and average linkage). Then we derived six groups from the cluster analysis and randomly draw one municipality from each. The selected municipalities are Adliswil, Bülach, Dietikon, Wädenswil, Winterthur, and the city of Zurich. Generally speaking, the voters of these municipalities have rather liberal attitudes compared to the average Swiss voter (Hermann and Leuthold 2003, pp. 60–61). Hence, we assume that our results will tend to *underestimate* the extent of Electoral Discrimination in Swiss elections, as we expect more discrimination in areas with less liberal attitudes. Note also that in the city of Zurich the elections are held in nine separate electoral districts, so, a total of 14 electoral districts have been included in our sample. Each party presents specific lists for each of the electoral districts. However, and despite our effort to select the six municipalities by relying on local-level variables, we must stress that our research design and our sample do not allow us to say much about local-level variation and to explore the different circumstances under which it is more easy (or more difficult) for minority candidates to be elected. We leave this for another occasion.

[20] We restricted our analysis to six major parties: Social Democrats (SP), the Green Party (GP), Christian Democrats (CVP), Green Liberals (GLP), Free Democrats/Liberals (FDP), and the Swiss People's Party (SVP). For the part of our analysis regarding the elections in the city of Zurich, we also included the lists of Alternative Left (AL). Relying only on the major parties ensures that our analysis is based on a sufficiently large number of modified ballots per party list (40 or more). Lists containing a very small number of candidates (five or less) have not been included in the analysis.

varies from 6 to 60. To calculate the negative preference votes, we thus proceed as follows:

$$\text{Negative preference votes} = \frac{\text{Number of cross} - \text{offs of candidate } i \text{ on party ballot } j}{\text{Total number of modified party ballots } j}$$

In other words, our measure of the negative preference votes is not absolute but relative: It tells us how many times a candidate has been crossed off in relation to the total number of modified ballots of the corresponding party. It varies between 0 (no voter of party j, having chosen to modify her ballot, crossed off candidate i) and 1 (all voters of party j, having chosen to modify their ballots, crossed off candidate i).[21]

Our explaining variable captures the origin of candidates' names. This is a dummy variable, as candidates have either a Swiss (0) or a non-Swiss (1) family name. To construct this variable we have coded the names of all 1633 candidates in our sample by relying on the RSS.

Furthermore, we include a series of controls regarding candidate characteristics (age, ballot position, incumbency, pre-cumulation[22], profession, sex) and list attributes (position of the party on the left–right axis,[23] number of candidates on the party ballot).[24]

Statistical Model and Estimation Method

Our data has a multilevel structure, given that candidates are nested within lists and voting districts/municipalities. In order to take this into account, and to overcome the risk of biased estimates and standard errors, we use hierarchical models (see Gelman and Hill 2007; Steenbergen and Jones 2002). In our models, we include a random intercept for party-lists and a cross-level interaction between the candidate's name and the position of the candidate's party on the left–right axis.

The random intercept model for two levels (candidate level-one unit i; list level-two unit j) with a cross-level interaction is specified as follows:[25]

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[21] Hypothetically, the value range is [0, 1] and [0, 2] for pre-cumulated candidates. In our sample, however, all values are within the range (0, 1), i.e. every candidate was crossed off on at least one ballot. On the other hand, no candidate was crossed off on all ballots.

[22] The surnames of 230 candidates were listed twice on pre-printed ballots (i.e., they were pre-cumulated). We expect that these candidates will (a) receive more preference votes, because they obtain two votes from each ballot on which they have neither been crossed off nor cumulated, and (b) receive more negative preference votes as each of them can be crossed off two times by a single voter.

[23] The measure of party position consists of three categories: Left (SP, GP), Center-Right (CVP, GLP, FDP) and Right (SVP). It is debatable whether the FDP should be grouped with the Right, along with the SVP, or with the Center-Right, together with the CVP and the GLP. In the Canton of Zurich, however, the animosity between the SVP and the FDP has been very strong in the past 25 years and their positions differ on many significant issues (particularly on immigration). We think, therefore, that in the context of elections in Zurich it would be misleading to consider the SVP and the FDP as forming a common bloc.

[24] More detailed information on the variables, including operationalization and descriptive statistics, are provided in the Appendix (Table 4).

[25] y_{ij} stands for our dependent variable (negative preference votes), the variance of which we explain with the equation on the right-hand side. We have the following fixed effects: $\gamma 00$ is the general intercept, z_j a variable at the list level (with estimate $\gamma 01$) and x_{ij} a variable at the candidate level (with estimate

$$y\text{ij} = \gamma00 + \gamma01z\text{j} + \gamma10x\text{ij} + \gamma11z\text{j}x\text{ij} + U0\text{j} + R\text{ij}$$

As already mentioned, our dependent variable—the *negative preference votes*—is the number of times that a candidate has been crossed off on his party ballots compared to the total number of modified ballots of that party. The variable can be considered a proportion which is bounded within a range (0,1). To account for non-normally distributed standard errors and the limited value range, we estimate the models using a beta distribution with a logit link (see Cribari-Neto and Zeileis 2009; Ferrari and Cribari-Neto 2004).[26]

Candidate Names and Electoral Performance

In the 2014 legislative elections held in the six municipalities, 13% (n = 209) of the candidates had non-Swiss names. Table 3 provides an overview of the name origins of all the candidates included in our sample. According to our coding method, the majority of the candidates with non-Swiss names have Western European, Nordic or Anglophone names. The next most represented bloc of names derive from Southern European countries (primarily Italy). A significant share of candidates bear names of Albanian, Arabic, Eastern European, Hispanic, Turkish or ex-Yugoslavian origin.

Table 3, furthermore, shows that only a small number of candidates with non-Swiss names (21 out of 209, or 10%) succeeded in getting elected, compared to 19% of candidates with typically Swiss names. Interestingly, this finding holds not only for candidates whose names starkly differ from Swiss names—e.g., ex-Yugoslavian, Albanian, Arabic, Turkish—but also for Western European, Nordic and Anglo-Saxon names that may be more difficult to distinguish from Swiss names (see Table 3).

Among the elected representatives, the share of non-Swiss names is 7%. This is a strikingly low figure considering that about 30% of enfranchised citizens in the Canton of Zurich have an immigrant background. Although this percentage is not directly comparable with our indicator of immigrant background, it still indicates a remarkable (descriptive) *underrepresentation* of immigrant-origin minorities in municipal legislatures.[27]

Footnote 25 continued

$\gamma10$). $U0\text{j}$, and $R\text{ij}$ are random effects: $U0\text{j}$ is a random effect at the group level which incorporates the idea that groups may have different levels on the dependent variable ($U0\text{j}$ is the deviation of the intercept of group j from the average intercept). $R\text{ij}$ is a random error term. We include a cross-level interaction $\gamma11Z\text{j}X\text{ij}$ which means that we try to explain the difference in the coefficient of our main covariate non-Swiss name with a macro variable (Snijders and Bosker 2012, p. 81).

[26] Data and replication code are available at https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/SUS2KV.

[27] The data is gathered from the Zurich cantonal statistical office for the year 2014. For the official definition of the "population with immigrant background" used by the Swiss Federal Statistical Office, see http://www.bfs.admin.ch/bfs/portal/de/index/themen/01/07/blank/key/04.html.

Table 3 Name origins of candidates, elected members of municipal legislatures and success rate (the 2014 municipal elections in Adliswil, Bülach, Dietikon, Wädenswil, Winterthur and Zurich)

Name origin	Candidates		Elected		Success rate
	n	%	n	%	%
Western European/Nordic/Anglo	53	3.25	4	1.39	7.55
Southern European	44	2.69	6	2.08	13.64
Eastern European	22	1.35	2	0.69	9.09
Hispanic	17	1.04	2	0.69	11.76
Former Yugoslav & Albanian	25	1.53	1	0.35	4.00
Arabic & Turkish	27	1.65	4	1.39	14.81
Other non-European countries	21	1.29	2	0.69	9.52
Total non-Swiss	209	12.80	21	7.29	10.05
Swiss	1424	87.20	267	92.71	18.75

Do candidates with foreign-looking names have lower success rates because voters tend to cross them off more often? We focus on this question in the next section by looking at the effect of candidate names on negative preference votes.

The Effect of Candidate Names on Preference Votes

To test our thesis, we regress, in a first step, the negative preference votes on the name origin of candidates. In a second step, we apply the same procedure to the positive preference votes. Methodologically, we estimate hierarchical random intercept models, modeling our dependent variable with a beta distribution.

Figure 1 shows the main results of the statistical analysis for the negative preference votes (for detailed model output see Table 5 in Appendix). Our simple Model 1 in Fig. 1 includes only the indicator capturing non-Swiss names as a predictor for negative preference votes. In line with the Electoral Discrimination thesis, the effect is positive and significant, suggesting that candidates with non-Swiss names receive significantly more negative preference votes relative to candidates with typically Swiss names. In other words, candidates with foreign-sounding names are crossed off on modified ballots more often than other candidates running on the same party list. In order to test the Electoral Discrimination thesis against alternative explanatory factors, Model 2 in Fig. 1 includes additional control variables both at the candidate level and at the list level. Again, the estimates for the variable non-Swiss names lend support to the Electoral Discrimination thesis. Candidates with foreign-sounding names incur an electoral penalty in the form of additional negative preference votes. The effect is smaller than in Model 1 but still significant. Overall, we find strong evidence that voters are influenced by name-identity cues to cross off candidates with non-Swiss names.
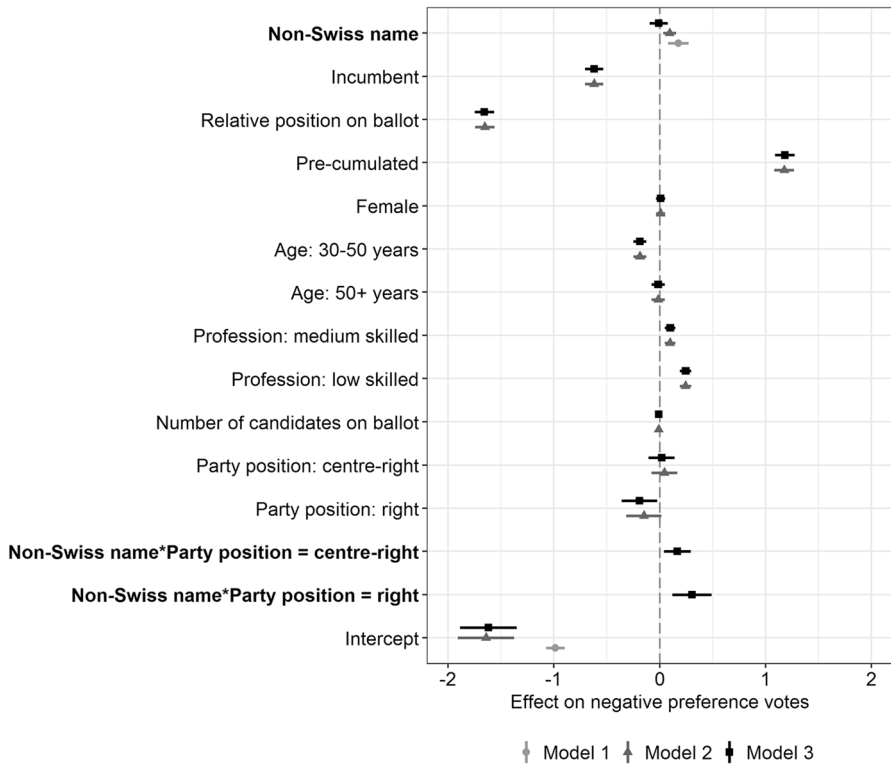
Fig. 1 Hierarchical beta regression model estimates of the effect of candidate's name (Swiss/non-Swiss) on negative preference votes. *Notes* Coefficients and 95%-confidence intervals from a random intercept model with a beta distribution and logit-link. N = 1633, fixed effects for municipalities added (not displayed in this Figure)

Furthermore, apart from gender, all our control variables at the candidate level have a significant effect on the negative preference votes.[28] In line with expectations stemming from other studies of Swiss elections, incumbency, higher ballot position and age (between 30 and 50, compared to candidates under 30) have a negative impact upon negative preference votes,[29] whereas pre-cumulation and profession (medium or low-skilled, compared to high-skilled) positively influence the number of negative preference votes (Lutz 2010).

As for the variables at the list level, both the party position on the left–right scale and the number of candidates on the ballot do not appear to be directly relevant with regard to negative preference votes (see Model 2, Fig. 1). However, since parties of the Right typically express more critical attitudes towards immigration than those of the Left, we expect to see a stronger effect of non-Swiss names upon supporters of right parties. In order to test this hypothesis, we try to explain the varying effect of

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[28] Variables are mean-centered (except dummy-variables).

[29] We changed the sign of the variable "higher ballot position" to ensure that a positive coefficient indicates a positive influence of a higher position.

the variable non-Swiss names across party lists through the macro variable that indicates the position of political parties on the left–right axis (Model 3, Fig. 1). The results of such cross-level interactions are consistent with our expectations that having a foreign-sounding name has more negative electoral consequences for candidates running under the banner of the parties of the Right (SVP) and the Center-Right (CVP, GLP, FDP).[30]

Additional analyses provide further insights and robustness checks. First, we refine the categories of candidate names and show that candidates with names native to Switzerland's five neighboring countries (Austria, France, Germany, Italy and Lichtenstein) are not immune from Electoral Discrimination (see Table 7, Appendix). We presume that names from these five countries, whose official languages (German, French and Italian) are the same as the Swiss official languages, are among the most difficult to distinguish from typically Swiss names.[31] Therefore, our results suggest that voters are able to recognize "non-Swiss" names even if they differ only marginally from Swiss names. Results also suggest that discrimination does not only attach to names from non-Western countries with lower social status in the Swiss context. In fact, candidates with Western names (Western European, Southern European,[32] Nordic and/or Anglo-Saxon) also receive more negative preference votes compared to candidates with Swiss names (Table 8, Appendix). This is a surprising finding: In their influential study of popular votes on naturalization requests in Swiss municipalities, Hainmueller and Hangartner (2013) have shown that the average proportion of "no" votes is about 40% higher for applicants from Turkey and the former Yugoslavia than for comparable applicants from Western and Northern European countries. Our results indicate that immigrant-origin groups that are relatively preferred by the Swiss public at large, as suggested by attitudes toward naturalization, do not benefit from this status in the context of electoral competitions.

Second, we show that results from a model including not only modified but also unmodified ballots in our measure of negative preference votes are essentially identical to the estimates of our main models (Table 9, Appendix).[33]

Finally, a further concern related to the validity of our main findings is that our results could be flawed if immigrant-origin candidates tend to be less qualified in comparison with other candidates holding similar list positions. This critique might hold if party leaders, especially of the Left, for symbolic or strategic-electoral

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[30] In contrast, candidate-specific characteristics such as gender, incumbency, list position or profession do not seem to be important moderating factors (see Table 6 and for the effect of the list position Fig. 2 in Appendix).

[31] We include in these models a variable that distinguishes between (a) Swiss names (b) non-Swiss names from countries where the main language corresponds to one of the Swiss national languages and (c) non-Swiss names from all other countries.

[32] It is open for discussion whether names stemming from Southern European countries should be classified as Western or non-Western names. In our view, in the Swiss context, where Italian is a national language, it is appropriate to classify names from Southern Europe as Western.

[33] Our measure for negative preference votes in these models is:
$$\frac{\text{Number of cross-offs of candidate } i \text{ on party ballot } j}{\text{Total number of party ballots } j}.$$ There are in total 125,360 (modified or unmodified) ballots.

reasons tended to place candidates with non-Swiss names in top list positions—that is, above more qualified candidates with typically Swiss names (see Dancygier 2017). However, our findings (see Model 3, Fig. 1) do not provide evidence for this explanation, as they show that candidates with non-Swiss names face stronger negative consequences if they run on lists of right and center-right parties than on lists of left parties.

In sum, our results yield strong evidence for the Electoral Discrimination thesis. The origin of a name, by itself, is a significant heuristic cue that affects voter behavior. Candidates with non-Swiss names face bigger obstacles because they are particularly prone to being crossed off by voters. This holds for candidates with non-Swiss names from Western countries as well as non-Western ones. The effect of a candidate's name is moderated by the position of his or her party, being more pronounced on right and the center-right party lists than on left party lists. Although the origin of a candidate's name is less important than his or her relative position on the ballot and incumbency status, the effect is still strikingly robust.

Besides robustness, the relevance of our results depends on the performance of candidates with respect to positive preference votes. So far, we have only analyzed negative preference votes. Yet Swiss voters can also reward candidates by allocating positive preference votes (both internal and external). The question, then, is whether candidates with non-Swiss names are simply more controversial, and thus attract more preference votes of both types, negative and positive. We tackle this issue by exploring two additional models that include the following dependent variables. The first variable captures the *internal* preference votes that a candidate has received from voters of her own party. The second variable measures the *external* preference votes that a candidate has received from voters of other parties.[34]

Our results reveal that, *ceteris paribus*, candidates with non-Swiss names receive, on average, fewer internal positive preference votes (Table 10, Appendix). This indicates that candidates with foreign-looking names are cumulated less and/or crossed off more than candidates with typically Swiss names. In other words, a potential cumulation-advantage of candidates with immigrant-origin names—resulting from "positive" Electoral Discrimination (see Dancygier 2017; Jacobs et al. 2002)—does not compensate for negative preference votes. Rather, our results show that such candidates are disadvantaged with respect to all—positive and negative—preference votes. The effect of the explaining variable "non-Swiss name" is moderated by the position of parties on the left–right axis: having such a name has a more negative effect upon candidates of the Center-Right and the Right than those of the Left.

Unlike its relationship to internal preference votes, however, we find no significant effect of the origin of candidate names on external preference votes

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[34] The two dependent variables have been constructed as follows. *Preference votes from own party ballots*: the number of preference votes that a candidate has received from the voters of his or her party, divided by the number of modified ballots of the respective party list. The variable is transformed to the interval (0, 1), dividing it by two. *Preference votes from other party ballots*: the number of preference votes that a candidate has received from voters of other parties, divided by the average number of votes (mean) that other candidates appearing on the same party ballot have received from voters of other parties. This variable is log-transformed because it is strongly right-skewed, resulting in non-normally distributed residuals.

(Table 11, Appendix). Hence there is no evidence that candidates with non-Swiss names receive fewer external preference votes than candidates with typically Swiss names, nor any evidence to suggest that they receive more such votes.[35]

In general, then, there is no evidence that a non-Swiss name constitutes an advantage in terms of the positive preference votes that candidates receive (whether internal or external). On the contrary, candidates with non-Swiss names are also disadvantaged with regard to internal preference votes overall, positive as well as negative.

Conclusion

Discrimination, in general, is difficult to grasp both conceptually and normatively (Hellman 2008; Hellmann and Moreau 2013; Lippert-Rasmussen 2018). But *measuring* discrimination is probably an even harder challenge (Blank et al. 2004). Regarding Electoral Discrimination, we note that many studies are based on subjective survey data or artificial experiments situated far from the actual act of voting. Other studies use aggregate data from elections, typically in contexts of majoritarian single-member district systems, in which voters with negative attitudes toward minority candidates merely have the option not to vote for them. This data can reflect a form of discrimination but is much less straightforward, we believe, than data from electoral systems with the option to allocate *negative* preference votes to individual candidates by explicitly crossing them off the ballot. The present article, therefore, measures Electoral Discrimination by analyzing negative preference votes cast in local elections in Switzerland.

This article provides substantial evidence that immigrant-origin candidates with non-Swiss names incurred an electoral penalty in the 2014 local elections held in six municipalities of the Canton of Zurich. The effect is stronger among voters of center-right and right parties. We also show that it is not only candidates with names connoting non-Western origins who suffer from discrimination. Surprisingly (see Hainmueller and Hangartner 2013) candidates with non-Swiss but Western names also incur an electoral penalty.

We conclude by raising two important points. First, the findings of this article are confined to the local elections of 2014 in the Canton of Zurich. To what extent are they generalizable? To start, we expect the phenomenon of Electoral Discrimination to be even more acute in other parts of Switzerland: Most Swiss cantons and municipalities offer voters the option to allocate negative preference votes to candidates, and voters from the six Zurich municipalities—generally speaking and notwithstanding the differences among them—are more liberal in regards to immigrant-related issues than the average Swiss voter (Hermann and Leuthold 2003, pp. 60–61). Our results, therefore, may be generalized to various kinds of

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[35] Note, however, that this result does not allow us to draw conclusions with regard to possible intra-ethnic voting—e.g., voters of Turkish origin supporting candidates of the same origin (see Dancygier 2017)—as our data does not contain information on voter identity.

elections in Switzerland (local, cantonal, national). Ideally, however, future studies should try to develop an even more complex research design that takes into account local-level variation (for example, with regard to the share and the nationalities of origin of people with immigrant backgrounds) in order to determine in which local settings it is more (or less) difficult for minority candidates to be elected.

We also believe that our findings have implications beyond Switzerland. Even though there are only a few other places where voters are allowed to cross off candidates on their ballots (local elections in certain German regions and Latvian elections to the European Parliament; see footnote 6), the research strategy employed in the present study could be replicated in countries with electoral systems based on ranked-choice (or preferential) voting. In the Single Transferable Vote (STV) system—used, for example, in Ireland, Malta, and Scotland—voters rank candidates in order of preference; if the Electoral Discrimination thesis holds we would expect minority candidates, as a general rule, to receive lower positions in such rankings than comparable majority candidates. That would be a functional equivalent of the negative preference votes in Swiss elections.

Second, our results hold important implications for the literature on the impact of electoral systems on representation of minority groups (see, e.g., Lublin 2014). Giving voters the option to cross off candidates on their ballots might seem to be a particularly bad choice if institutional designers want to limit Electoral Discrimination. Does this speak in favor of *closed*-list PR systems? We do not think so. If voters can select only party lists—as in closed-list PR systems—then minority candidates will be at the mercy of party leaders who might hold even more discriminatory attitudes than their constituents (Allik 2015, p. 447; Zollinger and Bochsler 2002, p. 627; see also Carey and Shugart 1995; Matland 2005).[36] In single-member district plurality or majority elections, as in the UK or France, the arena where discrimination takes place is the selection process *within* parties (see, e.g., Norris and Lovenduski 1993; Soltas and Broockman 2017). That said, our results show that, even in free-list PR systems, incumbency status and position on the ballot are much more determinative of electoral success than whether candidates names' suggest immigrant origins. In other words, in such systems, parties have the means—and in our view also the responsibility—to enhance the electoral chances of minority candidates by placing them higher in position on ballots.

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[36] A report of the Council of Europe notes that "[c]losed lists obviously require a willingness on the part of national parties to present any minority candidates at all" (Hine 2006, p. 14). Empirical studies comparing the impact of open versus closed-list PR systems on minority representation are rare. A recent study on Estonia, where it was possible to compare both systems, concludes that closed lists do not improve women's representation: "Much depends on parties' willingness to support female candidates, and at least in Estonia, this willingness has been lacking" (Allik 2015, p. 447). The use of open-lists, on the other hand, has not decreased the descriptive representation of women. Evidence from local elections in Belgium also indicates that open-list PR, where voters can allocate multiple (positive) preference votes, is beneficial for the representation of immigrant-origin non-EU candidates (Jacobs et al. 2002, pp. 210–211).

Appendix

See Tables 4, 5, 6, 7, 8, 9, 10 and 11, and Fig. 2.

Table 4 Variables, summary statistics and operationalization

Variable	Summary statistics	Operationalization
Dependent variables		
Negative preference votes	Mean: 0.25 SD: 0.16 Min: 0.02 Max: 0.93	Formula used: $$\frac{\text{Number of cross-offs of candidate } i \text{ on party ballot } j}{\text{Total number of modified party ballots } j}$$
Positive preference votes (own party ballots)	Mean: 0.92 SD: 0.34 Min: 0.22 Max: 1.97	Formula used: $$\frac{\text{Internal preference votes for candiadate } i \text{ on party ballot } j}{\text{Total number of modified party ballots } j}$$
Positive preference votes (other party ballots)	Mean: 1.00 SD: 1.37 Min: 0.00 Max: 11.45	Formula used: $$\frac{\text{External preference votes for candiadate } i \text{ on party ballot } j}{\text{Mean external preference votes for candidates on party ballot } j}$$
Independent variables—(candidate level)		
Non-Swiss name	Shares: 87.2% 12.8%	0 = Swiss name (registered in RSS before 1940) 1 = Non-Swiss name (not registered in RSS before 1940)
Incumbent	Shares: 84.9% 15.1%	0 = Non-incumbent 1 = Incumbent
Pre-cumulated	Shares: 85.9% 14.1%	0 = Not pre-cumulated 1 = Pre-cumulated
Female	Shares: 61.4% 38.6%	0 = Male 1 = Female
Relative ballot position	Mean: 0.53 SD: 0.29 Min: 0.02 Max: 1.00	Formula used: $$\frac{\text{Ballot position candidate } i}{\text{Number of ballot positions}}$$

Table 4 continued

Variable	Summary statistics	Operationalization
Age	Shares:	
	17.1%	0 = 18–30 years
	48.5%	1 = 30–50 years
	34.4%	2 = 50+ years
Profession	Shares:	
	45.7%	0 = High skilled (top management, cadres, liberal professions and academics)
	29.1%	1 = Medium skilled (intermediary professions, e.g. teachers, social workers)
	25.2%	2 = Low skilled (manual and non-manual skilled professions, non-skilled professions)
Independent variables—(list level)		
Party position	Shares:	
	39.3%	0 = Left
	44.0%	1 = Center-right
	16.7%	2 = Right
		Parties are assigned to the categories based on the self-positioning of candidates from the Canton of Zurich for the 2011 elections to the Swiss National Council. The seven parties are coded as follows: left (AL, GP, SP), center-right (GLP, CVP, FDP), right (SVP)
Number of candidates on ballot	Mean: 25.97	
	SD: 17.68	
	Min: 6	
	Max: 60	
Additional measures		
Voting behavior on immigration issues	Mean: − 0.00	Min = liberal; max = conservative
	SD: 0.97	Indicator based on five direct-democratic popular votes on immigration issues.
	Min: − 2.34	
	Max: 1.65	Three popular votes on the national level: ban of minarets (November 2009), deportation of foreign felons (November 2010), limitation of immigration (February 2014). Two popular votes in the Canton of Zurich: a referendum against stricter requirements for naturalization (March 2012), an initiative for enfranchisement of foreign residents at the municipal level (September 2013)

Table 4 continued

Variable	Summary statistics	Operationalization
Non-Swiss name, and language regions	Shares:	
	87.2%	0 = Swiss name (registered in RSS before 1940)
	4.7%	1 = Non-Swiss name, Swiss language region (not registered in RSS before 1940, name origin from Austria, France, Germany, Italy and Lichtenstein)
	8.1%	2 = Non-Swiss name, other language region (not registered in RSS before 1940, name origin from a non-German, -French or -Italian speaking country)
Name origin	Shares:	
	87.2%	0 = Swiss
	5.9%	1 = Non-Swiss, Western (Western European, Nordic, English and Southern European names)
	6.9%	2 = Non-Swiss, non-Western (Hispanic, Eastern European, former Yugoslav, Albanian, Indian, Eastern Asian, Arabs, Central Asian, Turk, and other non-African names)

Sources Except for the variables where a different source is mentioned the data stem from the official panachage statistics provided by the respective municipalities; "Negative preference voters": real voting ballots from the 2014 municipal elections in Adliswil, Bülach, Dietikon, Wädenswil, Winterthur, and Zurich; "Non-Swiss name": our coding based on Register of Swiss Surnames (RSS); "Party position": Swiss Electoral Study Survey 2011; "Voting behavior on immigration issues": Swiss Federal Statistical Office, "Non-Swiss name, language regions" and "Name origin": Our coding based on RSS, Forebears and Worldnames

Table 5 Hierarchical beta regression model estimates of the effect of candidate's name (Swiss/non-Swiss) on negative preference votes (Table corresponding to Fig. 1)

	Model 1 b. (s.e.)	Model 2 b. (s.e.)	Model 3 b. (s.e.)
Non-Swiss name	0.18 (0.05)***	0.09 (0.03)**	− 0.01 (0.04)
Incumbent		− 0.62 (0.04)***	− 0.62 (0.04)***
Relative position on ballot		− 1.65 (0.05)***	− 1.66 (0.05)***
Pre-cumulated		1.18 (0.05)***	1.18 (0.05)***
Female		0.01 (0.02)	0.01 (0.02)
Age: 30–50 years		− 0.19 (0.03)***	− 0.19 (0.03)***
Age: 50+ years		− 0.02 (0.03)	− 0.01 (0.03)
Profession: medium skilled		0.10 (0.03)***	0.10 (0.03)***
Profession: low skilled		0.24 (0.03)***	0.25 (0.03)***
Number of candidates on ballot		− 0.01 (0.01)	− 0.01 (0.01)
Party position: center-right		0.04 (0.06)	0.02 (0.06)
Party position: right		− 0.15 (0.08)	− 0.19 (0.09)*
Non-Swiss name * party pos. = center-right			0.17 (0.06)*

Table 5 continued

	Model 1 b. (s.e.)	Model 2 b. (s.e.)	Model 3 b. (s.e.)
Non-Swiss name * party pos. = right			0.30 (0.09)**
Constant	− 0.99 (0.04)***	− 1.64 (0.14)***	− 1.62 (0.14)***
AIC	− 2261.56	− 4036.36	− 4045.16
Log likelihood	1135.78	2038.18	2044.58
N	1633	1633	1633
Groups: lists	90	90	90
Variance: list	0.14	0.06	0.06

Coefficients and standard errors from a random intercept model with a beta distribution and logit link, N = 1633, fixed effects for municipalities added (not displayed in this Table)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 6 Hierarchical beta regression model estimates of the effect of candidate's name on negative preference votes (interaction effects with candidate specific characteristics)

	Model 1 b. (s.e.)
Non-Swiss name	− 0.03 (0.07)
Incumbent	− 0.62 (0.05)***
Relative position on ballot	− 1.67 (0.05)***
Pre-cumulated	1.18 (0.05)***
Female	0.00 (0.02)
Age: 30–50 years	− 0.19 (0.03)***
Age: 50+ years	− 0.01 (0.03)
Profession: medium skilled	0.10 (0.03)***
Profession: low skilled	0.24 (0.03)***
Number of candidates on ballot	− 0.01 (0.01)
Party position: center-right	0.02 (0.06)
Party position: right	− 0.19 (0.09)*
Non-Swiss name * party pos. = center-right	0.17 (0.07)**
Non-Swiss name * party pos. = right	0.32 (0.10)**
Non-Swiss name * female	0.04 (0.06)
Non-Swiss name * incumbent	0.03 (0.15)
Non-Swiss name * relative position	0.12 (0.13)
Non-Swiss name * profession = medium skilled	0.01 (0.08)
Non-Swiss name * profession = low skilled	0.03 (0.07)
Constant	− 1.62 (0.14)***
AIC	− 4036.70
Log likelihood	2045.35
N	1633

Table 6 continued

	Model 1 b. (s.e.)
Groups: lists	90
Variance: list	0.06

Notes Coefficients and standard errors from a random intercept model with a beta distribution and logit link, N = 1633, fixed effects for municipalities added (not displayed in this Table)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7 Hierarchical beta regression model estimates of the effect of candidate's name (with respect to language region) on negative preference votes

	Model 1 b. (s.e.)
Non-Swiss name: same language region	0.11 (0.05)*
Non-Swiss name: other language region	0.08 (0.04)*
Incumbent	− 0.62 (0.04)***
Relative position on ballot	− 1.65 (0.05)***
Pre-cumulated	1.18 (0.05)***
Female	0.01 (0.02)
Age: 30–50 years	− 0.19 (0.03)***
Age: 50+ years	− 0.02 (0.03)
Profession: medium skilled	0.10 (0.03)***
Profession: low skilled	0.24 (0.03)***
Number of candidates on ballot	− 0.01 (0.01)
Party position: center-right	0.04 (0.06)
Party position: right	− 0.15 (0.08)
Constant	− 1.64 (0.14)***
AIC	− 4034.70
Log likelihood	2038.35
N	1633
Groups: lists	90
Variance: list	0.06

Notes Coefficients and standard errors from a random intercept model with a beta distribution and logit link, N = 1633, fixed effects for municipalities added (not displayed in this Table)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 8 Hierarchical beta regression model estimates of the effect of candidate's name (Swiss, non-Swiss Western, non-Swiss non-Western) on negative preference votes

	Model 1 b. (s.e.)
Non-Swiss name: Western	0.10 (0.04)*
Non-Swiss name: non-Western	0.09 (0.04)*
Incumbent	− 0.62 (0.04)***
Relative position on ballot	− 1.65 (0.05)***
Pre-cumulated	1.18 (0.05)***
Female	0.01 (0.02)
Age: 30–50 years	− 0.19 (0.03)***
Age: 50+ years	− 0.02 (0.03)
Profession: medium skilled	0.10 (0.03)***
Profession: low skilled	0.24 (0.03)***
Number of candidates on ballot	− 0.01 (0.01)
Party position: center-right	0.04 (0.06)
Party position: right	− 0.15 (0.08)
Constant	− 1.64 (0.14)***
AIC	− 4034.36
Log likelihood	2038.18
N	1633
Groups: lists	90
Variance: list	0.06

Notes Coefficients and standard errors from a random intercept model with a beta distribution and logit link, N = 1633, fixed effects for municipalities added (not displayed in this Table)

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 9 Hierarchical beta regression model estimates of the effect of candidate's name (Swiss/non-Swiss) on negative preference votes (including all ballots)

	Model 1 b. (s.e.)	Model 2 b. (s.e.)
Non-Swiss name	0.09 (0.02)***	0.01 (0.03)
Incumbent	− 0.54 (0.03)***	− 0.54 (0.03)***
Relative position on ballot	− 1.30 (0.04)***	− 1.30 (0.04)***
Pre-cumulated	0.87 (0.04)***	0.88 (0.04)***
Female	0.01 (0.02)	0.01 (0.02)
Age: 30–50 years	− 0.16 (0.02)***	− 0.16 (0.02)***
Age: 50+ years	− 0.03 (0.02)	− 0.03 (0.02)
Profession: medium skilled	0.07 (0.02)***	0.07 (0.02)***
Profession: low skilled	0.18 (0.02)***	0.18 (0.02)***
Number of candidates on ballot	− 0.01 (0.01)	− 0.01 (0.01)
Party position: center-right	0.01 (0.05)	− 0.01 (0.05)
Party position: right	− 0.36 (0.07)***	− 0.39 (0.08)***

Table 9 continued

	Model 1 b. (s.e.)	Model 2 b. (s.e.)
Non-Swiss name * party pos. = center-right		0.12 (0.05)*
Non-Swiss name * party pos. = right		0.23 (0.08)**
Constant	− 2.47 (0.12)***	− 2.45 (0.12)***
AIC	− 7380.62	− 7387.82
Log likelihood	3710.31	3715.91
N	1633	1633
Groups: lists	90	90
Variance: list	0.05	0.05

Notes Coefficients and standard errors from a random intercept model with a beta distribution and logit link, N = 1633, fixed effects for municipalities added (not displayed in this Table)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 10 Hierarchical beta regression model estimates of the effect of candidate's name (Swiss/non-Swiss) on internal preference votes

	Model 1 b. (s.e.)	Model 2 b. (s.e.)
Non-Swiss name	− 0.05 (0.02)**	0.00 (0.03)
Incumbent	0.33 (0.02)***	0.33 (0.02)***
Relative position on ballot	0.88 (0.03)***	0.88 (0.03)***
Pre-cumulated	1.54 (0.03)***	1.54 (0.03)***
Female	− 0.01 (0.01)	− 0.01 (0.01)
Age: 30–50 years	0.08 (0.02)***	0.08 (0.02)***
Age: 50+ years	− 0.01 (0.02)	− 0.01 (0.02)
Profession: medium skilled	− 0.05 (0.01)***	− 0.05 (0.01)***
Profession: low skilled	− 0.12 (0.02)***	− 0.12 (0.02)***
Number of candidates on ballot	0.00 (0.00)	0.00 (0.00)
Party position: center-right	0.05 (0.04)	0.07 (0.04)
Party position: right	0.12 (0.06)*	0.14 (0.06)*
Non-Swiss name * party pos. = center-right		− 0.10 (0.04)**
Non-Swiss name * party pos. = right		− 0.12 (0.06)*
Constant	− 0.12 (0.09)	− 0.13 (0.09)
AIC	− 4888.56	− 4893.46
Log likelihood	2464.28	2468.73
N	1633	1633

Table 10 continued

	Model 1 b. (s.e.)	Model 2 b. (s.e.)
Groups: lists	90	90
Variance: list	0.03	0.03

Notes Coefficients and standard errors from a random intercept model with a beta distribution and logit link, N = 1633, fixed effects for municipalities added (not displayed in this Table)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 11 Hierarchical linear model estimates of the effect of candidate's name (Swiss/non-Swiss) on external preference votes

	Model 1 b. (s.e.)	Model 2 b. (s.e.)
Non-Swiss name	− 0.06 (0.15)	0.05 (0.22)
Incumbent	1.12 (0.18)***	1.13 (0.18)***
Relative position on ballot	1.94 (0.22)***	1.95 (0.22)***
Pre-cumulated	0.66 (0.22)**	0.66 (0.22)**
Female	0.13 (0.11)	0.14 (0.11)
Age: 30–50 years	− 0.06 (0.15)	− 0.06 (0.15)
Age: 50+ years	− 0.31 (0.16)	− 0.31 (0.16)
Profession: medium skilled	− 0.31 (0.12)*	− 0.31 (0.12)*
Profession: low skilled	− 0.37 (0.14)**	− 0.37 (0.14)**
Number of candidates on ballot	0.02 (0.01)	0.02 (0.01)
Party position: center-right	− 0.20 (0.12)	− 0.16 (0.12)
Party position: right	− 0.30 (0.15)	− 0.29 (0.16)
Non-Swiss name * party pos. = center-right		− 0.28 (0.33)
Non-Swiss name * party pos. = right		− 0.01 (0.49)
Constant	− 1.22 (0.29)***	− 1.24 (0.29)***
AIC	7029.06	7032.28
Log likelihood	− 3494.53	− 3494.14
N	1633	1633
Groups: lists	90	90
Variance: list	0.00	0.00

Notes Coefficients and Standard Errors form a linear random intercept model, N = 1633, fixed effects for municipalities added (not displayed in this Table)
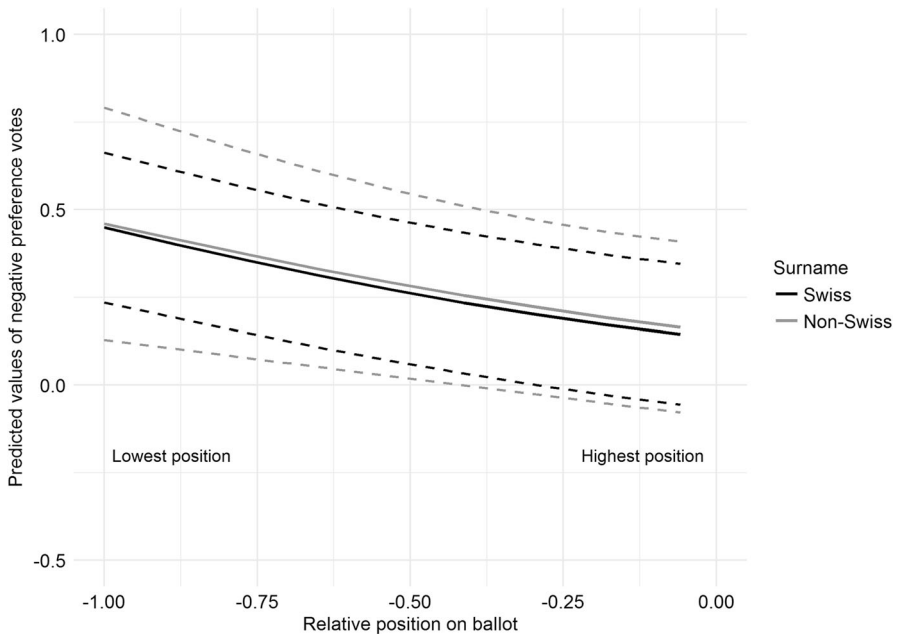
*** p < 0.001, ** p < 0.01, * p < 0.05

Fig. 2 Interaction effect of name origin and the relative position on the ballot on negative preference votes

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