Who Gets a Swiss Passport?
A Natural Experiment in Immigrant Discrimination

Jens Hainmueller – Massachusetts Institute of Technology
Dominik Hangartner – London School of Economics and Political Science

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ABSTRACT

We study discrimination against immigrants using micro-level data from Switzerland, where, until recently, some municipalities used referenda to decide on the citizenship applications of their foreign residents. We show that naturalization decisions vary dramatically with the attributes of the immigrants, which we collect from official applicant descriptions that voters received prior to each plebiscite. Country of origin determines naturalization success more than any other applicant characteristic, including language skills, integration status, or economic credentials. Rejection rates for applicants from former Yugoslavia and Turkey are about 40 % higher compared to observably similar applicants from richer European countries. Both statistical and taste-based discrimination contribute to this differential treatment; the rewards for economic credentials are higher for applicants from disadvantaged origins, and origin-based discrimination is much stronger in more xenophobic municipalities. Moreover, discrimination against different immigrant groups responds dynamically to shifts in their relative size. Overall, the results suggest that discrimination in naturalization referenda is widespread but not universal; it varies across immigrant groups and over time.

I. Introduction

Immigration has been a divisive political issue in many countries in recent decades. One of the most controversial debates over immigration policy involves the integration of already-settled migrants and in particular their access to citizenship. In the U.S., there are heated debates about restricting birthright citizenship for children of unauthorized immigrants.[1] Throughout Europe, right wing parties nowadays use citizenship policies as a vehicle to mobilize voters against immigration with campaigns that emphasize the societal dangers of naturalizing increasing numbers of immigrants (Dancygier; 2010; Howard; 2009; Helbling; 2008; Bloemraad et al.; 2008). These groups reject the integration of foreigners as citizens, because they view immigrants as undeserving outsiders that poach jobs from native workers, balkanize local communities, and undermine traditional values; such outsiders should not be rewarded with equal access to the political and social rights of the host country (Brubaker; 1989; Koopmans et al.; 2005; Givens; 2007). These heated debates over naturalization policies are likely to escalate further in the years ahead in light of increased migration flows; immigrants already account for about 10 % of the population across advanced industrialized countries (Dumont et al.; 2010).

Why do some people oppose and others favor immigration and the naturalization of immigrants? Do natives discriminate against particular types of immigrants and if so, which ones are welcomed and which rejected? A large body of literature has examined attitudes towards immigration in Europe, the U.S., and several other countries, but scholars still disagree about the prevalence and causes of anti-immigrant sentiments (for recent summaries see Hopkins (2010); Hainmueller and Hiscox (2010); Ceobanu and Escandell (2010)). One important limitation of existing research is the absence of detailed behavioral data on anti-immigrant sentiments. Most studies to date are based on attitudinal measures from public opinion surveys, which have their merits, but also impose important limits on the inferences that we can draw. For example, most existing surveys are fairly blunt instruments that only ask respondents to describe their attitudes towards immigration in general, although we expect that the views of natives vary in important ways across different types of immigrants (e.g. country of ori-

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[1]See for example Marc Lacey, "Birthright Citizenship Looms as Next Immigration Battle", *The New York Times*, January 4, 2011. Julia Preston, "Citizenship From Birth Is Challenged on the Right", *The New York Times*, August 6, 2010.

gin, skill level, etc.).[2] Another limitation is that many studies rely on cross-sectional surveys, which makes it difficult to asses how hostility towards different immigrant groups varies over time.[3] Moreover, surveys generally put respondents in an artificial setting where responses have almost no real-life consequences, and therefore may boil down to off-the-top-of-the-head reactions that inaccurately capture true beliefs (Bertrand and Mullainathan; 2001). Another well-recognized problem is that answers to sensitive questions about immigration and racial policies can be biased by social desirability effects, because respondents are unwilling to admit to discriminatory attitudes in times when discrimination has become illegal and socially unacceptable in many countries (Kuklinski et al.; 1997; Berinsky; 1999).[4]

In light of these problems, some scholars have turned to field experiments such as audit studies to behaviorally measure racial discrimination in the labor market and other economic domains (Jowell and Prescott-Clarke; 1970; Bertrand and Mullainathan; 2004; Adida et al.; 2010). We take a complementary approach and study discrimination in naturalization decisions, drawing upon a natural experiment from Switzerland that allows us to overcome some of the inferential challenges based on detailed behavioral data that illuminates how discrimination against immigrants varies across different types of immigrants and over time. In Switzerland, each municipality has the right to decide whether its foreign residents that seek Swiss citizenship are naturalized or rejected. We focus on the group of municipalities that until 2003 used referenda with closed ballots to decide each naturalization request.

A typical naturalization referendum involved two stages: Local voters first received official voting leaflets that informed them about the pending naturalization request with a detailed resume of each immigrant applicant. Voters then cast a secret ballot, and applicants with a majority of "yes" votes were granted Swiss citizenship. Drawing upon local municipality archives, we collected a new dataset that contains the applicant characteristics and voting outcomes for all 2,400 recorded naturalization referenda held between 1970 and 2003 in all 44

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[2]Exceptions include recent survey experiments that differentiate immigrants with different attributes such as for example Brader et al. (2008); Sniderman et al. (2004); Hainmueller and Hiscox (2010), but due to constraints on survey design, these studies are usually limited to a small number of immigrant attributes.

[3]Exceptions include recent studies that use repeated cross-sectional surveys such as for example Coenders and Scheepers (1998); Scheve and Slaughter (2001); Semyonov et al. (2006); Hopkins (2010).

[4]A recent panel report from the National Research Council's Committee on National Statistics well summarizes these inferential problems in the area of racial discrimination (Blank et al.; 2004).

Swiss municipalities that used secret ballot naturalization referenda and voting leaflets. We use this data to explain the variation in naturalization outcomes as a function of applicant and municipality characteristics.

This research design has at least three advantages over previous work. First, the naturalization decisions allow us to measure revealed preferences over immigrants based on actual behavior in a real-world setting. Social desirability bias is not a concern, because local residents used secret ballots and needed to provide no justification for their votes. They also had to face the consequences of their voting behavior, as naturalized immigrants instantly acquired the same rights as existing members of the local citizenry (including the right to vote and permanently stay in the municipality). The data should therefore reveal a fairly accurate assessment of the immigration preferences of the local voting populations. Second, much like a real world vignette experiment (Rossi and Nock; 1982), our data covers comparable application decisions over thousands of immigrants with radically different attributes and at different points in time. This allows us to pinpoint which applicant characteristics affect the naturalization success and to infer how much particular attributes of immigrants are valued or disliked by the local voting population. Going beyond a static perspective, it also allows us to examine how discrimination against particular immigrant groups varies over time in response to immigration waves. Third, the selection on observables assumption that allows us to attribute differences in rejection rates to the effects of differences in measured applicant characteristics is plausible in our context, because we utilize the same applicant information from the official voting leaflets that voters had at their disposal when they decided on the naturalization requests. Given that voters commonly had no private information about the naturalization candidates, it seems unlikely that they could have systematically discriminated between applicants based on other characteristics than the ones we measure and control for in our statistical analysis.

We find that naturalization outcomes vary dramatically both across and within municipalities. Our results demonstrate that country of origin is by far the most important determinant of naturalization success. The average rejection rate is 13-14 percentage points higher for applicants from (former) Yugoslavia and Turkey compared to observably similar applicants from richer European countries that apply in the same municipality at the same time; this consti-

tutes an increase of about 40 % over the average rejection rate. Similarly, rejection rates are 7 percentage points higher for applicants from other central and eastern European countries, 3 percentage points higher for applicants from Asia, 7 percentage points higher for applicants from other Non-European countries, and about 1 percentage point lower for applicants from southern Europe. Country of origin alone accounts for about 40 % of the within-municipality variation in rejection rates and the effects are robust across a wide range of specifications.

Other immigrant characteristics also influence naturalization outcomes. Voters systematically prefer applicants with better economic credentials (as measured by occupational skill, education, and spells of prior unemployment), but the effects are relatively small. For example, a Turkish applicant would have to attain about 70 years of education to reach the same expected naturalization outcome as an observably similar applicant from a richer European country. Applicants that are born in Switzerland and applicants that have longer residency attain only slightly lower rejection rates. For example, an applicant from former Yugoslavia would need about 85 years of residency to offset the disadvantage that results from his country of origin. We also find that language skills have almost no effect on naturalization success. Even applicants that are described to voters as "perfectly fluent" in the Swiss-German dialect earn no significant advantage. Similarly, the assessed immigration status of the applicant plays very little role overall (the exception are applicants that earn slightly lower rejection rates because they are described to voters as being "completely indistinguishable" from a Swiss native).

We use additional tests to illuminate the mechanisms that drive the differential treatment of applicants based on their country of origin. Theories of statistical discrimination (Arrow; 1972; Phelps; 1972) emphasize that given limited information, voters may rely on their knowledge about the average integration status of the different origin groups to infer the partially unobserved integration status of individual applicants. This logic implies that voters will reward an applicant more strongly for additional observable credentials that are informative about his integration status (such as higher educational attainment), if the applicant belongs to an immigrant origin group that is believed to have the lowest average level of integration. Consistent with this hypothesis, we find that the relative returns for economic credentials are much higher for applicants from Turkey or the former Yugoslavia. We also find evidence

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for theories of taste-based discrimination which link differential treatment to prejudice against particular immigrant groups (Becker; 1971; Allport; 1979). Consistent with this model, we find that origin-based discrimination steeply increases with the xenophobic preferences of the local population (as measured by vote shares from anti-immigration referenda); the origin disadvantage for applicants from former Yugoslavia or Turkey almost triples in the most, compared to the least, xenophobic municipalities. Overall, these results indicate that statistical discrimination may account for about 40 % and taste-based discrimination for about 60 % of the origin-based discrimination in our sample. Moreover, consistent with group conflict theories that link the rise of xenophobic prejudice to a defensive reaction of natives who view immigrant out-groups as a threat to their dominant position (Blumer; 1958; Blalock; 1967; Quillian; 1995; Bobo and Hutchings; 1996), we find that the origin-based discrimination is correlated to shifts in the relative size of the different origin groups. While discrimination against applicants from Turkey and the former Yugoslavia dynamically increases following the rapid surge of these groups during the 1990s, discrimination against immigrants from Southern European origins decreases as the relative size of this group drops over time.

Our study contributes to several literatures. First, our results have implications for the extensive literature that attempts to understand the prevalence and drivers of anti-immigrant sentiments (e.g. Espenshade and Hempstead (1996); Fetzer (2000); Chandler and Tsai (2001); Dustmann and Preston (2007); Ceobanu and Escandell (2010)). While most studies are based on survey data and only consider attitudes towards immigration in general, our results provide clear behavioral evidence that natives do not treat all immigrants equally but instead draw important distinctions between different types of immigrants and these preferences are not static but vary over time. Our results also show that measurement matters: the revealed immigration preferences in our behavioral data contrast with immigration preferences as measured by comparable public opinion surveys, which are prone to social desirability bias. Second, our findings resonate with the literature on racial discrimination (e.g. Altonji and Blank (1999); Blank et al. (2004); Pager and Shepherd (2008)). While most of this work has focused on race- and gender-based discrimination in the labour market, our results demonstrate that naturalization decisions for resident aliens can be subject to similar types of discrimi-

nation, and that similar theoretical mechanisms provide explanatory leverage to account for the differential treatment. Third, by comparing micro-level data about individual naturalization decisions across several municipalities, our study adds to a small but growing literature in immigration studies that has begun to examine outcomes and policies at the local level, where more focused comparisons are less vulnerable to biases from unobserved heterogeneity that often plague cross-national research (e.g. Horton and Calderon (1995); Helbling (2008); Dancygier (2010); Hopkins (2010)). Fourth, our findings add new empirical evidence to the extensive literature and policy debates about the integration of already settled immigrants and citizenship policies (e.g. Freeman (2004); Givens (2007); Bloemraad et al. (2008)). Finally, our study contributes to the literature that studies the relationship between direct democracy and the protection of civil rights of minorities (e.g. Gamble (1997); Frey and Goette (1998); Hajnal et al. (2002); Maskin and Tirole (2004); Vatter and Danaci (2010)). Our results provide evidence that, in the absence of other institutional safeguards, referendum voting can result in systematic discrimination against particular minority groups who find themselves at the whim of the native majority. This finding informs ongoing policy debates about reforms of the Swiss naturalization system.

II. Citizenship Policy in Context

Before we turn to the empirical analysis of local naturalization outcomes, it is helpful to put the Swiss naturalization system in a comparative perspective and illuminate the benefits that immigrants may derive from obtaining Swiss citizenship.

A. The Swiss Naturalization System

Ever since classical Athens, states have used citizenship as a closure mechanism to define a select group of members that belong to a political and territorial association (*polity*) and enjoy special privileges that are denied to non-members. Historically, attributes such as class, wealth, ethnicity, race, and gender often formed the eligibility criteria for citizenship, and the requirements were frequently adapted over time to accommodate developments in state capacity (Bellamy; 2008). In Switzerland, this link between citizenship and state building gave rise

to a system of triple citizenship, which defines Swiss citizenship on the basis of citizenship in a municipality, a canton, and the Confederation (see Helbling (2008, pg. 12-17) for an excellent review). This three-tiered system is unique in that it delegates the responsibility for the naturalization of foreigners largely to the municipal level. Federal laws impose formal naturalization requirements, but no immigrant can obtain a Swiss passport without acquiring citizenship of a municipality, and municipalities enact the naturalization procedures and ultimately decide on the applications.[5] This contrasts with many other countries where naturalization procedures and criteria are typically defined at the federal level and implemented by federal ministries or agencies (as in the U.S., France, Canada, or Belgium). Some other countries have hybrid regimes where rules are stipulated at the federal level, but applications are checked and decided at the regional level (as in Germany or Austria).[6]

In general, Switzerland is often categorized as part of the group of countries with relatively restrictive citizenship regimes, such as Germany, Denmark, Austria, or Greece (Goodman; 2010; Howard; 2009). In the other pool are countries with more liberal citizenship regimes such as France, the UK, Belgium, or the U.S. Although naturalization regimes are complex and generally difficult to compare across countries, the more restrictive countries are typically characterized by the fact that they rely on the jus sanguinis principle, which implies that citizenship is passed on from the citizenship of the parents, rather than granted based on the place of birth. More liberal countries also typically require around 5 years of permanent residence, while more restrictive regimes require up to 8-10 years before resident immigrants become eligible for citizenship.[7] More restrictive regimes also typically require renunciation of prior citizenship and do not allow naturalized immigrants to hold multiple passports. Switzerland introduced multiple citizenship for naturalized immigrants in 1992, in contrast to many of the traditionally more restrictive countries. Almost all Western countries, including Switzerland,

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[5]The federal level exclusively controls access to Swiss citizenship through descent, marriage, and adoption. Cantons rarely regulate local naturalization policies, with the exception of Geneva where naturalizations of foreigners are centralized at the canton level.

[6]Some studies suggest that there exist significant within-country variation in the handling of naturalization applications. Such differences have been found between German Länder, Austrian regions, French regional offices and even U.S. district offices (Helbling; 2008, pg. 18-19).

[7]Switzerland requires 12 years of residence, but years between ages 10 and 20 count double; at least three of the 12 years must fall within the five years preceding the naturalization request (Bürgerrechtsgesetz §15).

also have additional naturalization criteria which require a clean criminal record, some evidence of financial self-sufficiency, and, in many cases, demonstrated mastery of the country's official language(s). Several countries, such as Switzerland, also require that applicants demonstrate knowledge of the country and meet a standard of integration (Goodman; 2010).[8]

About 2 in 100 foreigners were naturalized in Switzerland in 2000. While southern European countries like Spain, Italy, and Portugal experienced even lower naturalization rates in the same year, several OECD countries had higher rates with 2.5 % in Germany, 3 % in the U.S., or 4 % in the UK (OECD; 2003, pg. 93). Despite its relatively low naturalization rate, Switzerland has experienced a sizeable immigration inflow over the last three decades. By 2000 the share of the non-naturalized immigrant population reached 25 % in Switzerland, by far the highest level among all other Western countries but Luxembourg; for comparison the share of the foreign born population in the same year was 15 % in the United States, 13 % in Germany, and 9 % in the United Kingdom (Dumont et al.; 2010).

Given the increased immigration flows in recent decades, citizenship policies have become heavily politicized in most Western countries, as right-wing parties have discovered the topic as an effective springboard to mobilize voters against immigration. In Switzerland, the Swiss People's Party has repeatedly emphasized the need to restrict access to citizenship and immigration inflows, campaigning against "mass-naturalizations" with signs that portray brown, black, and white hands snatching Swiss passports. In many other countries anti-immigrant political movements such as the Freedom Party in Austria, the National Front in France, the DVU in Germany, or the Danish Peoples Party in Denmark have similarly mobilized voters against immigration by highlighting the societal dangers of liberal citizenship policies. Conflicts over naturalization policy are therefore an important part of the general phenomenon of anti-immigrant sentiments (Dancygier; 2010; Howard; 2009; Bloemraad et al.; 2008; Helbling; 2008;

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[8]In Switzerland the federal requirements for ordinary naturalization are as follows: the applicant is integrated into the Swiss context, she is familiar with the Swiss way of life, adapts to the laws, traditions, and customs, respects the legal order, and poses no threat for the internal and external security of Switzerland (Bürgerrechtsgesetz §14). With respect to the integration requirement, Switzerland may be most comparable to countries like Austria, Netherlands, Luxembourg, or Germany which have explicit or implicit integration requirements for applicants. France requires "assimilation" (Goodman; 2010, pg. 13). The U.S. requires applicants to demonstrate English proficiency and basic knowledge of U.S. history and government. It also requires that applicants are of "good moral character" which is usually defined to mean that applicants are law-abiding and provide truthful information during the interviews.

Givens; 2007; Mudde; 2007; Koopmans et al.; 2005; Brubaker; 1989).[9]

B. The Benefits of Swiss Citizenship

Why might immigrants want to seek Swiss citizenship? For the 1970-2003 period covered in our study, almost all eligible immigrants applying for ordinary naturalization have a settlement permit, and therefore share many of the same rights and benefits as Swiss citizens, such as the right to choose their employers, access to health benefits, right to travel and return, and the responsibility to pay regular taxes. However, Swiss citizenship still carries an important symbolic value as a visible marker of full membership in the host country. It also comes with several tangible benefits. First, only citizens have the right to vote in the many local, cantonal, and federal referenda and elections, and the right to run for office or express their concerns at municipality assemblies.[10] Second, children born to resident aliens do not automatically receive Swiss citizenship at birth, but have to apply through naturalization procedures. Third, only citizens have the right to stay in Switzerland indefinitely, while the settlement permit can theoretically be challenged if the immigrant returns to her country of origin for more than six months (Wanner and Piguet; 2002, pg. 919). Fourth, immigrants cannot enter certain jobs that formally require Swiss citizenship.[11] Fifth, the acquisition of citizenship may improve the economic prospects of immigrants. Positive effects of naturalization on wage and employment have been found in several countries including the U.S., Canada, the Netherlands, France, Sweden, and Germany (Ohlsson (2008) reviews the relevant studies). Several causal mechanisms have been proposed for these findings which are equally plausible in the Swiss context. Citizenship can be a signal to employers indicating higher levels of human capital and lower risk of return migration. It can also directly help in the hiring process when employers dis-

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[9]This close link between immigration and naturalization policy is also present in public opinion data. For example, a 2006 Gallup poll in the U.S. found that 60 % of the respondents that supported a decrease in the level of immigration were also in favor of denying birthright citizenship to children of unauthorized immigrants. The latter policy was supported by only 29 % of the respondents that favored an increase in immigration levels. In Switzerland, voting results from referenda that involved restrictions on immigration are highly correlated with voting results from referenda that involved changes to naturalization policy.

[10]Only very few (and none of our sample) municipalities allow immigrants with settlement permits to vote at the municipal or cantonal level.

[11]For example, several public employers only hire Swiss citizens: the military, publicly owned defense companies, several cantonal police forces, the border guard corps, and the Foreign Service.

criminate based on nationality. In fact, a field experiment by Fibbi et al. (2003) documents strong discrimination against non-naturalized immigrants among Swiss employers.

In sum, Swiss citizenship provides more than just symbolic value for the immigrant who decides to settle in Switzerland. Citizenship marks the difference between being a tolerated resident who may express her views and being "entitled to have them heard on an equal basis" (Bellamy; 2008, pg. 12).[12] Naturalization therefore provides an important indicator for the level of societal integration and reciprocity between natives and their immigrant populations.

III. Explaining Naturalization Decisions

A. Practice of Municipal Citizenship

Immigrants that seek Swiss citizenship have to apply via the ordinary naturalization procedure at three administrative levels: federal, cantonal, and municipal.[13] While the federal and cantonal authorities check if an applicant fulfills the basic eligibility requirements such as the residency period and clean criminal record, municipalities locally evaluate the merits of each applicant and ultimately decide on the naturalization request. Municipalities use different institutional arrangements for this decision. In the period under investigation (1973-2003), municipal decision-making systems for naturalization requests ranged from direct democratic variants such as popular votes at the polling place or voting in citizens' assemblies by hand-raising, to delegation of the naturalization decisions to legislative or executive bodies like the municipality council, or even a commission with appointed officials. The majority of municipalities decided on naturalization requests by hand-raising at municipal assemblies.

B. Naturalization Referenda

In this study we focus on the relatively small sub-sample of municipalities that historically used popular votes with secret ballots to decide on citizenship applications, a policy that

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[12]While unsuccessful applicants keep their permit, at the moment we can only speculate about the economic, political, and social consequences of being rejected citizenship at a popular vote. In a follow-up project we study the effects of citizenship by surveying immigrants whose applications were narrowly decided.

[13]Here and for the rest of the study, we focus on so-called *ordinary naturalizations* which are by far the most common naturalization mode. Applicants married to a Swiss national can apply for *facilitated naturalization* which grants citizenship on demand and the municipality is not involved in the process.

has historical antecedents in the *polis* of Athens[14] and resonates with the political culture in Switzerland, which puts strong emphasis on local autonomy and direct democratic principles. We refer to this group as "ballot box" municipalities. A typical naturalization referendum in our ballot box municipalities involved a two step process in which citizens received official leaflets with a one-page resume that detailed information about each immigrant applicant (a list of applicant characteristics is provided below). Voters then cast a secret ballot to either reject or approve the applicant's naturalization request, and applicants with a majority of "yes" votes were granted Swiss citizenship. In our ballot box municipalities, voting on citizenship requests was part of the usual direct democratic routine where referenda are used in regular intervals to decide on a whole variety of municipal matters. Voting typically took place at the polling place with secret ballots; citizenship requests appeared on the ballots alongside other municipal referenda.[15]

Although historically relatively few municipalities used naturalization referenda to decide on citizenship applications, the practice recently sparked political debates following media reports about seemingly discriminatory rejection of applicants. One such case was brought before the Swiss Federal Court, which in July 2003 ruled that closed ballot voting for naturalization referenda violates the Swiss Constitution (BGE 129 I 232 and BGE 129 I 217). The Federal Court argued on two different levels. The key reason for ruling out naturalization referenda was that immigrants have the right to appeal rejected applications (BGE 129 I 217) and therefore the decision-making body is obligated to provide justifications for the rejection.[16] Since it lies in the very nature of closed ballots that voters do not have to justify their decisions, the court reasoned that such procedures cannot be used for naturalizations. Interestingly, the Federal

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[14]In ancient Athens the citizens' assembly *ecclesia* decided on the naturalization applications of individuals and sometimes even whole groups (e.g. after outstanding services in wars) by closed ballot voting (cf. (Pseudo-)Demosthenes against Neaera (Demosthenes; 1949))

[15]While the format of the voting leaflets varied somewhat across our ballot box municipalities, they all contained broadly similar information about the applicants. The ballots used to vote on citizenship requests were also broadly similar, but there was some variation in the amount of applicant information listed on the ballot. Some ballots just listed the applicant's name while others included more characteristics drawn from the voter leaflets, such as age, country of origin, or job title. To the best of our knowledge, ballots never included additional applicant information that was not included in the leaflets. For the majority of the empirical analysis we abstract from these time-invariant institutional details and focus on within-municipality variation in naturalization outcomes.

[16]Otherwise the decision-making body violates paragraph §29 II of the Swiss Constitution which covers general procedural safeguards.

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court also explicitly mentioned the danger that an applicant may be rejected simply because of her affiliation to a certain "ethnic-cultural group" (BGE 129 I 232: 241) which violates the anti-discrimination clause provided by the Swiss Constitution.[17] In response to the Federal Court rulings, the ballot box municipalities changed their naturalization procedures and most of them transferred the authority for naturalization decisions to the municipality council.[18]

The court rulings triggered heated debates about the use of closed ballot naturalization referenda. The Swiss People's Party has repeatedly campaigned that "the people" should have full discretion over the naturalization process, and public support for this position remains strong.[19] In 2006, the Swiss People's Party successfully collected the 100,000 signatures necessary for a federal initiative which, by changing the Swiss Constitution, would grant the municipalities full discretion over naturalizations (including, of course, secret ballot voting) and altogether remove the rejected applicant's right to appeal. Although this particular initiative "for democratic naturalizations" was rejected by 64 % of the voters in 2008, related popular initiatives at the cantonal level are already in preparation and will ensure continuing politicization of the issue in the ongoing reform debates about naturalization policy.

C. Empirical Strategy

Closed ballots and voting leaflets are the two main features of the research design that allow us to overcome some of the inferential challenges that are typically associated with the study of immigrant discrimination (Blank et al.; 2004). The first feature addresses the measurement problem: the anonymity of closed ballot voting guards against social desirability effects. Unlike surveys where answers bear almost no real-life consequences for respondents, in our case, preferences are revealed by voters in a real-world setting where they are not aware of the

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[17]The relevant paragraph §8 II of the Swiss Constitution states: Nobody may be discriminated against, namely because of origin, race, gender, age, language, social position, or way of life; religious, ideological or political convictions or because of a physical or mental disability.

[18]In a follow-up project we exploit this exogenous shift to identify the effects of different institutional regimes on naturalization outcomes.

[19]In a 2008 poll, 47 % of Swiss voters agreed that naturalizations must be decided by the Swiss people ("Über Einbürgerungen muss das Schweizer Volk entscheiden können" Vox poll 06/01/2008. Item: arg01x). In a 2004 poll, 40 % of Swiss voters agreed that the federal level should not interfere with the cantonal and municipal autonomy to regulate naturalization policy ("Der Bund hat sich nicht in die Kompetenzen der Kantone und Gemeinden auf dem Gebiet des Einbürgerungswesens einzumischen" Vox poll 09/26/2004. Item: arg06x).

research context and must face the consequences of their voting behavior.

The second feature addresses the causal identification problem: The leaflets summarizing the applicant characteristics were sent to all citizens usually about one to two weeks prior to the vote. Since we retrieve the official voting leaflets from the municipal archives, we as researchers measure all of the applicant characteristics that the citizens observed when they voted on the citizenship applications. This renders the selection on observables assumption needed for unbiased estimation of discrimination effects plausible. For example, imagine voters are faced with observably similar applicants that only differ in their country of origin, say Italy and Yugoslavia. If voters reject such Yugoslavian applicants at a higher rate than Italians, then we can attribute the disparity in rejection rates to the difference in the country of origin, because voters have no private information that can be used to systematically discriminate between the applicants other than the applicant characteristics that we measure from the leaflets and control for in the statistical analysis. Given this, it seems unlikely that differences in the voting outcomes can be attributed to differences in omitted applicant characteristics that are observable to voters but unobservable to the researcher. An exception are cases where voters personally knew a particular applicant, but this is rare given that the average municipality in our sample has more than 5,000 inhabitants (we later show that our results are similar across municipalities of different sizes).

Before we proceed to the estimation, it is important to emphasize the scope of our analysis. Our main goal is to examine how applicant characteristics affect naturalization success conditional on applying. In other words, we examine potential discrimination only in the last step of the application process, once the naturalization requests are put to a popular vote. Our study is not designed to capture additional forms of potential discrimination that may affect immigrants' decision to apply for naturalization in the first place. For example, municipality officials could directly discourage immigrants from applying, or potential applicants could be discouraged from applying if they anticipate discriminatory outcomes, or deem the costs of applying to be higher than the expected benefits. Notice that variation in these factors may affect the pool of applicants in a given municipality, but such variation does not invalidate our selection on observables assumptions since once an application is put to the vote, we can avoid

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omitted variable bias because we capture the same applicant characteristics that voters learn about from the voting leaflets. In general, our results are therefore best interpreted as a lower bound for the overall prevalence of discrimination against immigrants in the naturalization decisions of ballot box municipalities.[20]

D. Data and Sample

To construct our data, we first identified all ballot box municipalities in Switzerland that used referendum voting with secret ballots to decide on naturalization requests prior to the court ruling in 2003. Since data on municipal decision making was unavailable, we compiled a list of all municipality offices and fielded a survey to the *Gemeindeschreiber* (head secretaries) to collect information about the history of the local naturalization process. This survey yielded an overall response rate of 60 %; the coverage was 74 % for larger municipalities which had at least 10 naturalizations in 2000.[21] To complement the data, we also contacted canton officials and searched through newspaper archives and municipality websites for additional reports about municipalities with naturalization referenda.[22] Overall, we identified 44 ballot box municipalities that are defined as municipalities that i) used popular votes with secret ballots for naturalizations at some point prior to 2003 and ii) sent voters leaflets with information about the applicants. To the best of our knowledge, this constitutes a complete list (with the single exception of the recently merged municipality of Glarus which was not able to locate the applicant data after the merger). Members of the research team then visited each municipality

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[20]It is also worth emphasizing that, as an empirical matter, potential deterrence effects do not vary much across municipalities. As we show below, the number of applications in a municipality is very closely proportional to its size which suggests that there is not much variation across municipalities in the factors that determine the selection into applying. One reason for this is that the spatial mobility of immigrant applicants is very limited. For the pre-2003 period covered by this study, immigrants were required to have a job in Switzerland before entering the country and therefore choose the area for their initial settlement mainly based upon geographic proximity to their workplace. Moreover, immigrants whose naturalization requests are rejected could not simply move to a neighboring municipality and immediately re-apply for citizenship. Instead, they had to wait for several years because municipalities commonly require that applicants have to reside in the municipality for 4-6 years before applying for citizenship.

[21]We fielded the survey in 2010 using an online survey tool. The questionnaire is available upon request. The included municipalities capture about 80 % of the Swiss population since the non-response is concentrated among the smallest municipalities that had no naturalization requests during our period and therefore refused to complete the survey.

[22]We searched the archives of the *Neue Zürcher Zeitung* and *Tagesanzeiger* as well as the website of the watchdog group GRA.

and extracted the official voting leaflets with the applicant information and the vote counts for all ordinary naturalization requests from immigrant applicants that were documented in the municipality archive for the years between 1970 and 2003.

Table 1 displays basic information about the ballot box municipalities and the number of applications. Overall the sample includes 2,429 naturalization requests. The municipalities are drawn from seven different cantons and are all located in the German language region. The period coverage varies somewhat due to differences in data availability, but for most municipalities we were able to collect data on all naturalization referenda going back to the 70s and 80s. While all municipalities in our sample used popular votes with secret ballots to decide on naturalization requests, the details of the voting process varied somewhat. In 70 % of the municipalities, voting in naturalization referenda took place at the polling place with secret ballots in conjunction with voting on other regular municipal, cantonal, or federal referenda. Turnout for such naturalization referenda was about 40 % on average, and was likely driven by turnout of other referenda that took place on the same day. In a small number of municipalities the voting on local matters – including citizenship requests – took place at the citizens' assembly. Secret ballots were also used in these cases, but turnout was typically much lower (around 18 %) since fewer citizens attended the meetings. Two municipalities, Chur and Davos, further restricted the suffrage for naturalization requests to the Burghers, a select group of about 20 % of families which have lived in the community for a long time. The average municipality had 4,029 registered voters (in 2003), although the size varied considerably from 563 registered voters in Oberiberg, to 22,441 voters in Chur. The average municipality had about 55 naturalization applications in our sample period, and the number of applications was very much proportional to the municipality size (a bivariate regression of the two variables indicates that a one % increase in the number of voters is associated with about a 1.1 % increase in the number of applications (t-value > 8.6)).

Before we turn to the empirical analysis, we consider how our sample of ballot box municipalities compares with other Swiss municipalities. Overall our sample covers about 4 % of all municipalities and about 4 % of the Swiss population in our time period. One concern for external validity could be that the municipal naturalization procedure is endogenous to the

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immigration preferences of the local community. If, for example, more xenophobic municipalities opted for popular votes because this institution makes it easier to discriminate against immigrants, then our results may be best interpreted as an upper bound for the overall level of discrimination (compared to other Swiss municipalities). The historical record suggests that this is unlikely. In fact, municipalities commonly chose their naturalization procedures decades before immigration became a politicized issue, and typically did not alter their institutions until forced to do so by the 2003 Federal Court decision.[23] Typically, the citizenship procedures were simply incorporated into the pre-existing institutional arrangements that municipalities used to decide on other municipal matters.

Table 2 compares the ballot box municipalities with other Swiss municipalities on a variety of characteristics in 1990 (roughly the middle of our study period). Consistent with the historical development, we find that ballot box municipalities are fairly similar with respect to their pre-existing immigration preferences compared to other municipalities that used hand-raising at the assembly or delegated the naturalization decision to the legislative or executive authorities. In particular, the ballot box municipalities are fairly similar to the rest of Switzerland with respect to the share of the foreign born population, the naturalization rate, the proportion of elderly, highly educated, and highly skilled, the female labour force participation, and the unemployment rate. Both the vote share of the Swiss People's Party in the 1991 federal elections and the support for an anti-immigration referenda advocating restrictive immigration laws in 1988 are lower in our sample of ballot box municipalities than in the rest of Switzerland indicating that the former were on average slightly less xenophobic. The only considerable difference is that ballot box municipalities are somewhat larger on average. Most municipalities in Switzerland are fairly small, while our sample includes a relatively high share of larger towns like Chur and Emmen. In sum, the comparison reveals that our ballot box municipalities are not too different from other Swiss municipalities, in particular municipalities in the German language region.

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[23]For example, based on our municipality survey about 90 % of all Swiss municipalities did not change their naturalization institution between 1990 and 2003.

E. Outcome and Explanatory Variables

The goal of our analysis is to examine how attributes of the immigrant applicants affect the outcomes of the naturalization referenda, conditional on applying. For our main dependent variable we focus on the rejection rate, which for each applicant is defined as the fraction of "no" votes to total votes. Since referenda are decided by simple majority rule, a naturalization request is rejected if the rejection rate exceeds 50 %. In appendix B we also replicate the regressions using a binary dependent variable that distinguishes rejected and accepted requests and the results are very similar. We prefer the rejection rate because it contains more information about the intensity with which the local voting population rejects an applicant.

For each applicant we measure an array of personal characteristics from the voter leaflets that describe the candidate for naturalization to the voters before the voting. We manually coded all covariates that are mentioned in the applicant descriptions using a consistent set of coding rules. These variables broadly fall into four categories. The first category involves socio-demographic information such as the applicant's gender, age, marital status, number of children, and our research assistants' binary coding of the picture (attractive or average). The second category captures the applicant's integration status. Prospective naturalization applicants were interviewed by municipality officials who evaluated whether the applicant was sufficiently well integrated. This included a test of the applicant's language skills and an assessment of whether the applicant was sufficiently familiar with Swiss habits, customs, and traditions. The results of these assessments were reported in the voter leaflets. We classify applicants according to whether their assessed language skills were described to voters as: "excellent"; "good", "sufficient"; and "insufficient" command of Swiss-German. We also code several variables that measure the applicant's integration status, differentiating between candidates that were described to voters as: "assimilated" (1 if assimilated, 2 if highly assimilated), "integrated" (1 if integrated, 2 if highly integrated), "adjusted", "indistinguishable from a Swiss citizen", and "familiar with Swiss customs and traditions". These variables capture the definition of the language and integration requirements in the federal citizenship law.

The third set of characteristics measure the applicant's immigration background. This includes an indicator for whether the applicant was born in Switzerland, a variable that mea-

sures the number of years that the applicant has lived in Switzerland prior to the application, an indicator for whether the applicant entered Switzerland as a refugee, and a variable that captures the number of applications (a few immigrants re-applied). We also record the country of origin and classify applicants into the following groups: Applicants from richer European countries (Germany, UK, Netherlands, Austria, Scandinavia, etc.); southern European countries (Italy, Spain, Portugal); the (former) Yugoslavia[24]; Turkey; other central and eastern European countries (Hungary, Poland, Czech Republic, Russia, etc); Asian countries (Vietnam, Tibet, Philippines, etc.), and a residual category of other Non-European countries (Latin American countries, African countries, Middle East, etc.). This grouping is based on the immigration history and also roughly follows the frequency distribution of the origin countries. Applicants from Turkey and the former Yugoslavia are coded separately because they constitute the largest recent immigrant groups and are often at the center of the current Swiss immigration debate. Applicants from Italy, Spain, and Portugal are grouped together because these were historically the sending countries of the first waves of immigrants in the 70s. Overall about 21 % of the applicants in our sample are from richer European countries, 18 % are from southern European countries, 30 % are from former Yugoslavia, 15 % are from Turkey, 6 % are from other central and eastern Europe, 7 % are from Asia, and 2 % are from other Non-European countries.[25]

The fourth set of characteristics measure the applicant's economic and social credentials. We measure the number of years of schooling and also record the applicant's skill level which is coded from the first digit of the ISCO-88 occupational classification code. We combine the first two categories (managers and professionals) as highly skilled, groups three to five (technicians and associate professionals, clerical support workers, service and sales workers) as medium skilled, and the rest (craft workers, assemblers, elementary occupations) as low skilled. We also include a binary indicator for whether the applicant's description mentioned any spell of

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[24]This includes applicants from the Socialist Federal Republic of Yugoslavia, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, Kosovo, and Macedonia.

[25]Notice that the voting leaflets almost never mention the religious affiliation of the applicant. To the extent that some voters may infer the religion of the applicants based on their country of origin, this factor could also contribute to the origin-based discrimination that we find below. This may be most relevant for applicants from Turkey and or Yugoslavia if voters perceive these applicants as Muslim. See Adida et al. (2010) for a discussion of this issue in the context of religion-based labour market discrimination.

unemployment. Descriptive statistics for the variables are reported in appendix A.[26]

IV. Results

A. Variations in Rejection Rates

The box plots in Figure 1 visualize the distribution of rejection rates within and across municipalities over the entire study period. We find a striking variation both across and within municipalities (the between is about as large as the within variation). The average rejection rate is 37 %, but some municipalities such as Wangen (with an average rejection rate of 58 %) are much more opposed to the naturalization of immigrants than other municipalities such as Stansstad (with an average rejection rate of 12 %). This is remarkable given that these two municipalities are less than 80 kilometers apart, are very similar in size, and have almost the exact same number of naturalization requests (cf. Table 1).

This between-variation may reflect systematic differences in the pool of applicants, the preferences of the local population, and/or residual variation in the institutional process. One apparent difference is that municipalities where voting in the naturalization referenda takes place at the citizens' assembly have somewhat lower average rejection rates compared to the larger group of municipalities where voting takes place at the polling place (recall that all municipalities used voting leaflets and closed ballots). This difference is partly driven by the fact that the former group of municipalities have a lower share of applicants from former Yugoslavia and Turkey who – as we show below – have the highest average rejection rates.[27]

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[26]Due to slight variations in the format of the voting leaflets, some applicant characteristics were not reported to voters in a few municipalities in certain periods. Note that this is not missing data in the traditional sense; voters simply could not observe this information. We therefore do not use common missing data techniques (such as multiple imputation), but follow Rosenbaum (2009, pg. 241) and augment the covariate set for the regressions with missingness indicators so that we can use the complete data for the estimation. Each missingness indicator is coded as one if information on a particular characteristic was not reported to voters and zero otherwise. Additionally, we fill in the missing data for the original variables that measure the respective characteristics with arbitrary fixed values that are not observed for any applicant (such as -1 for age). Notice that these fill-in values only affect the coefficients on the missingness indicators (which are arbitrary and therefore not shown in the regression tables) but not the coefficients on the actual applicant characteristics.

[27]Other factors may contribute to this difference. Turnout is typically lower at the citizens' assembly since fewer voters are willing to sit through the meetings. This selection effect could increase rejection rates if the meetings attract more concerned voters to vote against immigrants. However, meetings are typically dominated by decisions over other municipal affairs (e.g. budget, expenditures, etc.) and therefore may simply attract citizens with higher political interest. Empirical data on attendance is limited, but according to a survey of municipality officials by Ladner et al. (2009), older residents and residents that lived in the community for a long time are over-represented at assembly meetings, while residents with higher incomes and education levels

Apart from the variation between municipalities, the most striking feature in Figure 1 is that rejection rates also vary dramatically within each municipality. The interquartile range of the rejection rates is about 20 percentage points on average, which suggests that aside from the general differences between municipalities, local voters reveal very heterogenous preferences over different types of immigrants that apply in the same municipality.

B. Effects of Immigrant's Characteristics on Rejection Rates

Why do natives regard some immigrant applicants as worthy of earning Swiss citizenship while others are rejected? In order to explore the revealed immigration preferences, we regress the rejection rates on the applicant characteristics and a full set of municipality fixed effects so that the effects of the applicant characteristics are identified purely based on the within municipality variation (the specification controls for any differences in omitted factors that vary only at the municipality level). We also include a full set of decade fixed effects to account for common temporal trends in the naturalization rate and cluster standard errors at the municipality level. Table 3 presents the regression results. The first column contains the estimates for the full sample. In order to facilitate the interpretation, Figure 2 plots the marginal effect estimates with their robust .95 confidence intervals.

We find that the applicant's country of origin has by far the most important impact on the outcome of the naturalization referenda. Holding all other characteristics constant, the rejection rate for immigrant applicants from (former) Yugoslavia is about 15 percentage points higher (t-value>14) than for observably similar applicants from rich European countries (the reference category). This constitutes an increase of about 40 % over the average rejection rate. Turkish applicants fare just as poorly with average rejection rates that are 13 percentage points higher (t-value>10); a 35 % increase over the average rejection rate. Similarly, the increases in the average rejection rates are about 7 percentage points (t-value>4.8) for applicants from other central or eastern European countries, about 3.5 percentage points (t-value>2.5) for

are under-represented. This would suggest that the selection effect increases rejection rates (in survey studies education and income are commonly negatively correlated, and age is positively correlated with anti-immigrant sentiments). Finally, social interaction at the assembly meetings could also affect the votes in subtle ways. Voters may feel a greater sense of scrutiny by others and this social pressure could affect votes even though voting occurs by closed ballots and naturalization requests are rarely openly discussed.

applicants from Asian countries, and about 7 percentage points (t-value>5.7) for applicants from other Non-European countries. The only group that fares slightly better are applicants from southern European countries; rejection rates for this origin group are about 1.3 percentage points lower compared to observably similar applicants from richer European countries (although the difference falls short of conventional significance levels). In sum, the country of origin dummies account for about 40 % of the within municipality variation in rejection rates.

What else affects the likelihood of being rejected for citizenship? We find that sociodemographic characteristics such as age, gender, marital status, attractiveness, or children have little effect overall. If anything, middle-aged applicants between 21-60 years receive rejection rates that are about 2 percentage points higher than those below 20 years of age (the reference category), but there is no significant penalty for older applicants with 60 years and above.

The immigration history matters somewhat for the naturalization success. Holding the other characteristics constant, applicants that are born in Switzerland have a rejection rate that is on average 2 percentage points (t-value> 2.6) lower compared to foreign born applicants. This effect may seem surprisingly low from a comparative perspective given that place of birth is the main requirement for granting citizenship in jus soli countries like the United States. We also find that candidates with longer prior residency in Switzerland earn significantly lower rejection rates. A ten year increase in residency decreases the rejection rate by 1.7 percentage points on average (t-value> 4.3). To put this in perspective, these results imply that it would take more than 85 years of residency for an applicant from Yugoslavia to make up for the disadvantage that she faces as a result of her country of origin. In contrast, history as a refugee and the number of prior applications have no consistent effects on the rejection rate.

The applicant's economic credentials consistently affect the naturalization outcomes. Applicants in the highest occupational skill category (managers, senior officials, professional, etc.) earn rejection rates that are 2.5 percentage points lower than applicants in the lowest skill category (elementary occupations, assemblers, etc.). Similarly, rejection rates are about 1.2 percentage points lower for immigrants with high educational attainment compared to observably similar applicants with low education levels (the reference category). To put this in

perspective, when we re-estimate the model using a continuous measure of years of eduction we find that an applicant from Turkey would have to attain 70 years of education to make up for the disadvantage that comes from his country of origin (t-value>1.8). Similarly, we find that rejection rates are on average about 5 percentage points higher for applicants that experienced a spell of unemployment suggesting that voters have a rather strong distaste for such applicants. This effect is fairly robust but not very precisely estimated since there are rather few applicants with unemployment experience in our sample.

We find that assessed language skills have almost no effect on the naturalization success. There are no significant differences in the rejection rates for applicants that are described to voters as having sufficient or good command of German. Even applicants that perfectly speak the local Swiss-German dialect (*"perfekt Mundart"*) earn no significant advantage in terms of lower rejection rates. The only exception are applicants where officials describe the language skills as insufficient. Rejection rates for this groups are 20 percentage points higher (t-value> 2) compared to applicants with sufficient language skills (the reference category). We need to be careful in drawing strong conclusions from this finding, since we only have 6 applicants with insufficient skills in our sample and so the estimate is very imprecise with a .95 confidence interval of $[.7; 39]$.[28] Moreover, we cannot reject the null that all the language dummies are jointly insignificant at conventional levels, which adds further evidence that language skills are inconsequential for the naturalization success once the other characteristics are controlled for.

We find some evidence that the assessed immigration status affects rejection rates, but again the impact of this factor is fairly small. We find no significant differences in the rejection rates of applicants that are described as "integrated", "adjusted" or "well familiar with Swiss traditions and customs" (the reference category), but immigrants that are being described to voters as being completely "indistinguishable" from a Swiss native receive rejection rates that are on average 3 percentage points lower. Ceteris paribus, being in this best integration category is worth about as much as 15 additional years of education.

Overall, the results yield a clear picture. Naturalizations are mostly decided based on the country of origin of the applicants. The country of origin effects exceed the importance of

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[28]This is why we have omitted this estimate from Figure 2.

the other applicant characteristics for which we find significant effects, such as the economic credentials and the immigration history. Once these factors are controlled for, language skills and integration status play only a very minor role in the naturalization success.

C. Robustness

How robust are the country of origin effects? One concern may be that some voters have additional private information about applicants because they know them personally. Although it seems unlikely that this could have a systematic effect on the overall rejection rates, it seems even less plausible in larger municipalities where the fraction of voters that potentially have private information about a particular applicant is much lower. Column 2 in Table 3 re-estimates our benchmark model while restricting the sample to large municipalities with more than 5,000 voters in 2003. The results are almost identical to the full sample; the origin dummies remain by far the most important predictor. This suggests that private information about applicants does not drive the results. Column 3 replicates the model for smaller municipalities with less than 5000 voters and Column 4 for municipalities where voting took place at the polling place. The results are very similar in all these sub-samples.

Appendix B presents a variety of additional robustness checks. In particular, Table B.1 re-estimates the benchmark models for the different municipality samples (all, large, and polling place) using several other control strategies, including year fixed effects, quadratic time trends, and linear and quadratic municipality specific time trends. The results are remarkably stable across the specifications for all sub-samples. Table B.2 replicates the benchmark models using the binary naturalization outcome (with both linear probability models and penalized-likelihood logistic regressions), and the results are again very similar. The country of origin effects are, if anything, stronger with the binary rejection measure: applicants from Turkey or the former Yugoslavia have a .3 higher probability of being rejected for citizenship compared to observably similar applicants from richer European countries; a 120 % increase over the average probability of being rejected. Table B.3 re-estimates the country of origin effects using several commonly used matching methods, and the results are again robust; the average treatment effect on the treated amounts to about a highly significant 18-19 percentage points

increase in the average rejection rate for applicants from Turkey or former Yugoslavia. Finally, we estimate a series of models where in each municipality we regress the rejection rates on the country of origin indicators and a streamlined set of covariates (gender, marital status, age, born in Switzerland, years of residency, and years of schooling) to accommodate the smaller sample sizes (we exclude municipalities with less than 15 applications). Figure B.1 plots the municipality specific country of origin effects with .95 robust confidence intervals for applicants from Turkey and Yugoslavia. The effect estimates are positive, sizable, and significant, revealing that Turkish and Yugoslavian applicants face much higher rejection rates over observably similar applicants from rich European countries in almost all of the ballot box municipalities; the estimated increase in rejection rates is between 12-24 percentage points in most municipalities (about a 32-64 % increase over the mean rejection rate). Overall these checks indicate that the results are robust.[29]

D. Comparison with Attitudinal Data

We briefly contrast our findings with comparable public opinion data. In 2002 the European Social Survey, a widely used survey in the comparative literature on immigration attitudes (Ceobanu and Escandell; 2010), measured the views of Swiss voters about immigrants from different source countries. 74 % of respondents said that they are in favor of allowing more immigrants from poorer European countries to come and settle in Switzerland, while only 69 % of respondents supported more immigration from richer European countries. 69 % were in favor of more immigrants from poorer Non-European countries, and only 64 % in favor of immigrants from richer Non-European countries (Hainmueller and Hiscox; 2007). Clearly, our behavioral data suggest different preferences, as applicants from Turkey, the former Yugoslavia, or other central or eastern European countries are rejected at much higher rates than applicants from richer European countries. These differences may stem from social desirability bias if survey respondents are unwilling to admit that they actually prefer immigrants from richer origins.[30]

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[29]We also examined if the results vary depending on how many applicants appear simultaneously on the ballot and found that this had no effect. This is not surprising given that there is almost no within-municipality variation in the number of candidates on the ballot.

[30]This could imply that the results in Hainmueller and Hiscox (2007) understate the evidence against the argument that anti-immigrant sentiments are driven by concerns about labour market competition. If the

More recent survey data points to a similar contrast between public opinion and behavioral data. In a 2008 poll, 88 % of Swiss voters agreed that naturalization decisions should be free of discrimination based on country of origin.[31] This sharply contrasts with our finding that country of origin is the single most important determinant of naturalization success.

V. Interpretation

The results raise two important questions for the interpretation. First, do the consistently higher rejection rates for applicants from certain origins imply that native voters discriminate against these applicants? If so, how do our findings relate to theories of discrimination?

A. Country of Origin Effects as Discrimination

Our results imply that applicants that only differ in their country of origin and are otherwise similar on all measured characteristics face much different rejection rates when they apply in the same municipality, under the same institutional rules, and in the same time period. Are these findings consistent with a non-discriminatory selection rule that is blind to the origin of the applicant? As detailed above, the naturalization law implies that candidates for naturalization have to meet a list of requirements. Federal authorities always check that applicants meet the residency and criminality requirements so the differential treatment cannot be accounted for by these factors (voters know that applicants have cleared these hurdles). Moreover, language requirements as well as integration status and familiarity with Swiss values and traditions are controlled for in our analysis using assessments by the municipality officials who interview the applicants and inform voters about their assessments. Voters commonly have no private information about the applicants other than the information that is included in the leaflet descriptions. A selection rule that is neutral to country of origin would therefore imply that, conditional on these observed characteristics, the rejection rates should be similar across applicants of different origins. Instead we find that otherwise observably similar applicants face dramatically different rejection rates depending on their origin. In fact, the applicants' country

social desirability bias is positively correlated with education then more highly educated natives are in fact even more in favor of highly skilled immigration from richer countries than they are willing to admit.

[31]The original question wording was "Beim Einbürgerungsverfahren darf es nicht zu Diskriminierungen nach der Herkunft der Einbürgerungswilligen kommen." (Vox poll 06/01/2008. Item: arg04x).

of origin is by far the most important predictor for the naturalization outcome compared to all other observed characteristics which must imply that voters distinguish between applicants in part based on their origin and this matches the legal definition of discrimination as stated in the anti-discrimination clause in the Swiss constitution.

B. Causes of Discrimination

As Pager and Shepherd (2008, pg. 12) put it in their recent review "Measuring the prevalence of discrimination is difficult; identifying its causes is far more so." Nonetheless, it is worth asking which mechanisms may underly the discrimination that we find. Below, we try to distinguish between the main theories of discrimination by testing additional observable implications.

The theoretical literature commonly distinguishes two main theories: statistical discrimination and taste-based discrimination.[32] Theories of statistical discrimination (Arrow; 1972; Phelps; 1972) do not assume upfront that voters harbor prejudice or animus against particular applicants, but link discrimination to problems of limited information. Assume that immigrant applicants differ with respect to their actual level of social integration, which may include their command of the official languages and familiarity with Swiss values and traditions as stipulated by the naturalization law. Voters want to naturalize applicants only if they are sufficiently well integrated. Moreover, voters are indifferent between observably similar applicants from different origins, but they know or believe that the integration level of Turkish and Yugoslavian immigrants is lower on average relative to immigrants from richer European countries.[33] Since integration levels are generally difficult to measure, voters do not observe the applicant's actual level of integration, but only a noisy measure from the assessed immigration status that is reported in the voter leaflet. To deal with this signal extraction problem, rational voters will

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[32]For recent reviews of social theories of discrimination see Pager and Shepherd (2008); Altonji and Blank (1999); Lang and Lehmann (2010).

[33]Several government reports and studies consistently document that given limited opportunities and disadvantages, Turkish and Yugoslavian immigrants in Switzerland have considerably lower levels of education and language acquisition on average compared to immigrants from richer West and North European countries (Bundesamt für Migration; 2006; Rommel; 2006). For example, in 2003 the fraction of employed immigrants with tertiary education was 55 % among immigrants from richer European countries, compared to 9 % among immigrants from Turkey and the West Balkans. See Bundesamt für Statistik, Schweizerische Arbeitskräfteerhebung (SAKE). 2003. Education and language are often seen as crucial determinants for the social integration of immigrants (Esser; 2006).

use the applicant's observed country of origin to proxy for his partially unobserved integration status: The best estimate of the applicant's actual integration status is a weighted average of the assessed integration status reported in the leaflet and the average integration status of the applicant's origin group. Hence, despite being given similar information about the assessed integration status, voters still estimate the actual integration level of individual Turkish or Yugoslavian applicants to be relatively lower, because voters evaluate such applicants more like the average Turkish or Yugoslavian immigrant.[34]

If the differences in rejection rates stem from statistical discrimination, then we would expect that Turkish and Yugoslavian applicants earn relatively higher returns for other observable credentials such as education that can be informative about the applicant's actual integration status. From the perspective of voters, learning that a particular applicant is highly educated or highly skilled should lead to a larger update of the estimated integration level for applicants from Yugoslavia or Turkey compared to applicants from richer European countries, because the former group of immigrants is believed to have lower average integration levels. To test this implication, we re-estimate our benchmark model while allowing the effects of the economic credentials to vary across the applicant's skill level. For tractability we restrict the sample to contrast applicants from richer European countries and applicants from (former) Yugoslavia or Turkey and we combine the latter into a single origin group.[35]

The results are displayed in Table 4. Consistent with statistical discrimination, the interactions terms between country of origin and high occupational skills or high educational attainment are negative and significant, which implies that Yugoslavian and Turkish applicants earn relatively higher returns for economic credentials. For example, column 1 reveals that among immigrants from Yugoslavia and Turkey the average rejection rate for highly skilled applicants is about 5.4 percentage points lower compared to low skilled applicants (t-value> 2.8). In contrast, among immigrants from richer European countries the skill level has no impact on the rejection rates (the point estimate on the lower order term is small and insignificant). We find similar differential returns to education (model 2), and the results are

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[34]A similar result occurs even if voters belief that the different immigrant groups have the same average level of integration, but simply find the integration status of Turkish and Yugoslavian immigrants more difficult to assess and therefore their signal is noisier. See Lang and Lehmann (2010) for a formal review.

[35]The results are similar if we examine each group separately or include other origin groups.

very similar when we restrict the sample to polling place municipalities (models 3 & 4). While these results are very consistent with statistical discrimination, they also reveal that statistical discrimination can only partly account for the origin-based discrimination. Even taking the differential returns to economic credentials into account, highly skilled applicants from Yugoslavia or Turkey still face average rejection rates that are about 7-8 percentage points higher compared to observably similar applicants from rich European countries. This suggests that statistical discrimination may account for at least about 40 % of the overall origin effects.

What else besides statistical discrimination may explain the discriminatory outcomes that we find? The other leading alternative are taste-based theories of discrimination (Becker; 1971; Quillian; 2006). In contrast to models of statistical discrimination where differential treatment results from limited information, theories of taste-based discrimination operate on the assumption that natives have real prejudice and animus towards particular origin groups. Such xenophobic distastes may include a wide range of feelings or beliefs that certain immigrant groups, such as applicants from Yugoslavia or Turkey, are culturally inferior and socially undesirable, and perceptions that such groups threaten the prevailing way of life (Blumer; 1958; Allport; 1979; Kinder and Sears; 1981; Tajfel; 1982; Dovidio et al.; 1997). Testing the model of taste-based discrimination requires a measure of voters' xenophobic tastes. We cannot measure the tastes of individual voters, but we can exploit the variation in xenophobic tastes across municipalities using municipality level vote shares from a 1982 anti-immigration referendum which called for the removal of restrictions on immigration. The "no" vote share from this referendum, which occurred close to the beginning of our sample period, is a good proxy for the xenophobic tendencies of the local electorate. If the differential treatment is driven by taste-based discrimination, we would expect that the intensity of the origin-based discrimination – as measured by the size of the disadvantage for Yugoslavian and Turkish applicants – increases with the local level of xenophobia.

Table 5 tests this hypothesis by re-estimating our benchmark model with an interaction term between the anti-immigrant vote share and the country of origin indicator (we again restrict the sample to applicants from rich European countries or former Yugoslavia and Turkey). We use both a fixed effects specification (models 1 & 3) and a multilevel model where we

also allow the origin effect to vary by municipality (models 2 & 4). The results are supportive of taste-based discrimination as the interaction terms enter positive and highly significant across specifications. The magnitudes imply that a one percentage point increase in the anti-immigration vote share is associated with about a .5-.7 percentage point increase in the relative origin-based disadvantage for applicants from former Yugoslavia and Turkey. This suggests that taste-based discrimination may account for about 60 % of the overall origin-based discrimination. To give a clear interpretation of the interaction, Figure 5 plots the estimated origin-based disadvantage as a function of the de-meaned anti-immigrant vote shares (based on model 2). In municipalities with the highest levels of xenophobia, Yugoslavian and Turkish applicants face about 20-30 percentage points higher rejection rates compared to observably similar applicants from rich European countries. The country of origin disadvantage is much lower at about 3-10 percentage points in the least xenophobic municipalities. Also consistent with taste-based discrimination, the models reveal that the level of xenophobia is uncorrelated with the rejection rates for applicants from richer European countries (the lower order terms for the anti-immigrant vote are close to zero). As a robustness check, Table B.2 replicates the models using two alternative measures of xenophobic tastes, the municipality level vote shares from similar anti-immigration referenda in 1983 and 1988, and the patterns are very similar. Taken together, these results indicate that origin-based discrimination is largely driven by the xenophobic prejudice of local voters. We would not expect to see such strong patterns if the discrimination were purely statistical.

The results so far suggest that the origin-based discrimination in naturalization referenda is driven both by statistical and taste-based discrimination, and that the latter mechanism is perhaps more important. While models of taste-based discrimination commonly treat tastes as exogenous, one interesting follow-up question involves the origins of voters' xenophobic prejudice. While a detailed examination of this issue is beyond the scope of this study, the data allows us to briefly speculate about potential mechanisms. One dominant view in the literature is group conflict theory, which posits that xenophobic prejudice arises as a defensive reaction of natives who view immigrant out-groups as a threat to their dominant position (Blumer; 1958; Blalock; 1967; Bobo and Hutchings; 1996; Quillian; 1995). Such threats may

operate at an economic level, if natives are concerned about competing with immigrants for jobs and other scarce resources (Olzak; 1994; Scheve and Slaughter; 2001), or at a cultural level, if natives fear that particular immigrant groups "constitute a threat to the collective identity and the cultural, national, and ethnic homogeneity of the society" (Semyonov et al.; 2006, pg. 428).[36] One of the main predictions from the group conflict model is that prejudice dynamically responds to a rising threat associated with rapid growth in the size of the out-group population (Blumer; 1958; Blalock; 1967; Semyonov et al.; 2006; Zick et al.; 2008; Hopkins; 2010). Another prominent view in the literature is contact theory, which implies the opposite prediction. According to this model, a growing size of the out-group population can actually decrease prejudice over time because more frequent inter-group interactions helps to dissolve natives' stereotypes and preconceived judgments (Allport; 1979; Pettigrew and Tropp; 2006).

Our data provides a unique opportunity to evaluate these claims, since we behaviorally measure discrimination against immigrants from multiple origin groups over time, and Switzerland – apart from its general increase in immigration – also experienced rather dramatic shifts in its immigration composition during our time period.[37] Figure 4 shows the trends in the shares of our origin groups on the total foreign born population over the 1980-2003 period.[38] The threat mechanism implies that discrimination against applicants from Turkey and the former Yugoslavia should surge strongly over time, since this is a relatively new immigration group and its relative size rapidly doubled during our time period. In contrast, discrimination against traditional immigrant groups such as applicants from southern European countries should abate over time, since these origins have a much longer immigration history in Switzerland and the relative size of this group drops considerably during our time

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[36]In our case the economic threat is perhaps less potent since unemployment was very low in our municipalities (e.g. 1.3 % in 1990) and, if anything, immigrants from richer European countries should be more threatening to the job prospects of the median voter, compared to Turkish or Yugoslavian immigrants who have lower average skill and education levels and mostly work in more segmented labour markets. In contrast, the cultural threat could be more potent if voters view the behaviors, customs, and values of immigrants from Yugoslavia or Turkey as less compatible with the Swiss identity, compared to the cultural norms shared by immigrants from Germany, France, or other richer European countries.

[37]A few recent studies have examined how changes in the size of the immigrant population affect general anti-immigrant sentiments (see Semyonov et al. (2006); Meuleman et al. (2009); Ceobanu and Escandell (2010); Hopkins (2010)), but these studies are limited to attitudes towards immigration in general and therefore cannot differentiate how prejudice towards specific immigrant groups responds to shifts in their relative group sizes.

[38]Detailed data on foreign born stocks by country of origin before 1980 is unavailable to our knowledge.

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period. The contact mechanism anticipates the opposite pattern.

In Table 6 we re-estimate the benchmark model for three periods (1970-1989, 1990-1999, and 2000-2003). While models 1-3 uses all available data, models 4-6 are restricted to municipalities for which data is available in all periods. The results run counter to contact theory, but are very consistent with the dynamic threat mechanism as discrimination against the different immigrant origin groups is positively correlated with their differential growth trends. While in the 70s and 80s the average rejection rates for Turkish and Yugoslavia applicants are 5-6 percentage points higher than for observably similar applicants from rich European countries, this disadvantage climbs to about 14-18 percentage in the post 1990 period following the rapid growth in the relative size of this immigrant group. In contrast, discrimination against applicants from Southern Europe strongly decreases over time as the relative size of this group plummets. In fact, in the most recent period the rejection rates for such applicants are 4-5 percentage points lower on average compared to observably similar applicants from richer European countries (rejection rates for this latter group remain somewhat stable). This bifurcation indicates that discriminatory attitudes of natives towards particular out-groups are not static, but dynamically respond to the differential trends in the relative sizes of the origin groups. It also suggests that the threat mechanism can operate as a two-way street: rapid growth in the relative size of an out-group can stoke prejudice against it, but rapid decline in its relative size can also help to attenuate prejudice over time.

VI. Conclusion

Many studies of anti-immigration sentiments are based on subjective survey data and limited to an examination of attitudes towards immigration in general. Using behavioral data on naturalization requests in Swiss municipalities, our analysis demonstrates that immigration preferences in fact vary dramatically with respect to different types of immigrants and also over time. In particular, we show that observably similar applicants face dramatically different rejection rates depending on their country of origin, which matches the legal definition of discrimination according to the Swiss constitution. It seems unlikely that the differences in rejection rates are driven by other unobserved characteristics, because we measure and

control for the same applicant information that voters had at their disposal when voting on the applicants.

We find that immigrants from (former) Yugoslavia and Turkey face the highest rejection rates compared to immigrants from all other origins. Other immigrant characteristics, such as immigration history and economic credentials, are also rewarded by voters, but to a much lesser degree. Language skills and the immigrant's assessed immigration status play almost no role for naturalization success. Disentangling the causal pathways of discrimination, the results suggest that about 40 % of the measured differences in rejection rates may be attributable to statistical discrimination and about 60 % to taste-based discrimination. Overall, these results are consistent with arguments that have linked anti-immigrant sentiment to widespread prejudice against particular immigrant groups (Sears et al.; 1980; Kinder and Sears; 1981; Espenshade and Hempstead; 1996; Chandler and Tsai; 2001; Fetzer; 2000; Sniderman et al.; 2004; Dustmann and Preston; 2007; Hainmueller and Hiscox; 2007, 2010).

How generalizable are our results? The data indicates that municipalities in our sample are fairly similar to municipalities in other parts of Switzerland and our results are consistent across sub-samples. Hence, our main findings may generalize to the country as a whole, or at least to the German-speaking regions. External validity beyond Switzerland is much more difficult to judge and we advise against over- or under-generalizing the results to a cross-national context. On the one hand, one may argue that Switzerland is unique in many respects. Given its fierce immigration debates and the lasting success of the Swiss People's Party, one could speculate that the discrimination against immigrant out-groups that we find represents an upper bound compared to other countries where right-wing parties have been less successful in recent decades. On the other hand, one could argue that Switzerland, given its exceptionally large immigrant population and varied history that involved the peaceful integration of four different language traditions, is a vanguard, rather than a laggard country in terms of cultural heterogeneity (Linder; 2010). Another interpretation of our findings, then, is that cultural and ethnic tensions between the native and immigrant populations in Switzerland are perhaps not that different from the xenophobic rifts that are emerging in many other European countries that similarly struggle with conflicts about immigration and citizenship policies. Studies of

anti-immigrant sentiments have consistently shown that prejudices against immigrants run high in many other European countries (Scheepers et al.; 2002; Dustmann and Preston; 2007; Hainmueller and Hiscox; 2007) and right-wing parties have also experienced significant electoral support in several of them. It is therefore not readily apparent why we would expect to see dramatically different results if voters in these countries were given the opportunity to voice their preferences over immigrants in popular votes. In the end, external validity is of course best addressed by comparing the results of several internally valid studies conducted in different circumstances and at different times, and so we hope that this study will stimulate more behavioral research on anti-immigrant sentiments in other countries.

Our results also have implications for the sizable literature on direct democracy where scholars still profoundly disagree about the impact of direct democracy on minority rights (Gamble; 1997; Frey and Goette; 1998; Hajnal et al.; 2002; Maskin and Tirole; 2004; Vatter and Danaci; 2010). Supporters often praise referenda as "the most democratic means of enacting legislation" (Hajnal et al. (2002, pg. 154)) since they reflect the undistorted preferences of the people and may help minorities to make their voices heard (Höglinger; 2008; Gerber; 1996). In contrast, sceptics point out that referenda are often used to pass laws that deprive minorities of their civil rights. Viewed from this perspective, direct democracy promotes the tyranny of the majority (Tocqueville; 1862; Gamble; 1997) and referenda are seen as "democracy's barrier to racial equality" (Bell (1978, pg. 1)). Given the specific focus of our study it would be unwise to conclude that referenda generally harm minorities. But our micro-level results shed light on at least one central issue: access to citizenship in a country where a majority of local voters used their direct democratic means to discriminate against particular minority groups. The differential rejection rates of applicants from Yugoslavia and Turkey support concerns raised by previous studies that primarily out-group minorities suffer when their civil rights are put to a popular vote (Vatter and Danaci; 2010). This suggests that direct democracy alone cannot effectively protect minority rights, but requires additional institutional safeguards that shield the civil liberties of minorities against the reach of the electoral majority.

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Table 1: Municipalities with Naturalization Referenda

Municipality	State	Constituency	Institution	Period	Voters	Applications
Altdorf	UR	All voters	Voting Booth	1986-2003	6'002	72
Altendorf	SZ	All voters	Voting Booth	1979-2003	3'287	53
Arth	SZ	All voters	Voting Booth	1977-2003	1'299	79
Beckenried	NW	All voters	Citizen Assembly	1987-2003	2'133	8
Bühler	AR	All voters	Voting Booth	1979-2003	965	29
Buochs	NW	All voters	Citizen Assembly	1980-2003	3'586	34
Chur	GR	Burghers only	Voting Booth	1978-2003	22'441	240
Dallenwil	NW	All voters	Citizen Assembly	1983-2002	1'204	14
Davos	GR	Burghers only	Burgher Assembly	1978-2002	6'969	159
Einsiedeln	SZ	All voters	Voting Booth	1977-2003	8'904	78
Emmen	LU	All voters	Voting Booth	1999-2003	15'767	87
Ennetmoos	NW	All voters	Citizen Assembly	1982-2003	1'386	6
Feusisberg	SZ	All voters	Voting Booth	1979-2003	2'765	48
Freienbach	SZ	All voters	Voting Booth	1992-2003	9'377	102
Gais	AR	All voters	Voting Booth	1978-2002	1'948	20
Galgenen	SZ	All voters	Voting Booth	1987-2003	2'781	32
Gersau	SZ	All voters	Voting Booth	1984-2003	1'339	31
Heiden	AR	All voters	Voting Booth	1973-1992	2'551	35
Hergiswil	NW	All voters	Citizen Assembly	1978-2003	3'915	62
Ingenbohl	SZ	All voters	Voting Booth	1970-2003	5'201	113
Küssnacht	SZ	All voters	Voting Booth	1972-2003	7'778	124
Lachen	SZ	All voters	Voting Booth	1971-2003	4'203	156
Malters	LU	All voters	Voting Booth	1982-2003	4'188	35
Morschach	SZ	All voters	Citizen Assembly	1992-1997	591	4
Oberiberg	SZ	All voters	Voting Booth	1995-2003	563	4
Reichenburg	SZ	All voters	Voting Booth	1990-2003	1'781	25
Rothenthurm	SZ	All voters	Voting Booth	1976-2003	1'331	13
Schübelbach	SZ	All voters	Voting Booth	1970-2003	4'338	59
Schwyz	SZ	All voters	Voting Booth	1972-2003	9'589	178
Speicher	AR	All voters	Voting Booth	1978-2003	2'808	24
St. Margrethen	SG	All voters	Voting Booth	1982-2002	2'678	65
Stans	NW	All voters	Citizen Assembly	1978-2003	5'172	55
Stansstad	NW	All voters	Citizen Assembly	1978-2003	3'344	42
Steinen	SZ	All voters	Voting Booth	1980-2003	1'984	9
Teufen	AR	All voters	Mixed	1978-2002	4'145	65
Trogen	AR	All voters	Citizen Assembly	1978-2003	1'274	39
Tuggen	SZ	All voters	Voting Booth	1994-2003	1'800	34
Unteriberg	SZ	All voters	Voting Booth	2002	1'559	4
Urnäsch	AR	All voters	Voting Booth	1979-2003	1'536	25
Walzenhausen	AR	All voters	Voting Booth	1979-2002	1'346	13
Wangen	SZ	All voters	Voting Booth	1987-2003	3'046	41
Weggis	LU	All voters	Voting Booth	1979-2002	2'500	17
Wolfenschiessen	NW	All voters	Citizen Assembly	1997-2003	1'385	5
Wollerau	SZ	All voters	Voting Booth	1977-2003	4'495	86
Mean					4'029	55

Note: Teufen voted on naturalization requests at the voting booth and at the citizen assembly. Cantons are Appenzell Outer-Rhodes (AR), Grisons (GR), Lucerne (LU), Nidwalden (NW), Schwyz (SZ), St. Gall (SG), and Uri (UR). Number of voters is measured in 2003.

Table 2: Municipalities with and without Naturalization Referenda

Covariate	Referendum Municipalities	All Other Swiss Municipalities	Other German Speaking Municipalities	Other Non-German Speaking Municipalities
Percent Foreign Born	0.15	0.20	0.16	0.29
Naturalization Rate	0.01	0.01	0.01	0.01
Proportion Aged 65+	0.14	0.16	0.15	0.16
Educational Qualification for University Entrance	0.20	0.24	0.23	0.26
Proportion Highly Skilled	0.05	0.07	0.07	0.08
Female Labor Force Participation	0.47	0.46	0.48	0.44
Unemployment Rate	0.01	0.02	0.02	0.03
SVP Vote Share	0.07	0.11	0.15	0.05
Anti-Immigration Vote Share	0.31	0.33	0.33	0.30
Municipality Size	5539	2179	2928	1802

Note: Covariates are measured in the year 1990 except for SVP vote share which is measured in 1991, the anti-immigration vote share which is measured in 1988, and the age distribution, the proportion of citizens with an educational qualification required for university entrance, and the female labor force participation which are all based on the 2000 census. All means are weighted by the size of the native population except for municipality size.

Table 3: Effect of Applicant Characteristics on Rejection Rate

Dependent Variable	Rejection Rate			
	All Municipalities Model 1	Large Municipalites Model 2	Small Municipalities Model 3	Polling Place Model 4
Year: 80's	0.35	-0.83	1.78	-0.12
	(1.55)	(0.70)	(2.86)	(1.93)
Year: 90's	-0.33	-4.34	3.40	1.18
	(2.85)	(2.63)	(3.37)	(3.97)
Year: 00's	-1.07	-6.74	4.36	-0.33
	(4.35)	(5.81)	(2.99)	(5.98)
Male (0/1)	0.76	1.56	-0.02	1.23
	(0.62)	(0.92)	(0.60)	(0.58)
Married (0/1)	0.31	0.66	0.04	0.81
	(0.81)	(1.17)	(1.07)	(0.93)
Children (0/1)	0.94	0.87	0.42	1.16
	(1.05)	(1.81)	(0.97)	(1.32)
Age: 21-40 Years	1.16	2.18	0.02	1.28
	(0.78)	(1.29)	(0.90)	(0.80)
Age: 41-60 Years	2.29	3.47	0.75	2.12
	(0.71)	(0.93)	(1.02)	(0.61)
Age: 60+ Years	1.22	1.10	0.82	0.89
	(1.72)	(2.63)	(2.29)	(2.06)
Attractive (0/1)	0.48	0.64	0.07	0.52
	(0.99)	(1.80)	(0.93)	(1.05)
# of Applications	-0.14	-0.86	-0.48	-0.33
	(0.78)	(0.60)	(1.16)	(0.85)
Born in Switzerland (0/1)	-2.01	-3.04	0.92	-2.00
	(0.76)	(0.88)	(1.27)	(0.84)
Years since Arrival / 10	-1.72	-1.11	-1.92	-1.66
	(0.40)	(0.52)	(0.73)	(0.42)
Refugee (0/1)	-0.38	2.60	-5.48	0.70
	(1.36)	(0.97)	(1.52)	(1.15)
Education: Middle (0/1)	-0.51	-1.01	-0.14	-0.59
	(0.48)	(0.64)	(0.75)	(0.55)
Education: High (0/1)	-1.19	-2.36	0.02	-1.35
	(0.93)	(1.55)	(1.23)	(1.12)
Medium Skilled (0/1)	-0.77	-1.75	0.22	-0.63
	(0.60)	(0.63)	(0.84)	(0.66)
High Skilled (0/1)	-2.60	-2.53	-2.68	-2.45
	(0.77)	(0.98)	(1.09)	(0.93)
Unemployed (0/1)	5.47	9.16	1.93	5.29
	(2.67)	(4.14)	(2.48)	(2.73)
Language: Excellent (0/1)	-1.13	1.88	-6.65	-0.56
	(2.02)	(2.91)	(2.63)	(2.24)
Language: Good (0/1)	-0.57	1.56	-6.30	-0.36
	(1.67)	(2.13)	(3.18)	(1.79)
Language: Insufficient (0/1)	20.37	18.86		20.13
	(9.72)	(10.11)		(9.67)
Integration: 'Assimilated' (0-2)	-1.86	-0.61	-2.95	-1.65
	(0.99)	(0.49)	(0.89)	(1.25)
Integration: 'Integrated' (0-2)	-0.15	-0.39	-0.59	-0.33
	(0.76)	(1.67)	(0.80)	(0.75)
Integration: 'Adjusted' (0/1)	-0.16	-3.64	3.47	-0.76
	(2.19)	(1.26)	(1.13)	(1.94)
Integration: 'Indistinguishable' (0/1)	-3.11	-2.27	-4.52	-2.65
	(1.19)	(1.93)	(1.35)	(1.30)
Southern European Countries	-1.37	-1.06	-2.18	-1.49
	(1.07)	(1.60)	(1.26)	(1.08)
Central & Eastern Europe	6.59	8.27	4.46	7.01
	(1.15)	(1.36)	(1.51)	(1.23)
(former) Yugoslavia	14.69	15.81	13.46	15.67
	(1.02)	(1.42)	(1.48)	(1.11)
Turkey	13.35	13.33	13.53	13.77
	(1.24)	(1.80)	(1.66)	(1.32)
Asian Countries	3.45	2.94	4.35	3.14
	(1.36)	(1.72)	(1.57)	(1.57)
Other Non-European Countries	6.98	7.54	6.29	5.91
	(1.42)	(2.49)	(1.79)	(1.91)
Constant	37.18	38.25	42.67	37.58
	(3.26)	(4.65)	(4.24)	(4.14)
Fixed Effects for Municipalities	yes	yes	yes	yes
P-Values from Joint Significance Tests				
Sociodemographics	0.01	0.00	0.85	0.00
Immigration History	0.00	0.00	0.00	0.00
Economic Credentials	0.00	0.00	0.07	0.03
Language Skills	0.23	0.27	0.05	0.24
Integration Status	0.03	0.02	0.00	0.13
Country of Origin	0.00	0.00	0.00	0.00
Applications	2,429	1,208	1,221	1,917
Municipalities	44	10	34	31
R^2	0.67	0.64	0.73	0.58

Note: Point estimates and parenthesized standard errors (clustered by municipality) shown from OLS regressions with municipality fixed effects. Model 1 is based on the full sample of ballot box municipalities, Model 2 is based on large municipalities with more than 5000 voters in 2003, Model 3 is based on small municipalities with less than 5000 voters in 2003, and Model 4 is only based on municipalities where the ballots were cast at the polling place. The reference categories for the various contrasts are: an indicator for the years 1970-1979, applicants with age < 20 years, with low education, in low skilled jobs, with "sufficient" command of one of the Swiss languages, who are familiar with "Swiss traditions and customs", and originating from a rich European country. P-values shown from an F-test for joint significance of the batch of binary indicators for sociodemographics, immigration history, economic credentials, language skills, integration status, and country of origin respectively.

Table 4: Statistical Discrimination: Interaction Effect of Economic Credentials and Country of Origin on Rejection Rate

Dependent Variable	Rejection Rate			
	All Municipalities		Polling Place	
	Model 1	Model 2	Model 3	Model 4
Year: 80's	-0.20	-0.19	-0.88	-0.99
	(1.64)	(1.63)	(1.92)	(1.88)
Year: 90's	0.34	0.27	2.07	1.97
	(2.62)	(2.65)	(3.39)	(3.46)
Year: 00's	1.30	1.23	2.23	2.11
	(4.18)	(4.27)	(5.49)	(5.61)
Male (0/1)	0.61	0.59	0.90	0.90
	(0.75)	(0.74)	(0.76)	(0.76)
Married (0/1)	0.33	0.33	0.94	0.91
	(0.96)	(0.97)	(1.12)	(1.14)
Children (0/1)	1.94	1.77	1.94	1.77
	(0.99)	(0.97)	(1.14)	(1.12)
Age: 21-40 Years	1.64	1.62	1.84	1.78
	(0.81)	(0.83)	(0.77)	(0.79)
Age: 41-60 Years	2.36	2.36	2.25	2.23
	(0.96)	(0.96)	(0.94)	(0.94)
Age: 60+ Years	4.27	3.60	3.60	2.59
	(2.18)	(2.24)	(2.71)	(2.73)
Attractive (0/1)	0.71	0.49	0.67	0.47
	(1.06)	(1.01)	(1.14)	(1.07)
# of Applications	-0.81	-0.77	-1.01	-0.98
	(0.83)	(0.85)	(0.90)	(0.91)
Born in Switzerland (0/1)	-1.40	-1.41	-1.48	-1.43
	(1.14)	(1.14)	(1.48)	(1.46)
Years since Arrival / 10	-1.66	-1.69	-1.63	-1.60
	(0.64)	(0.62)	(0.77)	(0.76)
Refugee (0/1)	-5.07	-4.83	-2.90	-2.70
	(2.35)	(2.35)	(2.37)	(2.32)
Education: Middle (0/1)	-0.94	1.43	-0.96	2.09
	(0.62)	(1.44)	(0.67)	(1.14)
Education: High (0/1)	-2.75	0.45	-2.56	1.20
	(0.94)	(1.72)	(1.02)	(1.64)
Medium Skilled (0/1)	0.66	-0.13	1.16	0.43
	(1.35)	(0.73)	(1.57)	(0.77)
High Skilled (0/1)	0.61	-2.34	0.61	-2.19
	(1.52)	(1.08)	(1.84)	(1.23)
Unemployed (0/1)	6.45	5.81	5.88	5.31
	(2.72)	(2.83)	(2.81)	(2.84)
Language: Excellent (0/1)	-0.48	-0.53	-0.17	-0.22
	(2.64)	(2.68)	(2.70)	(2.75)
Language: Good (0/1)	0.20	0.24	0.16	0.18
	(2.51)	(2.51)	(2.48)	(2.50)
Language: Insufficient (0/1)	28.42	28.46	28.91	28.85
	(3.08)	(3.05)	(3.02)	(3.02)
Integration: 'Assimilated' (0-2)	-2.69	-2.61	-2.10	-1.96
	(1.38)	(1.40)	(1.56)	(1.55)
Integration: 'Integrated' (0-2)	0.39	0.43	0.04	0.03
	(0.65)	(0.65)	(0.61)	(0.61)
Integration: 'Adjusted' (0/1)	-0.85	-0.81	-1.35	-1.38
	(3.37)	(3.41)	(2.91)	(2.97)
Integration: 'Indistinguishable' (0/1)	-3.54	-3.47	-3.18	-3.13
	(1.32)	(1.29)	(1.36)	(1.30)
(former) Yugoslavia & Turkey	13.55	14.38	14.02	15.66
	(1.18)	(1.34)	(1.46)	(1.51)
High Skilled x Yugoslavia & Turkey	-5.36		-4.88	
	(1.90)		(2.32)	
Medium Skilled x Yugoslavia & Turkey	-0.91		-0.85	
	(1.58)		(1.93)	
High Education x Yugoslavia & Turkey		-5.03		-5.28
		(2.13)		(2.42)
Medium Education x Yugoslavia & Turkey		-3.03		-3.78
		(1.69)		(1.51)
Constant	37.40	37.11	36.35	35.23
	(3.71)	(3.86)	(4.06)	(4.14)
Fixed Effects for Municipalities	yes	yes	yes	yes
Observations	1,613	1,613	1,291	1,291
Municipalities	43	43	31	31
R^2	0.70	0.70	0.61	0.61
Joint Significance Test	0.026	0.063	0.13	0.041

Note: Point estimates and parenthesized standard errors (clustered by municipality) shown from OLS regressions with municipality fixed effects. For all models, only applicants originating from rich European countries or (former) Yugoslavia and Turkey are used. Models 1 and 2 are based on the full sample of ballot box municipalities, Models 3 and 4 are based on municipalities where the ballots were cast at the polling place.

Table 5: Taste-Based Discrimination: Interaction Effect of Xenophobic Preferences and Country of Origin on Rejection Rate

Dependent Variable	Rejection Rate			
	All Municipalities		Polling Place	
	Model 1	Model 2	Model 3	Model 4
Year: 80's	-0.76	-0.80	-0.55	-1.14
	(1.67)	(1.15)	(1.99)	(1.24)
Year: 90's	0.63	0.48	3.47	2.57
	(2.74)	(1.30)	(3.40)	(1.43)
Year: 00's	1.69	1.21	3.67	2.50
	(4.19)	(1.35)	(5.43)	(1.50)
Male (0/1)	0.62	0.49	0.72	0.59
	(0.74)	(0.59)	(0.79)	(0.65)
Married (0/1)	0.40	0.38	1.12	1.07
	(0.89)	(0.88)	(1.05)	(0.99)
Children (0/1)	1.95	2.01	1.65	1.73
	(0.94)	(0.82)	(1.06)	(0.96)
Age: 21-40 Years	1.63	1.64	1.76	1.71
	(0.82)	(0.78)	(0.78)	(0.88)
Age: 41-60 Years	2.11	1.98	2.12	2.07
	(1.01)	(0.97)	(0.99)	(1.14)
Age: 60+ Years	3.32	3.52	3.30	3.07
	(2.04)	(1.60)	(2.51)	(1.91)
Attractive (0/1)	0.52	0.09	0.63	0.29
	(1.01)	(0.75)	(1.09)	(0.75)
# of Applications	-1.19	-1.14	-1.19	-1.13
	(0.79)	(0.60)	(0.85)	(0.60)
Born in Switzerland (0/1)	-1.45	-0.86	-1.58	-1.12
	(1.18)	(0.87)	(1.54)	(0.98)
Years since Arrival / 10	-1.46	-1.55	-1.64	-1.64
	(0.64)	(0.43)	(0.74)	(0.47)
Refugee (0/1)	-5.38	-3.45	-2.29	-2.63
	(2.59)	(2.01)	(2.07)	(2.14)
Education: Middle (0/1)	-0.70	-0.80	-0.94	-0.97
	(0.63)	(0.65)	(0.73)	(0.68)
Education: High (0/1)	-2.18	-2.10	-2.44	-2.09
	(0.99)	(1.19)	(1.06)	(1.25)
Medium Skilled (0/1)	0.09	-0.01	0.62	0.51
	(0.66)	(0.65)	(0.73)	(0.72)
High Skilled (0/1)	-2.05	-2.55	-1.86	-2.42
	(1.07)	(0.93)	(1.27)	(0.99)
Unemployed (0/1)	5.51	5.21	4.93	4.67
	(2.88)	(2.00)	(2.86)	(2.02)
Language: Excellent (0/1)	-0.68	-1.23	-0.33	-0.88
	(2.66)	(2.51)	(2.62)	(2.51)
Language: Good (0/1)	0.27	-0.26	0.19	-0.57
	(2.47)	(2.73)	(2.33)	(2.76)
Language: Insufficient (0/1)	28.42	26.38	29.00	26.48
	(2.96)	(5.93)	(2.91)	(5.89)
Integration: 'Assimilated' (0-2)	-2.14	-2.19	-1.57	-1.78
	(1.28)	(0.70)	(1.41)	(0.71)
Integration: 'Integrated' (0-2)	0.19	-0.38	-0.09	-0.61
	(0.66)	(0.79)	(0.64)	(0.78)
Integration: 'Adjusted' (0/1)	-0.87	-1.15	-1.16	-1.62
	(3.37)	(2.53)	(2.95)	(2.51)
Integration: 'Indistinguishable' (0/1)	-3.28	-3.33	-3.18	-3.32
	(1.18)	(1.41)	(1.25)	(1.41)
(former) Yugoslavia & Turkey	13.31	13.54	11.98	12.87
	(1.21)	(1.21)	(1.47)	(1.34)
Anti-Immigrant Vote Share in 1982		0.04		-0.16
		(0.12)		(0.16)
Yugoslavia & Turkey x Vote Share	0.50	0.47	0.76	0.57
	(0.14)	(0.12)	(0.21)	(0.17)
Voting at Assembly		-10.47		
		(2.00)		
Constituency: All Voters		-0.67		-4.73
		(3.24)		(4.51)
Constant	37.25	41.13	36.00	44.10
	(4.01)	(4.64)	(4.12)	(5.56)
Effects for Municipalities	fixed	random	fixed	random
Applications	1,613	1,613	1,291	1,291
Municipalities	43	43	31	31
R^2	0.70		0.62	
Variance of Varying Intercepts		16.24		13.71
Variance of Varying Slopes		30.21		17.99
Residual Variance		79.76		78.11

Note: Point estimates and parenthesized standard errors shown. Models 1 and 3 are OLS regressions with municipality fixed effects and standard errors clustered by municipality. Models 2 and 4 are restricted maximum likelihood multilevel regressions with varying intercepts and slopes for the country of origin indicator. The random effects are allowed to vary by municipality and their correlation is unrestricted. For all models, only applicants originating from rich European countries or (former) Yugoslavia and Turkey are used. Models 1 and 2 are based on the full sample of ballot box municipalities, Models 3 and 4 are based on municipalities where the ballots were cast at the polling place.

Table 6: Dynamics of Country of Origin Effects

Dependent Variable	Rejection Rate					
Years	1970-1989	1990-1999	2000-2003	1970-1989	1990-1999	2000-2003
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Southern European Countries	1.64	-1.20	-4.11	1.10	-0.34	-5.40
	(1.19)	(1.16)	(1.42)	(1.22)	(1.24)	(1.41)
Central & Eastern Europe	1.59	7.88	11.07	2.65	7.90	8.07
	(2.14)	(1.33)	(3.25)	(1.95)	(1.40)	(3.06)
(former) Yugoslavia	5.77	15.07	18.03	5.31	14.88	16.26
	(1.73)	(1.51)	(2.10)	(1.72)	(1.62)	(1.95)
Turkey	7.29	15.37	15.05	7.44	14.71	13.10
	(2.55)	(1.94)	(1.77)	(2.46)	(1.98)	(1.61)
Asian Countries	-1.56	5.08	4.71	-1.19	6.04	4.28
	(3.13)	(1.87)	(2.81)	(3.35)	(1.94)	(3.25)
Other Non-European Countries	2.32	4.62	12.35	2.55	5.02	11.97
	(2.34)	(2.49)	(2.32)	(2.25)	(2.94)	(2.70)
Constant	35.04	32.34	36.33	35.40	31.12	40.70
	(6.20)	(3.93)	(4.87)	(6.34)	(4.40)	(5.54)
Observations	683	860	886	647	723	651
Municipalities	31	42	42	29	29	29
R-squared	0.55	0.78	0.84	0.57	0.79	0.86

Note: Point estimates and parenthesized standard errors (clustered by municipality) shown from OLS regressions. The models replicate the benchmark model for different time periods. Model 1 & 4 are based on applications in the years 1970-1989, Model 2 & 5 are based on applications in the years 1990-1999, and Model 3 & 6 are based on applications in the years 2000-2003. Models 1-3 are based on all available data; Models 4-6 are restricted to the same 29 municipalities for which data is available in all periods. All models are estimated with the full set of benchmark covariates and fixed effects for each municipality. Models 1 & 4 also include a decade fixed effect.

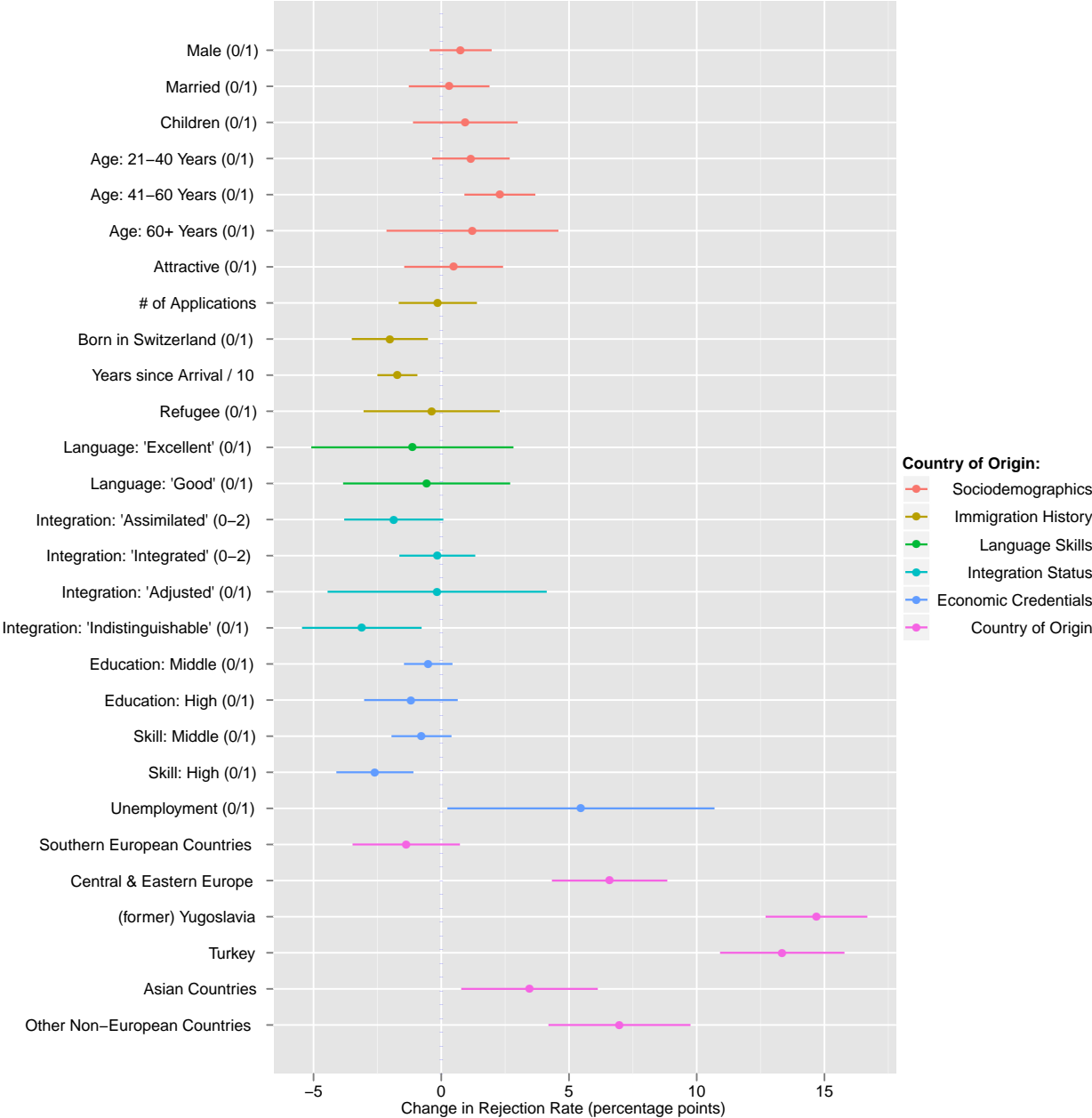## Figure 1: Rejection Rates for Naturalization Requests
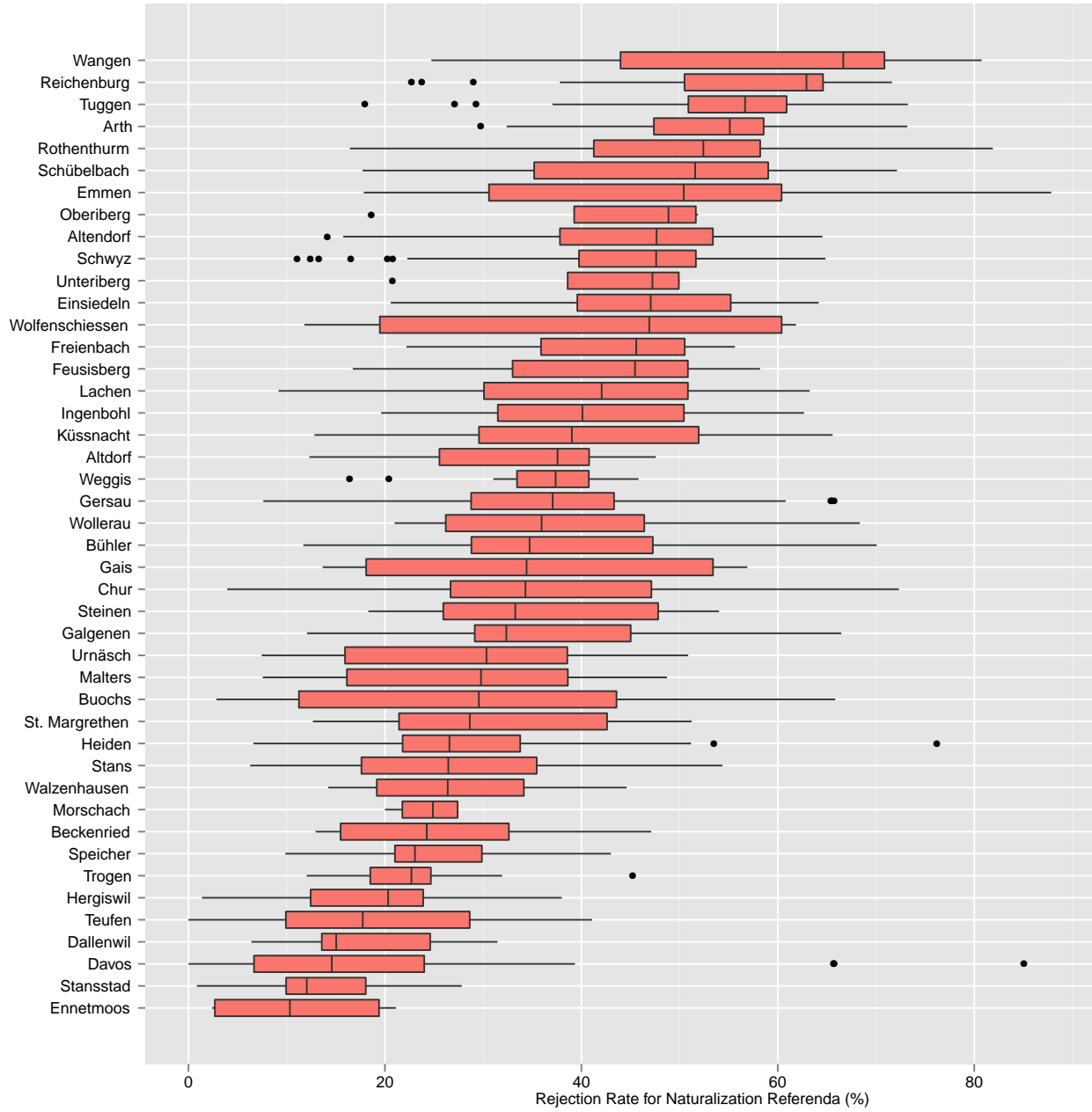
Note: Distribution of rejection rates across naturalization referenda in each ballot box municipality. Width of box measures the interquartile range, the vertical line decodes the median.

Figure 2: Effect of Applicant Characteristics on Rejection Rates

Note: Marginal effect estimates with robust .95 confidence intervals based on OLS regression of rejection rates on applicant characteristics and municipality and decade fixed effects (Model 1 in table 3). The reference categories are: applicants with age < 20 years, low education, in low skilled jobs, "sufficient" command of one of the Swiss languages, who are familiar with "Swiss traditions and customs", and originating from a rich European country. The average rejection rate is: 37%.

Figure 3: Municipality Specific Country of Origin Effects and Local Xenophobia
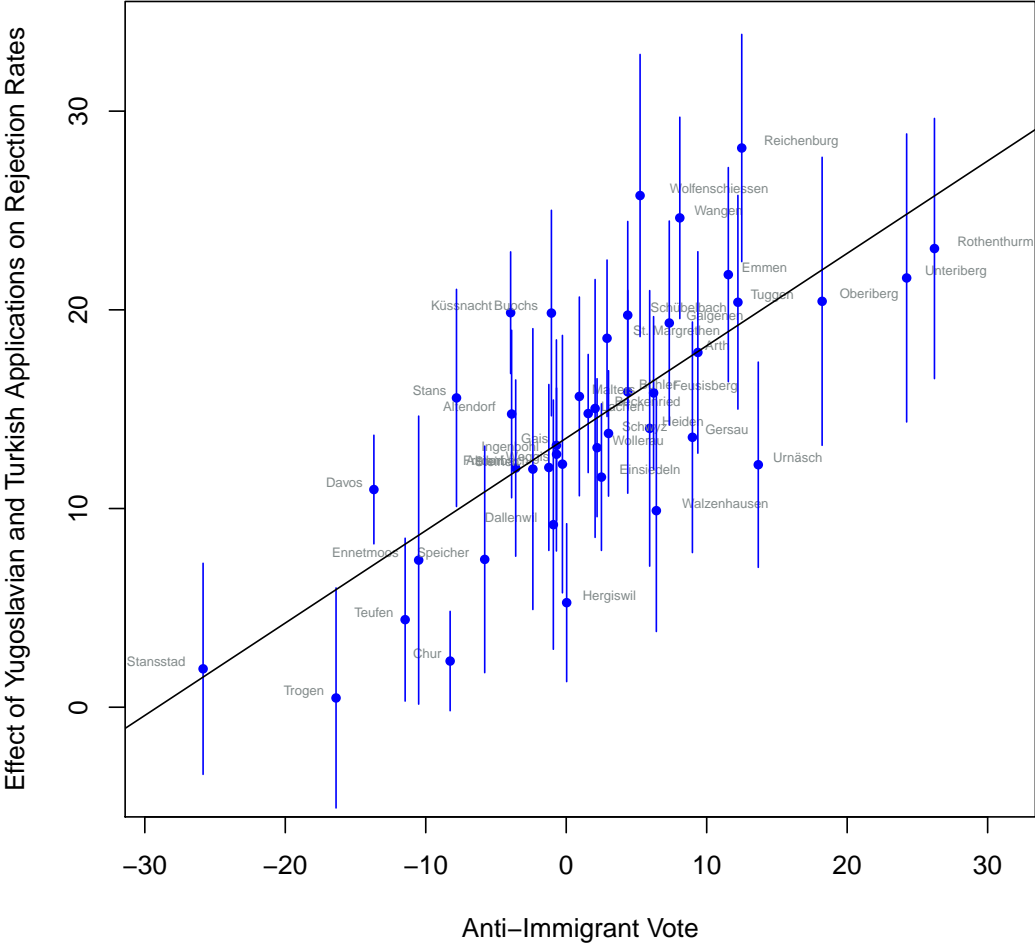
Note: Marginal effect estimate for the interaction of Yugoslavian or Turkish origin and municipal anti-immigrant vote share based on multilevel regression. The plot builds on the estimates of multilevel Model 2 of Table 5 which regresses rejection rates on applicant characteristics, municipal characteristics, and (de-meaned) anti-immigration vote share in the 1982 referenda. Random intercepts and slopes for the country of origin indicator allowed to vary unrestrictedly by municipality. Random effects for each municipality are shown along with .9 prediction intervals.

Figure 4: Immigration Trends in Switzerland
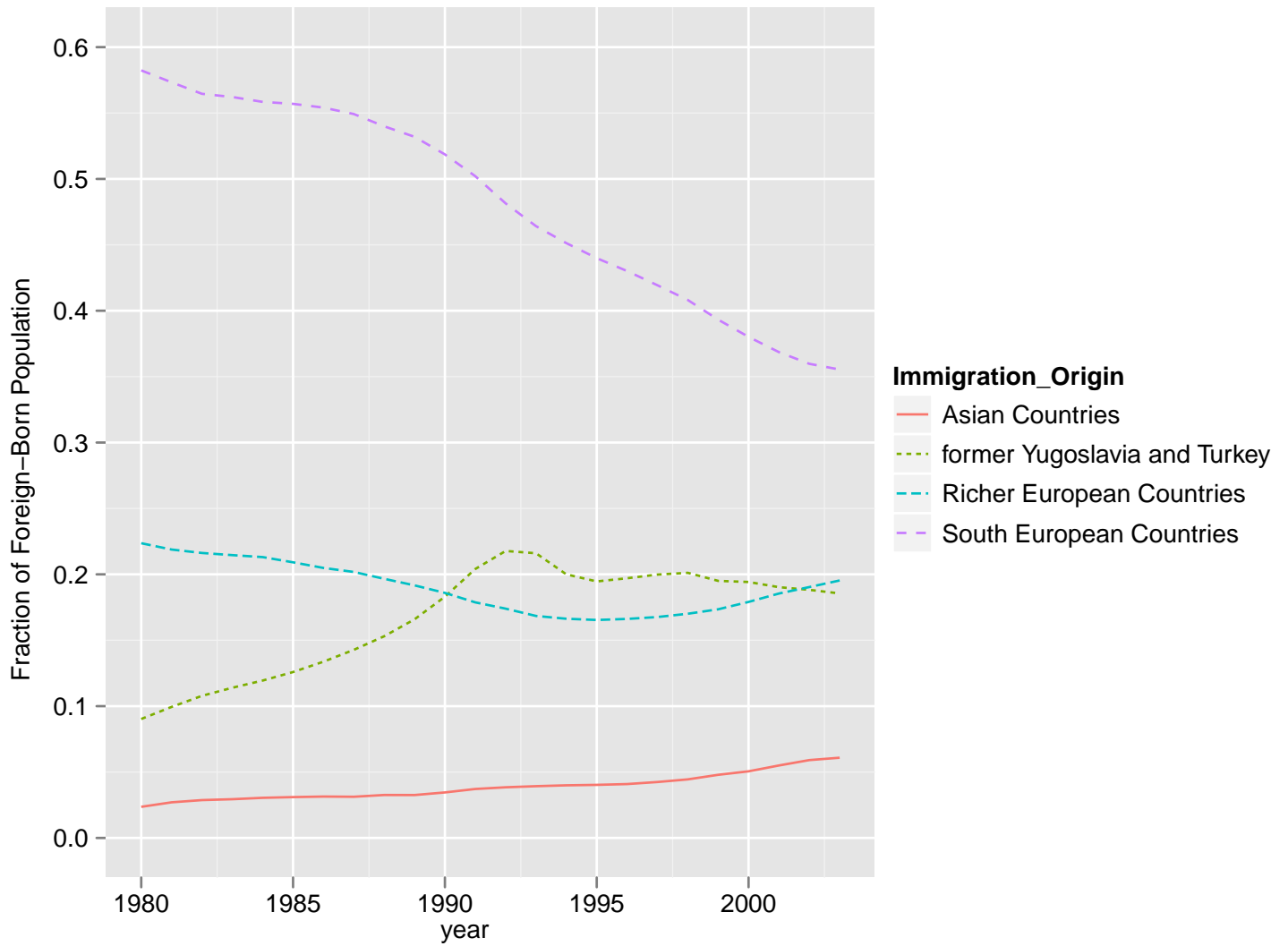
Note: Plot shows the shares of immigrants from different origins on the total foreign-born population (Source: PETRA Database from Swiss Federal Office of Statistics).

Table A.1: Descriptive Statistics

Applicant Characteristics	Mean	SD
Year: 80's	0.21	
Year: 90's	0.35	
Year: 00's	0.36	
Male (0/1)	0.68	
Married (0/1)	0.55	
Kids (0/1)	0.44	
Age: 21-40 Years	0.44	
Age: 41-60 Years	0.31	
Age: 60+ Years	0.04	
Attractive (0/1)	0.53	
Application #	1.13	0.41
Born in CH (0/1)	0.23	
Residence in CH (years/10)	1.92	0.81
Refugee (0/1)	0.16	
Education: Middle (0/1)	0.55	
Education: High (0/1)	0.09	
Skill: Middle (0/1)	0.44	
Skill: High (0/1)	0.14	
Unemployed (0/1)	0.04	
Language: Perfect (0/1)	0.88	
Language: Good (0/1)	0.09	
Language: Insufficient (0/1)	0.01	
Integration: 'Assimilated' (0/1/2)	0.50	0.71
Integration: 'Integrated' (0/1/2)	0.36	0.57
Integration: 'Adjusted' (0/1)	0.02	
Integration: 'No Difference' (0/1)	0.09	
Rich European Countries	0.21	
Southern Europe	0.18	
Central & Eastern Europe	0.06	
(former) Yugoslavia	0.30	
Turkey	0.15	
Asian Countries	0.07	
Other Non-European Countries	0.02	

Note: Mean and standard deviation for non-binary variables shown for the estimation sample that includes all municipalities $N = 2,429$.

This appendix presents various robustness checks from additional specifications. Table B.1 presents a variety of robustness checks for the benchmark model including replications with year fixed effects, quadratic time trends, and linear and quadratic municipality specific time trends for the sub-samples of all, large, and polling place municipalities. Table B.2 presents replications of the benchmark specification with a binary outcome variable for the naturalization outcome. Table B.3 re-estimates the country of origin disadvantage for applicants from Turkey and (former) Yugoslavia using several commonly used matching methods. Figure B1. presents the municipality specific country of origin effects that are estimated by fitting a streamlined version of the benchmark model to each municipality sub-sample. Table B.4 presents robustness checks for the taste-based interactions using several anti-immigrant referenda from 1982, 1983, and 1988, respectively.

Table B.1: Robustness Checks for Benchmark Model

Dependent Variable	Rejection Rate														
Model Number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Municipality Sample:	All	All	All	All	All	Large	Large	Large	Large	Large	Polling Place	Polling Place	Polling Place	Polling Place	Polling Place
Male (0/1)	0.76	0.88	0.75	0.59	0.39	1.56	1.46	1.43	0.89	0.67	1.23	1.40	1.16	0.88	0.59
	(0.62)	(0.58)	(0.54)	(0.45)	(0.41)	(0.92)	(0.98)	(0.77)	(0.77)	(0.76)	(0.58)	(0.47)	(0.49)	(0.33)	(0.34)
Married (0/1)	0.31	-0.17	0.28	0.02	0.06	0.66	0.07	0.61	-0.26	-0.19	0.81	0.20	0.81	0.59	0.78
	(0.81)	(0.82)	(0.82)	(0.80)	(0.86)	(1.17)	(1.19)	(1.20)	(1.36)	(1.41)	(0.93)	(0.94)	(0.97)	(0.77)	(0.78)
Children (0/1)	0.94	1.02	0.94	0.61	0.43	0.87	0.75	0.83	0.91	0.52	1.16	1.16	1.13	0.38	0.08
	(1.05)	(1.06)	(1.05)	(0.76)	(0.80)	(1.81)	(1.61)	(1.81)	(1.28)	(1.08)	(1.32)	(1.26)	(1.27)	(0.92)	(0.97)
Age: 21-40 Years	1.16	1.41	1.15	1.08	1.11	2.18	2.47	2.15	2.25	1.93	1.28	1.46	1.33	0.83	1.10
	(0.78)	(0.83)	(0.76)	(0.85)	(0.77)	(1.29)	(1.23)	(1.31)	(1.36)	(1.10)	(0.80)	(0.84)	(0.81)	(0.82)	(0.81)
Age: 41-60 Years	2.29	2.56	2.29	1.96	1.42	3.47	3.84	3.44	2.80	2.19	2.12	2.30	2.14	1.29	1.02
	(0.71)	(0.80)	(0.69)	(0.90)	(0.88)	(0.93)	(1.20)	(1.01)	(1.51)	(1.29)	(0.61)	(0.69)	(0.60)	(0.77)	(0.84)
Age: 60+ Years	1.22	1.89	1.19	0.76	0.36	1.10	1.27	0.95	0.71	-0.01	0.89	1.69	0.86	-0.15	-0.44
	(1.72)	(1.56)	(1.68)	(1.53)	(1.51)	(2.63)	(2.75)	(2.68)	(2.62)	(2.45)	(2.06)	(1.86)	(2.01)	(1.50)	(1.54)
Attractive (0/1)	0.48	0.38	0.49	-0.52	-0.71	0.64	0.55	0.73	-0.76	-0.59	0.52	0.44	0.60	-0.45	-0.74
	(0.99)	(0.93)	(1.00)	(0.73)	(0.74)	(1.80)	(1.54)	(1.81)	(1.17)	(1.19)	(1.05)	(0.97)	(1.07)	(0.75)	(0.76)
# of Applications	-0.14	-0.03	-0.16	-0.85	-0.99	-0.86	-0.70	-0.89	-0.85	-1.17	-0.33	-0.12	-0.44	-0.92	-1.20
	(0.78)	(0.77)	(0.74)	(0.56)	(0.60)	(0.60)	(0.57)	(0.64)	(0.53)	(0.64)	(0.85)	(0.81)	(0.82)	(0.53)	(0.57)
Born in Switzerland (0/1)	-2.01	-1.77	-2.00	-1.81	-2.24	-3.04	-2.49	-3.11	-2.75	-3.31	-2.00	-1.85	-2.03	-2.31	-2.62
	(0.76)	(0.78)	(0.77)	(0.65)	(0.70)	(0.88)	(1.11)	(0.91)	(0.85)	(0.89)	(0.84)	(0.81)	(0.85)	(0.69)	(0.66)
Years since Arrival / 10	-1.72	-1.75	-1.72	-1.65	-1.61	-1.11	-1.16	-1.07	-1.48	-1.57	-1.66	-1.64	-1.59	-1.46	-1.34
	(0.40)	(0.45)	(0.42)	(0.45)	(0.42)	(0.52)	(0.79)	(0.58)	(0.68)	(0.67)	(0.42)	(0.50)	(0.43)	(0.47)	(0.46)
Refugee (0/1)	-0.38	-0.52	-0.42	-0.56	-0.43	2.60	2.64	2.41	1.03	1.03	0.70	0.29	0.59	-0.09	0.11
	(1.36)	(1.31)	(1.36)	(1.03)	(1.03)	(0.97)	(1.18)	(0.95)	(0.79)	(0.48)	(1.15)	(1.20)	(1.17)	(1.12)	(1.05)
Education: Middle (0/1)	-0.51	-0.55	-0.51	-0.58	-0.69	-1.01	-0.75	-1.08	-0.83	-0.83	-0.59	-0.61	-0.57	-0.58	-0.72
	(0.48)	(0.51)	(0.47)	(0.49)	(0.50)	(0.64)	(0.93)	(0.62)	(0.95)	(0.85)	(0.55)	(0.57)	(0.53)	(0.51)	(0.53)
Education: High (0/1)	-1.19	-1.54	-1.15	-0.97	-0.89	-2.36	-2.36	-2.17	-1.62	-1.67	-1.35	-1.84	-1.33	-0.99	-0.90
	(0.93)	(0.92)	(0.87)	(0.78)	(0.77)	(1.55)	(1.70)	(1.42)	(1.55)	(1.46)	(1.12)	(1.04)	(1.02)	(0.84)	(0.84)
Medium Skilled (0/1)	-0.77	-0.68	-0.77	-0.69	-0.83	-1.75	-1.68	-1.78	-1.54	-1.43	-0.63	-0.46	-0.69	-0.68	-0.73
	(0.60)	(0.66)	(0.59)	(0.57)	(0.57)	(0.63)	(0.88)	(0.62)	(0.78)	(0.85)	(0.66)	(0.70)	(0.65)	(0.56)	(0.54)
High Skilled (0/1)	-2.60	-2.45	-2.59	-2.66	-2.67	-2.53	-2.17	-2.56	-1.93	-1.56	-2.45	-2.30	-2.49	-2.51	-2.38
	(0.77)	(0.79)	(0.77)	(0.77)	(0.80)	(0.98)	(1.02)	(1.03)	(1.01)	(1.12)	(0.93)	(0.91)	(0.93)	(0.83)	(0.84)
Unemployed (0/1)	5.47	5.25	5.47	5.24	4.83	9.16	8.58	9.04	6.63	6.43	5.29	5.19	5.21	5.27	4.44
	(2.67)	(2.58)	(2.65)	(2.45)	(2.58)	(4.14)	(3.73)	(3.99)	(3.55)	(3.71)	(2.73)	(2.63)	(2.73)	(2.42)	(2.53)
Language: Excellent (0/1)	-1.13	-0.81	-1.13	-1.55	-2.62	1.88	1.59	1.76	0.25	-0.67	-0.56	-0.30	-0.63	-1.55	-2.64
	(2.02)	(1.83)	(1.91)	(1.91)	(2.10)	(2.91)	(2.59)	(2.78)	(2.28)	(2.44)	(2.24)	(1.97)	(2.15)	(2.08)	(2.19)
Language: Good (0/1)	-0.57	-0.00	-0.55	-1.12	-2.20	1.56	1.92	1.41	0.62	-0.62	-0.36	0.42	-0.38	-1.21	-2.23
	(1.67)	(1.70)	(1.66)	(1.71)	(1.79)	(2.13)	(1.93)	(2.21)	(1.39)	(1.64)	(1.79)	(1.76)	(1.76)	(1.80)	(1.80)
Language: Insufficient (0/1)	20.37	21.50	20.40	21.86	22.64	18.86	19.89	18.61	22.08	22.77	20.13	21.32	20.01	21.93	22.39
	(9.72)	(9.47)	(9.74)	(8.95)	(8.85)	(10.11)	(9.78)	(10.08)	(9.09)	(8.60)	(9.67)	(9.51)	(9.65)	(8.69)	(8.36)
Integration: 'Assimilated' (0-2)	-1.86	-1.90	-1.83	-1.86	-1.85	-0.61	-0.56	-0.59	-1.63	-1.95	-1.65	-1.74	-1.82	-1.61	-1.59
	(0.99)	(1.00)	(1.01)	(0.74)	(0.68)	(0.49)	(0.68)	(0.54)	(0.62)	(0.69)	(1.25)	(1.21)	(1.24)	(0.74)	(0.67)
Integration: 'Integrated' (0-2)	-0.15	-0.40	-0.13	-0.71	-0.76	-0.39	-0.72	-0.34	-1.33	-1.05	-0.33	-0.68	-0.20	-0.94	-0.89
	(0.76)	(0.81)	(0.76)	(0.73)	(0.81)	(1.67)	(1.48)	(1.69)	(1.03)	(0.82)	(0.75)	(0.84)	(0.75)	(0.77)	(0.84)
Integration: 'Adjusted' (0/1)	-0.16	-0.65	-0.02	-0.29	-0.66	-3.64	-4.62	-3.20	-3.41	-3.15	-0.76	-1.02	-0.58	-0.46	-0.77
	(2.19)	(2.35)	(2.16)	(1.54)	(1.06)	(1.26)	(1.51)	(1.65)	(1.12)	(1.30)	(1.94)	(2.14)	(2.03)	(1.32)	(0.88)
Integration: 'Indistinguishable' (0/1)	-3.11	-3.27	-3.16	-3.37	-2.04	-2.27	-2.85	-2.57	-2.63	-2.10	-2.65	-3.13	-2.67	-3.33	-1.87
	(1.19)	(1.06)	(1.07)	(1.07)	(1.30)	(1.93)	(1.94)	(2.22)	(1.68)	(1.52)	(1.30)	(1.20)	(1.50)	(1.06)	(1.32)
Southern European Countries	-1.37	-1.67	-1.38	-2.01	-2.42	-1.06	-1.31	-1.05	-1.40	-1.88	-1.49	-1.75	-1.24	-2.28	-2.10
	(1.07)	(1.02)	(1.06)	(1.07)	(0.94)	(1.60)	(1.59)	(1.54)	(1.58)	(1.27)	(1.08)	(1.14)	(1.11)	(1.06)	(1.05)
Central & Eastern Europe	6.59	6.66	6.61	5.60	5.24	8.27	8.51	8.37	6.78	6.64	7.01	7.29	7.35	5.48	5.99
	(1.15)	(1.04)	(1.23)	(0.97)	(0.97)	(1.36)	(1.40)	(1.43)	(1.03)	(1.00)	(1.23)	(1.10)	(1.33)	(0.91)	(1.07)
(former) Yugoslavia	14.69	14.49	14.67	13.84	13.37	15.81	15.85	15.79	15.29	15.00	15.67	15.48	16.00	14.60	14.95
	(1.02)	(1.15)	(1.13)	(1.12)	(1.15)	(1.42)	(1.52)	(1.52)	(1.40)	(1.50)	(1.11)	(1.23)	(1.20)	(1.22)	(1.24)
Turkey	13.35	13.36	13.34	12.60	12.25	13.33	13.81	13.21	12.12	12.01	13.77	13.80	14.18	12.78	13.22
	(1.24)	(1.23)	(1.24)	(1.20)	(1.14)	(1.80)	(1.71)	(1.68)	(1.78)	(1.53)	(1.32)	(1.39)	(1.33)	(1.29)	(1.28)
Asian Countries	3.45	3.61	3.42	3.22	2.69	2.94	3.02	2.80	3.08	2.77	3.14	3.28	3.71	2.82	3.26
	(1.36)	(1.14)	(1.34)	(0.99)	(0.98)	(1.72)	(1.59)	(1.81)	(1.22)	(1.27)	(1.57)	(1.39)	(1.61)	(1.27)	(1.35)
Other Non-European Countries	6.98	7.23	7.00	6.50	5.90	7.54	7.84	7.73	6.95	6.38	5.91	6.01	6.42	5.32	5.71
	(1.42)	(1.35)	(1.42)	(1.34)	(1.07)	(2.49)	(2.06)	(2.44)	(1.67)	(1.14)	(1.91)	(2.00)	(2.02)	(1.71)	(1.40)
Municipality Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Decade Fixed Effects	yes					yes					yes				
Year Fixed Effects		yes		yes	yes		yes		yes	yes		yes		yes	yes
Quadratic Time Trend			yes					yes					yes		
Municipality Specific Time Trends				yes					yes					yes	
Municipality Specific Quadratic Time Trends					yes					yes					yes
Observations	2,429	2,429	2,429	2,429	2,429	1,208	1,208	1,208	1,208	1,208	1,917	1,917	1,917	1,917	1,917
R^2	0.67	0.68	0.67	0.75	0.78	0.64	0.67	0.64	0.74	0.76	0.58	0.61	0.58	0.71	0.74

Note: Point estimates and parenthesized standard errors (clustered by municipality) shown from OLS regressions. Models 1-5, 6-10, and 11-15 are based on all ballot box municipalities, large municipalities, and polling place municipalities respectively. Reference categories for the various contrasts are: an indicator for the years 1970-1979, applicants with age < 20 years, low education, in low skilled jobs, "sufficient" command of one of the Swiss languages, who are familiar with "Swiss traditions and customs", and originating from a rich European country.

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Table B.2: Models with Binary Naturalization Outcome

Dependent Variable	Binary Naturalization Outcome (1 if rejected, 0 otherwise)					
Model Type	Linear Probability Model			Firth Logit		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Municipality Sample	All	Large	Polling Place	All	Large	Polling Place
Year: 80's	0.01	-0.01	-0.01	-0.26	-0.01	-0.22
	(0.02)	(0.02)	(0.03)	(0.45)	(0.54)	(0.47)
Year: 90's	0.01	-0.09	0.03	0.09	-0.40	0.36
	(0.05)	(0.06)	(0.07)	(0.46)	(0.56)	(0.47)
Year: 00's	0.01	-0.10	0.03	0.19	-0.54	0.43
	(0.08)	(0.12)	(0.11)	(0.47)	(0.59)	(0.49)
Male (0/1)	-0.02	-0.03	-0.01	-0.12	-0.24	-0.05
	(0.02)	(0.03)	(0.02)	(0.17)	(0.22)	(0.17)
Married (0/1)	0.02	0.07	0.04	0.31	0.46	0.37
	(0.03)	(0.04)	(0.03)	(0.24)	(0.34)	(0.25)
Children (0/1)	0.02	-0.02	0.03	0.08	-0.04	0.08
	(0.03)	(0.04)	(0.03)	(0.24)	(0.33)	(0.25)
Age: 21-40 Years	0.04	-0.01	0.05	0.40	-0.02	0.42
	(0.03)	(0.04)	(0.04)	(0.23)	(0.32)	(0.24)
Age: 41-60 Years	0.05	0.02	0.06	0.58	0.51	0.58
	(0.03)	(0.03)	(0.04)	(0.30)	(0.41)	(0.31)
Age: 60+ Years	0.10	0.06	0.09	1.20	1.06	1.07
	(0.07)	(0.09)	(0.09)	(0.49)	(0.65)	(0.51)
Attractive (0/1)	-0.02	-0.02	-0.03	-0.19	-0.13	-0.20
	(0.03)	(0.06)	(0.03)	(0.18)	(0.26)	(0.18)
# of Applications	0.02	0.01	-0.01	-0.21	-0.17	-0.24
	(0.03)	(0.04)	(0.03)	(0.14)	(0.20)	(0.14)
Born in Switzerland (0/1)	-0.07	-0.08	-0.05	-0.23	-0.34	-0.22
	(0.03)	(0.04)	(0.02)	(0.24)	(0.30)	(0.25)
Years since Arrival / 10	-0.03	-0.02	-0.02	-0.35	-0.25	-0.32
	(0.01)	(0.02)	(0.01)	(0.15)	(0.19)	(0.15)
Refugee (0/1)	-0.04	-0.01	-0.01	0.16	0.35	0.19
	(0.05)	(0.07)	(0.06)	(0.39)	(0.45)	(0.39)
Education: Middle (0/1)	-0.05	-0.02	-0.05	-0.27	-0.16	-0.25
	(0.02)	(0.02)	(0.02)	(0.17)	(0.24)	(0.17)
Education: High (0/1)	-0.09	-0.11	-0.09	-0.75	-1.12	-0.72
	(0.04)	(0.05)	(0.04)	(0.34)	(0.45)	(0.34)
Medium Skilled (0/1)	-0.02	-0.04	-0.02	-0.12	-0.30	-0.11
	(0.02)	(0.02)	(0.02)	(0.18)	(0.25)	(0.19)
High Skilled (0/1)	-0.06	-0.08	-0.06	-0.64	-0.68	-0.61
	(0.03)	(0.05)	(0.03)	(0.28)	(0.41)	(0.29)
Unemployed (0/1)	0.19	0.29	0.19	1.22	1.80	1.20
	(0.05)	(0.07)	(0.06)	(0.50)	(0.64)	(0.51)
Language: Excellent (0/1)	0.03	0.17	0.06	0.85	1.44	0.87
	(0.16)	(0.26)	(0.18)	(0.57)	(0.69)	(0.57)
Language: Good (0/1)	0.07	0.24	0.12	0.88	1.37	0.94
	(0.18)	(0.23)	(0.17)	(0.62)	(0.75)	(0.63)
Language: Insufficient (0/1)	0.20	0.17	0.23	1.52	1.20	1.63
	(0.17)	(0.20)	(0.15)	(1.15)	(1.25)	(1.16)
Integration: 'Assimilated' (	-0.05	-0.03	-0.03	-0.48	-0.10	-0.45
	(0.03)	(0.01)	(0.03)	(0.20)	(0.27)	(0.21)
Integration: 'Integrated' (0	-0.00	-0.02	-0.00	-0.01	-0.17	-0.02
	(0.03)	(0.05)	(0.03)	(0.18)	(0.29)	(0.19)
Integration: 'Adjusted' (0/1	0.09	0.00	0.06	0.19	0.13	0.12
	(0.05)	(0.05)	(0.04)	(0.54)	(0.81)	(0.54)
Integration: 'Indi' (0/1)	-0.13	-0.17	-0.10	-0.85	-1.29	-0.82
	(0.04)	(0.06)	(0.05)	(0.36)	(0.53)	(0.36)
Southern European Countries	-0.01	-0.02	-0.03	0.02	-0.19	-0.17
	(0.02)	(0.03)	(0.03)	(0.37)	(0.47)	(0.39)
Central & Eastern Europe	0.09	0.11	0.12	1.34	1.15	1.36
	(0.04)	(0.07)	(0.05)	(0.39)	(0.46)	(0.40)
(former) Yugoslavia	0.30	0.32	0.39	2.76	2.55	2.79
	(0.05)	(0.09)	(0.05)	(0.33)	(0.40)	(0.34)
Turkey	0.28	0.29	0.33	2.51	2.35	2.49
	(0.04)	(0.08)	(0.05)	(0.35)	(0.48)	(0.36)
Asian Countries	-0.07	-0.05	-0.08	-0.47	-0.59	-0.53
	(0.04)	(0.05)	(0.05)	(0.54)	(0.63)	(0.55)
Other Non-European Countries	0.02	-0.01	0.02	0.53	0.11	0.51
	(0.04)	(0.08)	(0.06)	(0.62)	(0.75)	(0.62)
Constant	0.22	0.36	-0.17	-1.10	-1.37	-4.27
	(0.24)	(0.35)	(0.27)	(1.89)	(1.04)	(1.91)
Fixed Effects for Municipalities	yes	yes	yes	yes	yes	yes
Applications	2,429	1,208	1,917	2,429	1,208	1,917
Municipalities	44	10	31	44	10	31

Note: Point estimates and standard errors (clustered by municipality) from linear probability model (Models 1-3) or Firth's penalized-likelihood logistic regression (Models 4-6, without clustered standard errors) shown. All models use a binary measure of naturalization outcome (1 if rejected, 0 if accepted) and are estimated with fixed effects for each municipality.

Table B.3: Matching Estimates of Country of Origin Disadvantage

| Dependent Variable	Rejection Rate			
Applicant Origin	(former) Yugoslavia		Turkey	
Method:	ATT	Std. Error	ATT	Std. Error
Mahalanobis Distance Matching	18.00	(1.16)	19.25	(1.46)
Genetic Matching	17.58	(1.43)	18.76	(1.69)
Propensity Score Matching	14.94	(3.36)	16.03	(4.67)
Propensity Score Weighting	18.51	(2.32)	17.73	(3.39)

Note: Point estimates and standard errors from various matching and weighting methods. The estimates refer to the estimated difference in the rejection rates between applicants from (former) Yugoslavia or Turkey and observably similar applicants from richer European countries based on the average treatment effect on the treated (ATT). For all models, only applicants originating from rich European countries and (former) Yugoslavia or Turkey are used. The adjustments include all covariates from the benchmark model. All matchings are 1:1 with replacement and Abadie-Imbens standard errors. Propensity scores are estimated with a logit regression that incudes all benchmark covariates.

Table B.4: Interaction of Anti-Immigrant Vote Share and Country of Origin Effects

Dependent Variable	Rejection Rate					
	All Municipalities			Polling Place		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Year: 80's	-0.87	-0.64	-0.51	-0.71	-0.74	-0.93
	(1.69)	(1.71)	(1.68)	(2.03)	(2.06)	(2.01)
Year: 90's	0.48	0.63	0.58	3.25	3.14	2.83
	(2.75)	(2.68)	(2.75)	(3.44)	(3.44)	(3.49)
Year: 00's	1.52	1.64	1.59	3.42	3.29	2.95
	(4.20)	(4.11)	(4.27)	(5.45)	(5.47)	(5.57)
Male (0/1)	0.61	0.55	0.54	0.71	0.68	0.72
	(0.74)	(0.73)	(0.75)	(0.79)	(0.79)	(0.79)
Married (0/1)	0.36	0.38	0.51	1.06	0.99	1.21
	(0.88)	(0.89)	(0.93)	(1.05)	(1.06)	(1.08)
Children (0/1)	1.97	1.87	1.87	1.69	1.70	1.74
	(0.94)	(0.94)	(0.98)	(1.06)	(1.06)	(1.10)
Age: 21-40 Years	1.65	1.58	1.59	1.79	1.69	1.71
	(0.82)	(0.83)	(0.85)	(0.78)	(0.78)	(0.79)
Age: 41-60 Years	2.14	2.17	2.23	2.16	2.01	2.07
	(1.01)	(1.01)	(1.04)	(0.98)	(0.98)	(1.03)
Age: 60+ Years	3.39	3.36	3.43	3.41	3.04	2.76
	(2.02)	(2.02)	(2.19)	(2.47)	(2.53)	(2.61)
Attractive (0/1)	0.52	0.41	0.79	0.59	0.39	0.82
	(1.03)	(0.99)	(1.03)	(1.12)	(1.06)	(1.14)
# of Applications	-1.20	-1.16	-1.03	-1.21	-1.25	-1.15
	(0.79)	(0.78)	(0.81)	(0.84)	(0.83)	(0.89)
Born in Switzerland (0/1)	-1.44	-1.51	-1.62	-1.56	-1.44	-1.82
	(1.18)	(1.17)	(1.18)	(1.53)	(1.44)	(1.53)
Years since Arrival / 10	-1.47	-1.53	-1.53	-1.66	-1.66	-1.55
	(0.64)	(0.63)	(0.66)	(0.74)	(0.74)	(0.78)
Refugee (0/1)	-5.39	-5.25	-5.22	-2.33	-2.26	-2.37
	(2.57)	(2.64)	(2.58)	(2.10)	(2.17)	(2.24)
Education: Middle (0/1)	-0.70	-0.79	-0.84	-0.94	-0.93	-0.92
	(0.63)	(0.63)	(0.68)	(0.72)	(0.72)	(0.74)
Education: High (0/1)	-2.18	-2.29	-2.44	-2.45	-2.26	-2.28
	(0.99)	(0.97)	(1.05)	(1.06)	(1.04)	(1.12)
Medium Skilled (0/1)	0.09	0.20	-0.08	0.63	0.68	0.40
	(0.66)	(0.66)	(0.68)	(0.74)	(0.72)	(0.75)
High Skilled (0/1)	-2.05	-2.11	-2.09	-1.86	-2.06	-1.89
	(1.07)	(1.08)	(1.07)	(1.28)	(1.25)	(1.25)
Unemployed (0/1)	5.51	5.50	5.67	4.94	4.97	5.21
	(2.87)	(2.87)	(2.87)	(2.86)	(2.87)	(2.87)
Language: Excellent (0/1)	-0.62	-0.77	-0.67	-0.24	-0.55	-0.28
	(2.67)	(2.64)	(2.65)	(2.62)	(2.65)	(2.64)
Language: Good (0/1)	0.25	0.01	0.13	0.20	-0.07	0.17
	(2.48)	(2.45)	(2.46)	(2.33)	(2.33)	(2.37)
Language: Insufficient (0/1)	28.47	28.12	28.39	29.05	28.50	29.02
	(2.97)	(2.85)	(3.07)	(2.91)	(2.73)	(3.01)
Integration: 'Assimilated' (0-2)	-2.10	-2.30	-2.19	-1.54	-1.69	-1.48
	(1.27)	(1.25)	(1.22)	(1.38)	(1.36)	(1.36)
Integration: 'Integrated' (0-2)	0.16	0.15	0.45	-0.12	-0.17	0.13
	(0.65)	(0.65)	(0.62)	(0.63)	(0.61)	(0.55)
Integration: 'Adjusted' (0/1)	-0.94	-0.75	-0.97	-1.23	-0.97	-1.45
	(3.39)	(3.38)	(3.41)	(2.95)	(2.87)	(2.92)
Integration: 'Indistinguishable' (0/1)	-3.27	-3.41	-3.20	-3.16	-3.26	-2.86
	(1.18)	(1.19)	(1.15)	(1.25)	(1.23)	(1.16)
(former) Yugoslavia & Turkey	13.32	13.14	12.64	11.98	12.58	12.42
	(1.21)	(1.41)	(0.95)	(1.48)	(1.79)	(1.15)
Yugoslavia & Turkey x Vote Share 1982	0.50			0.75		
	(0.14)			(0.21)		
Yugoslavia & Turkey x Vote Share 1983		0.45			0.65	
		(0.15)			(0.10)	
Yugoslavia & Turkey x Vote Share 1988			0.43			0.56
			(0.23)			(0.29)
Constant	37.63	38.15	38.06	36.52	37.29	36.81
	(4.03)	(3.88)	(3.97)	(4.21)	(3.94)	(4.36)
Fixed Effects for Municipalities	yes	yes	yes	yes	yes	yes
Applications	1,613	1,613	1,613	1,291	1,291	1,291
Municipalities	43	43	43	31	31	31
R^2	0.70	0.70	0.70	0.62	0.63	0.62

Note: Point estimates and parenthesized standard errors shown. All models are ordinary OLS with municipality fixed effects and standard errors clustered by municipality. For all models, only applicants originating from rich European countries or (former) Yugoslavia and Turkey are used. Models 1-3 are based on the full sample of ballot box municipalities, Models 4-6 are based on municipalities where the ballots were cast at the polling place. Vote Share 1982, Vote Share 1983, and Vote Share 1988 are the municipality level vote shares from the respective federal referenda for proposals to restrict immigration.

Figure B.1: Municipality Specific Country of Origin Effects
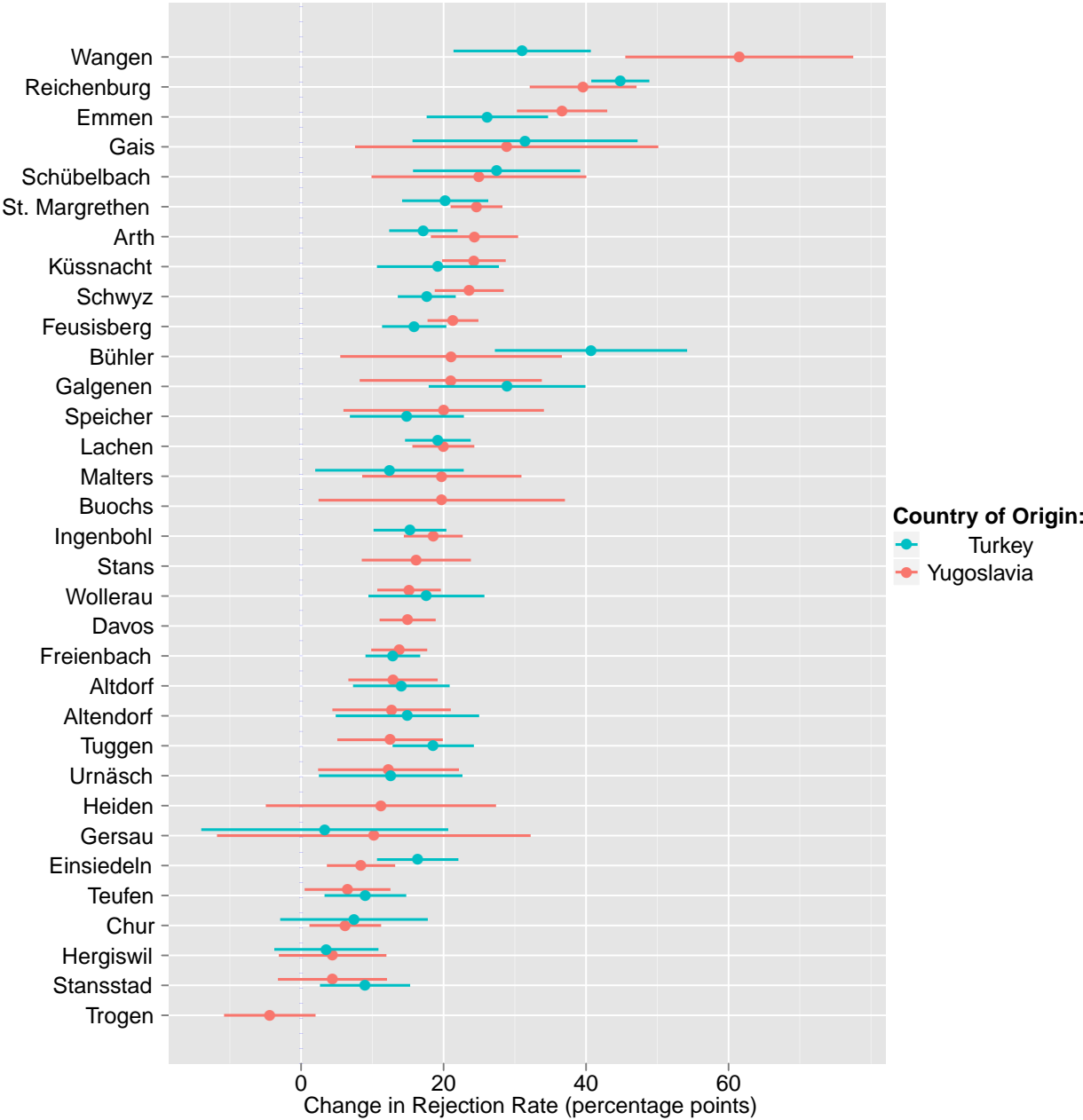
Note: Marginal effect estimates with robust .95 confidence intervals based on municipality specific regressions of rejection rates on applicant characteristics. Estimates shown for municipalities with 15 or more applicants only.