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August 2016

ABSTRACT

We study the impact of naturalization on the long-term social integration of immigrants into the host country society. Despite ongoing debates about citizenship policy, we lack reliable evidence that isolates the causal effect of naturalization from the non-random selection into naturalization. We exploit the quasi-random assignment of citizenship in Swiss municipalities that used referendums to decide on naturalization applications of immigrants. Comparing otherwise similar immigrants who narrowly won or narrowly lost their naturalization referendums, we find that receiving Swiss citizenship strongly improved long-term social integration. We also find that the integration returns to naturalization are much larger for more marginalized immigrant groups and somewhat larger when naturalization occurs earlier, rather than later in the residency period. Overall, our findings support the policy paradigm arguing that naturalization is a catalyst for improving the social integration of immigrants rather than merely the crown on the completed integration process.

Word count: 13,570

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I. INTRODUCTION

Integration of immigrant populations is an urgent and fundamental policy challenge in many countries in Europe and the Americas that have experienced dramatic increases in the size and diversity of their immigrant populations in recent decades. There is agreement that it is economically wasteful and democratically deficient if immigrants remain marginalized. From a purely economic framework, where returns to the free movement of labor are strongly positive, we should not observe integration failure once transition costs are paid. But this theoretical expectation is not uniformly realized across countries and immigrant groups (Dancygier and Laitin 2014). Instead, the extraordinary influx of migrants has led to severe social tensions and stark signals of integration failures. On the one hand, we see alienation and hardship among immigrants who face social exclusion and discrimination (Bloemraad, Korteweg and Yurdakul 2008; Algan et al. 2012). On the other hand, we see anti-immigrant backlash among natives who fear that the new waves of immigrants will threaten their jobs, security, and national culture (Fetzer 2000).

Faced with this conundrum, policy makers are struggling with the design of policies to facilitate integration and ease social tensions, but we know distressingly little about their impacts. One of the key debates involves immigrants' access to citizenship and the consequences that naturalization has on integrating the growing immigrant populations into the political, social, and economic fabric of the host democracies. The citizenship frameworks are under much scrutiny by legislators, scholars, and members of civil society who engage in heated debates about the merits of policies that promote or limit opportunities for naturalization (Howard 2005; Dancygier 2010; Goodman 2010).

One paradigm—often advanced by parties on the left—is that naturalization should be made fairly accessible since it provides immigrants with the necessary incentives and resources to integrate and invest in a future in the host country. Citizenship is seen as an important catalyst that propels the integration process. The opposing paradigm—often advanced by parties on the right—holds that naturalization has no independent effect on enhancing integration. Quite the opposite, once you hand over the host country passport, immigrants lose the incentive to integrate because they can no longer be excluded from the benefits that are associated with citizenship. Following this logic, naturalization is not a catalyst but merely a reward for immigrants who have reached the end point of the integration process. As Dutch Minister of Home Affairs Piet Hein Donner recently put it in

defense of tightening naturalization rules, "citizenship is the crown on participation and integration into society."[1] Accordingly, there should be a high bar that restricts access to citizenship to only those immigrants who earned this reward by successfully completing the integration process.

In this paper we contribute to the ongoing debate by providing empirical answers to three unresolved questions: Does naturalization promote the long-term social integration of immigrants into the host country society? Is naturalization more or less effective for more marginalized immigrant groups? Is naturalization more or less effective when immigrants naturalize earlier rather than later into their residency period? Answering these questions is crucial to test scholarly theories and inform ongoing debates about the design of naturalization policy. But despite the imminent importance of these questions for policy and theory there is a paucity of research that provides reliable evidence on the causal impacts of naturalization or the impact of the timing of naturalization on the social integration of immigrants. The large majority of studies of naturalization only examine its impact on economic outcomes, and the few existing studies that move beyond economic outcomes almost exclusively focus on political integration, but do not examine social integration specifically. Social integration of immigrants is important for at least two reasons. First, successful social integration—understood as the removal of all barriers to full participation in the host society—is a key factor for immigrants and their offspring to achieve social, but also political and economic, mobility in their host society. Second, the increased influx of immigrants has raised concerns that diversity might have a negative effect on the receiving countries social capital (Putnam 2007) and social cohesion (Giddens 2007). Here, social integration of immigrants is widely seen as the most important factor for the maintenance of social cohesion in times of increasing diversity (Hooghe et al. 2009; Kesler and Demireva 2011). Furthermore, existing studies also only consider short-term effects and, most importantly, they do not employ experimental or quasi-experimental strategies that would allow them to isolate the independent effect of naturalization from the non-random selection into naturalization or the non-random selection into the timing of the naturalization (Hainmueller, Hangartner and Pietrantuono (2015)).

The key problem faced by all studies of naturalization is that naturalized citizenship is not randomly assigned, but results from a complex double selection process. Immigrants first apply for naturalization based on unobserved characteristics such as motivation or information, and then decision makers screen applicants based on another set of unobserved characteristics such as the immigrant's language ability

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[1] "Becoming Dutch to be difficult," *The Daily Herald*, (2011, March 29).

or the impression made during the application interview. As a result of this double selection bias, the group of naturalized and non-naturalized immigrants differ on a myriad of omitted variables that independently affect integration, but are difficult to measure and control for in any statistical analysis. Unless we remove the differences in the omitted variables, we cannot attribute differences in integration outcomes to the effect of naturalization.

In this paper we contribute to the ongoing debate by providing new causal estimates of the effects of naturalization on the long-term social integration of immigrants, estimates of how the naturalization effect varies across immigrant groups, and estimates of the effect of the timing of the naturalization. Our study design is based on a natural experiment in Switzerland where until 2003 some municipalities used secret ballot referendums to decide on the naturalization applications of its immigrant residents. Leaflets that describe the applicants were sent out to all local voters who then voted with a 'yes' or 'no' decision to accept or reject each individual applicant and immigrants that gained a majority of 'yes' votes received Swiss citizenship. Our data combines the leaflets and voting records with a recently administered survey that measures the current integration levels of the applicants who faced naturalization referendums prior to 2003. Given the long time gap between the referendums and our survey, immigrants in our sample received Swiss citizenship about 15 years ago on average. As we explain in detail below, this original data and unique setting allows us to get at long-term effects of naturalization and remove the bias from the double selection process using two complementary identification strategies that are based on an instrumental variable design and a fuzzy regression discontinuity design, respectively. Moreover, it allows us to apply an identification strategy to estimate the effect of an early versus late timing of the naturalization.

Our study yields three main results. First, we find that naturalization strongly improved the long-term social integration of immigrants as measured by our integration scale that combines a variety of outcomes including whether immigrants have plans to permanently stay in Switzerland, are a member of a local social club, feel discriminated against, and read Swiss newspapers instead of newspapers from their origin countries. These positive effects of naturalization on social integration persist for more than a decade and a half and are robust across various robustness checks. The effects are also sizable. For example, when using our summary scale of social integration that combines all outcome measures, the results suggest that naturalization causes about a full standard deviation unit increase in the social integration scale.

Second, we find that the naturalization effect strongly varies by the immigrant group. In particular, the estimates show that the large positive effects of naturalization on integration are concentrated among the most marginalized immigrant groups, including immigrants from Turkey and the former Yugoslavia and immigrants born abroad as opposed to those born in Switzerland.

Third, we find that the integration returns are larger when immigrants naturalize earlier, rather than later in their residency. Comparing otherwise similar applicants, we find that receiving Swiss citizenship about three years earlier translates into about one sixth of a standard deviation unit increase in the social integration scale. This suggests that receiving the host country citizenship just a few years faster can have a lasting impact on enhancing the long-term social integration of immigrants.

Our study makes four main contributions. First, our findings contribute to the ongoing heated debates about the effects of naturalization on immigrant integration. In particular, our new causal estimates are supportive of the paradigm arguing that naturalization is an important policy instrument that has a strong and lasting independent effect on improving the social integration of immigrants. Naturalization acts as a catalyst, rather than merely a crown on the completed integration process. Moreover, in stark contrast to the political rhetoric mobilizing for limiting access to host country citizenship with longer residency periods and stricter naturalization criteria, we find that the positive effects of naturalization are in fact larger for the most marginalized groups and when immigrants naturalize earlier, rather than later, in their residency. Taken together, these findings suggest that for Switzerland—and perhaps other countries with similarly restrictive or more restrictive naturalization regimes—marginally lowering the long residency requirements and stringent naturalization criteria might well be quite beneficial to reap the full integration gains from the citizenship policy.

When interpreting our results it is important to emphasize that our estimates capture the effects of naturalization only among immigrants who have applied for citizenship. Among this sample, which is arguably the most relevant for current policy, we find that naturalization promotes long-term social integration and that these effects are larger for more marginalized immigrants and those who apply earlier. This pattern suggests that our results provide a lower bound of the naturalization effects that we might expect if policy-makers where to marginally lower the threshold to open naturalization for immigrants who are slightly less integrated or have slightly shorter residency.

Second, while existing work is focused on economic integration our study broadens the scope and shows that citizenship also has important consequences for social integration of immigrants. This is an

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important result given the persistent marginalization of immigrants and rising social tensions between immigrants and natives that are visible in many European countries.

Third, given that the average naturalized immigrant in our sample obtained Swiss citizenship about 15 years ago, our study goes beyond short-term effects to consider the lasting impacts of naturalization. Importantly, the long-term effects of naturalization are key elements for evaluating theories and the full integration gains from citizenship policy.

Fourth, our study fills an important gap by providing evidence on the effects of naturalization in Switzerland specifically, a country where the issue of naturalization is particularly pressing: there is an unusually large immigrant population of about 27% and heated policy debates have seen right wing parties like the Swiss People's party mobilize against mass naturalization of immigrants.

II. Does Naturalization Lead to Better Immigrant Integration?

Immigrants who naturalize gain access to important legal rights and privileges that are often restricted to citizens of the host country (Bauböck et al. 2006; Joppke 2010; OECD 2011; Aleinikoff and Klusmeyer 2011). For example, while non-naturalized immigrants who are permanent residents typically have some security of residence and protection against expulsion, only immigrants who become citizens enjoy the full protection by the state at home and abroad and gain unrestricted access to the territory of the state with the right to permanent abode and return. As Vink, Prokic-Breuer and Dronkers (2013, pg. 2) put it, "naturalization ultimately transforms a foreigner into a citizen." By naturalizing, immigrants also typically acquire other important privileges such as the right to vote and run for political office, access to restricted public sector jobs, access to various government benefits for welfare, education, or health care that might be restricted to citizens, and increased travel mobility afforded by the host country passport. Naturalization also typically makes it easier for immigrants to sponsor other family members and secure citizenship for them. For example, in countries such as Switzerland that do not award citizenship based on place of birth, immigrant children obtain Swiss citizenship at birth only if their parents are naturalized. In sum, "national citizenship is the highest standard of equal treatment because immigrants become citizens with all the same rights, same responsibilities, and same voice in a democracy" (Bauböck et al. 2013, pg. 40).

A growing literature has investigated how naturalization might affect the subsequent integration of immigrants. The overwhelming majority of these studies examine the effects of naturalization on

economic outcomes such as employment, wages, or welfare reliance (see, for example, Bevelander and DeVoretz (2008); OECD (2011); Dancygier and Laitin (2014)). Naturalization may improve the economic outcomes of immigrants through several mechanisms given that citizenship has both an instrumental and a psychological dimension (Bloemraad, Korteweg and Yurdakul 2008; Just and Anderson 2012). Both of these dimensions are not mutually exclusive. Instrumentally, naturalization gives immigrants access to jobs that are only open to citizens. Citizenship can also act as a signal that may convince employers that an immigrant applicant has higher levels of human capital (such as language skills) or has a lower likelihood of return migration. As a result, employers might be more likely to hire or promote naturalized immigrants and invest in their training. On the psychological dimension, naturalization might affect the identity of immigrants such that they feel a greater attachment to the host country, feel more security and higher self-efficacy, and change their time horizons towards investing in a future in the host country. This could empower immigrants to demand higher wages or search for better jobs (Bevelander and DeVoretz 2008). Consistent with these mechanisms many studies find that naturalization tends to improve the economic prospects of immigrants, although some findings have shown quite limited or no effects.[2]

While numerous studies have examined economic outcomes, the effects of naturalization on the social and political integration of immigrants remains relatively unexplored even though there are several theoretical mechanisms through which naturalization might affect these other important dimensions of immigrant integration (Geddes 2003; Bauböck 2004; Bloemraad, Korteweg and Yurdakul 2008; Kesler and Demireva 2011; Turcotte 2011; Just and Anderson 2012; Avitabile, Clots-Figueras and Masella 2013; Bevelander and Spang 2014). Similar to the mechanisms that can lead to better economic integration, naturalization might provide immigrants with the necessary incentives and resources to invest more heavily in their political and social integration to build a better future in the host country for themselves and their children. On the instrumental dimension, naturalization gives immigrants the right to vote and thereby provides an incentive and opportunity for immigrants to become more politically engaged and informed to voice their preferences and grievances in the democratic process

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[2]See, for example, Chiswick (1978); Bevelander (2000); Bratsberg, Ragan and Nasir (2002); Bevelander and DeVoretz (2008); Mazzolari (2009); Steinhardt (2012); OECD (2011); Dancygier and Laitin (2014). For Switzerland specifically one study found that at least among immigrants from non-OECD countries, naturalized immigrants have better labour market outcomes compared to non-naturalized immigrants (Steinhardt and Wedemeier 2012). Moreover, a CV experiment documented differences in contact rates for naturalized and non-naturalized immigrants which suggests that Swiss citizenship may be beneficial for immigrants to reduce labour market discrimination (Fibbi, Kaya and Piguet 2003).

(Bevelander and Pendakur 2011; Just and Anderson 2012; Bevelander and Spang 2014; Hainmueller, Hangartner and Pietrantuono 2015). Similarly, naturalization might give immigrants an incentive to invest into improving their social integration as their time horizons shift and they can now be certain to enjoy the long term gains from better social integration in the host country. These investments could be in the form of higher civic engagement, social capital, and increased interactions with natives as immigrants start putting down deeper roots in the host country (Westholm, Montero and van Deth 2007; Bevelander and Veenman 2008; Kesler and Demireva 2011). On the psychological dimension, naturalization might "encourage people to internalize the democratic ideals of active citizenship" (Just and Anderson 2012, pg. 7) and therefore result in a more active political and social engagement of immigrants. Moreover, naturalization can also act to signal acceptance and thereby lead to increased attachment to the host country because immigrants feel recognized by state authorities as on par with rooted natives. On the flip side, citizenship might lead natives to recognize immigrants as their equals and if immigrants feel less discriminated against they might be more likely to interact with natives socially, increase their community participation, and develop a shared sense of belonging to the country (Wunderlich 2005; Bevelander 2011; Kesler and Demireva 2011; Westholm, Montero and van Deth 2007; Bauböck et al. 2013; Keller, Gathmann and Monscheuer 2015; Aptekar 2015). As Banulescu-Bogdan (2012) puts it "citizenship is a significant milestone for immigrants: a 'rite of passage' to signal that newcomers take their rights and responsibilities seriously, and are to be recognized as full members of the community." And lastly, better economic integration might also lead to more social integration as immigrants can climb the social ladder and gain access to jobs, social activities, or residential areas that are typically dominated by rooted natives and increased economic status might lower the reservations of rooted natives against immigrants (Dustmann 1996; Keller, Gathmann and Monscheuer 2015).

But there are also various theoretical reasons to expect that naturalization itself might do little to improve or may even reduce the social and political integration of immigrants (DeSipio 1996; Oers and Hart 2006; Bloemraad 2006). First, immigrants who are eligible for naturalization typically hold permanent resident permits which already give them a high degree of certainty that they can remain in the host country for as long as they wish. Given their status as permanent residents they also often have many of the same benefits and rights as citizens (Dancygier and Laitin 2014). For example, in Switzerland, permanent residents have access to the same educational, health, and welfare benefits and

social rights, the right to choose their employers, the right to travel and return, and the responsibility to pay taxes. Therefore naturalization might do little to shift immigrants' time horizons even further towards investing in a long-term future in the host country. More broadly, some have argued that in a postnational era where rights and privileges are increasingly extended to non-citizens on the basis of personhood and human rights, naturalization has become epiphenomenal since citizenship is no longer required for immigrants to exercise their rights and duties as active social, political, and economic actors in the host polity (Soyal 1994).

Second, much research has shown that habits for social and political engagement are fairly sticky and often form during adolescence and therefore we might expect little change later in life just because immigrants obtain the host country passport (Galston 2001; Jennings and Niemi 2014). Even though naturalization might give immigrants new opportunities to participate, this does not mean that they will actually make use of these opportunities.

Third, one might argue that naturalization if anything knocks out the incentive of immigrants to further integrate into the host society, because once they are naturalized they enjoy the same rights as natives and are no longer incentivized to further integrate by the prospect of earning access to these rights (Banulescu-Bogdan 2012).

Finally, if discrimination against immigrants is deeply entrenched in the host country society then we expect that simply awarding immigrants the host country passport will do little to eradicate the marginalization that immigrants face. In fact, the rooted natives might not view naturalized immigrants as true equals, especially in a jus sanguinis citizenship regime like Switzerland where "true" citizenship is passed on by the citizenship of Swiss parents. If naturalized immigrants—like the rhetoric of some right wing parties suggests—are simply regarded as undeserving foreigners who "stole" a Swiss passport then we would not expect that barriers to social integration are easily overcome by naturalization.[3] In fact, it might even backfire if newly naturalized immigrants grow increasingly disappointed and alienated as they learn that even with the Swiss passport they are still regarded as inferior by the mainstream host country society.

These opposing theoretical perspectives echo in the heated policy discussion about the design of design of naturalization policy. These debates are characterized by two conflicting policy paradigms

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[3]In recent years the Swiss People's Party ran campaigns that encouraged voters to stop "mass-naturalizations" using posters that showed the hands of foreigners stealing Swiss passports.

(see, for example, Oers and Hart (2006); Ersanilli and Koopmans (2011); Banulescu-Bogdan (2012); Bauböck et al. (2013)). In the first paradigm, naturalization is seen as a catalyst that promotes integration because it gives immigrants the resources and incentives to integrate into the host country society. This logic suggests that immigrants should be given fairly easy access to citizenship by having low requirements for naturalization. In the opposing paradigm, naturalization itself does nothing to improve integration, but it is the prospect of obtaining the host country citizenship that motivates immigrants to integrate in the first place. In other words, naturalization is not regarded as a catalyst for promoting integration, but a crowing achievement awarded to immigrants for successfully completing the integration process. This reasoning suggests that there should be a high bar such that only well integrated immigrants are eligible for naturalization. As one Swiss politician recently put it, the path to naturalization should be a "marathon", not a "short distance run" and the Swiss passport is simply the "title on the i of integration" for immigrants who successfully completed the long and arduous integration process.[4]

The theoretical and policy discussions also raise the important question of potential effect heterogeneity. It might well be that the effect of naturalization is not uniform across immigrants, but contingent upon the immigrants' characteristics (Bloemraad 2006; Just and Anderson 2012; Avitabile, Clots-Figueras and Masella 2013). For whom might naturalization be most or least effective? On the one hand, it might be that naturalization is particularly beneficial for immigrants who are socially marginalized prior to naturalization, since they otherwise lack the necessary resources to invest in social integration. Similarly, if naturalization enhances integration because it reduces discrimination from natives who are more likely to recognize naturalized immigrants as equals, then we might expect that naturalization has a stronger positive effect for more marginalized immigrants who face more discrimination in the absence of naturalization. On the other hand, it might be that naturalization is least effective for the most marginalized immigrants because they are not yet sufficiently well equipped to take advantage of the rights and benefits that come with naturalization. Moreover, less marginalized immigrants might benefit more from naturalization if they face fewer barriers and are able to invest more heavily into integration and reap higher returns from their investments.

Another important under-explored issue is the effect of the timing of the naturalization. Countries vary considerably in the length of the required residency period for naturalization and there are

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[4]Flückiger, J. (2013, September 17). Ständerat will die Hürden für Einbürgerungen senken. *Neue Zürcher Zeitung.*

vibrant debates about the likely consequences of giving immigrants earlier or later access to the host country citizenship. The catalyst paradigm argues for easy access and early naturalizations, because if naturalization acts as a catalyst for integration then getting it earlier rather than later is more effective to foster the integration of immigrants because they are incentivized early on to integrate and have a longer time to benefit from having citizenship. The crown paradigm argues for long residency requirements and a high bar for access to naturalization because only immigrants who are well integrated deserve the host country passport and are sufficiently well equipped to take advantage of host country citizenship. If citizenship simply acts to knock out the incentive for immigrants to integrate in order to earn access to naturalization, then handing out citizenship too early will if anything lower the expected integration compared to the a scenario where naturalizations are restricted to immigrants who have been in the country long enough to have gained at least some integration level.

In sum, there are opposing theoretical expectations and heated policy debates about the potential effects of naturalization and the effects of the timing of the naturalization on the integration of immigrants. The existing literature on the impacts of naturalization has mostly focused on economic outcomes and the smaller literature that goes beyond economic outcomes mostly focuses on the effects of naturalization on political integration. We still know distressingly little about how naturalization effects the social integration of immigrants let alone what the long-term effects are on social integration or how the effects vary across groups or with the timing of the naturalization. In this study we contribute towards filling this gap.

A. Double Selection Bias

Perhaps the major shortcoming of the existing evidence is that it suffers from potentially severe selection bias (Dancygier and Laitin 2014; Kesler and Demireva 2011). In order to isolate the causal effect of naturalization, we need to compare two groups of immigrants that differ in their naturalization status, but are otherwise similar on all other characteristics that can independently affect integration. The fundamental problem is that such a comparison is hard to come by empirically with typical observational data, because there is a complex two stage selection bias that determines which immigrants obtain citizenship.[5]

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[5]Note that by using the term double selection "bias" we refer to the statistical meaning of word bias, rather than a discriminatory bias in who gets naturalized. We thank an anonymous reviewer for pointing out this distinction.

Figure 1 illustrates the two stages in the double selection process. In the first stage immigrants choose to apply for naturalization or not and this decision is based on a whole host of reasons that have independent effects on integration. For starters, only immigrants who are sufficiently motivated and have the resources to apply for naturalization will obtain citizenship, while the group of non-naturalized immigrants contains many immigrants who lacked the resources or motivation to apply for citizenship in the first place. Arguably, the motivation and resources to apply are among the most important confounders when trying to estimate the effects of citizenship because the resources and motivation to apply are strong determinants of integration into the host country. In addition, there are many other potential differences that explain why immigrants choose to apply or not. Plenty of evidence suggests that those who choose to apply typically have resided in the country for a longer period of time (in part simply due to residency requirements), they are better informed, better integrated, perhaps more educated or more fluent in the local language (see, for example, Chiswick and Miller (2009)). Immigrants who apply might also identify more strongly with the host country and its culture or have differences in other traits like their intention to stay or political interest that lead them to seek citizenship compared to the group of immigrants who do not (see, for example, Yang (1994)). The comparison of non-naturalized and naturalized immigrants is therefore one of apples and oranges.

In the second stage, decision makers then review the applications and often interview the applicants to decide who gets citizenship and who is denied. The problem here is that decision makers typically have much more information about the applicants than is observed by the researcher and they would typically use this information to decide on the applicants. For example, applicants who fail to make a "good impression" in the application interview (in terms of appearance, lacking language skills, familiarity with the host country, etc.) might be more likely to be rejected because they are perceived to have a low potential to integrate. As a result of this screening, the comparison between accepted and rejected applicants is again like comparing apples and oranges because the reasons that determine why an applicant is rejected might be correlated with the integration outcomes of interest. For example, those who are judged to have a lower integration potential might be less likely to integrate successfully. Overcoming this double selection bias with typical observational data is a fairly hopeless endeavor. We cannot measure the myriad unobserved confounders that determine immigrants' selection into applying as well as all the unobserved confounders that determine the decision makers' selection among the applicants. In fact, we typically have little information about whether and why immigrants applied

Figure 1: Double Selection Bias
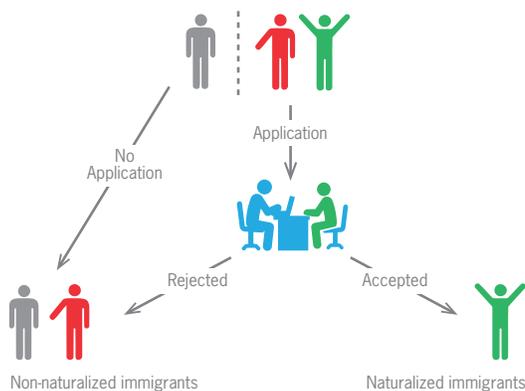
Note: Illustration of the double selection bias that confounds the comparison of naturalized and non-naturalized immigrants.

and also much less information about the applicants than the decision makers when they make their screening decisions. But unless we can control for all the confounding characteristics that determine the selection in both stages we will end up with biased estimates of the effect of citizenship since the unmeasured confounding characteristics are correlated with the outcomes and the application decision.

Note that a similar selection bias applies when trying to estimate the effect of the timing of the naturalization. The timing of when immigrants naturalize is again far from randomly assigned and there are many potential differences that explain why some immigrants choose to apply early and others chose to apply only later into their residency period. For example, more motivated or better informed immigrants might apply right after they become eligible, while less motivated or informed ones delay their naturalization until they have been in the host country for a long time.

III. Empirical Strategy

In order to eliminate the double selection bias and isolate the causal effect of citizenship from the effect of pre-existing differences in background characteristics, the ideal design would involve an experiment where we randomly assign citizenship among a group of eligible immigrants. Random assignment forms the gold standard for causal attribution, because it ensures that the treatment group of immigrants who obtain citizenship is similar to the control group of immigrants who do not obtain citizenship on all measured and unmeasured characteristics. Our research design exploits a natural experiment in

Switzerland that closely mimics this ideal experiment.

A. The Swiss Naturalization Regime in Comparative Perspective

Naturalization has been a divisive issue in Switzerland for many decades given its unusually large immigrant population. To compare the Swiss naturalization regime with that of other European and North American Countries, Figure 2 plots the Citizenship Policy Index (CPI) for various countries for the year 2005.[6] The CPI is a standard measure developed by Howard (2005) that uses an additive formula to measure a country's citizenship policy between very liberal (6) and highly restrictive (0). It is based on the three main components of citizenship policy: whether citizenship is granted by place of birth or by citizenship of the parents, the length of the residency requirement for naturalization, and the acceptance of dual citizenship for immigrants (see Howard (2005) and the SI appendix for details).

Figure 2: Citizenship Policy Index for European and North American Countries
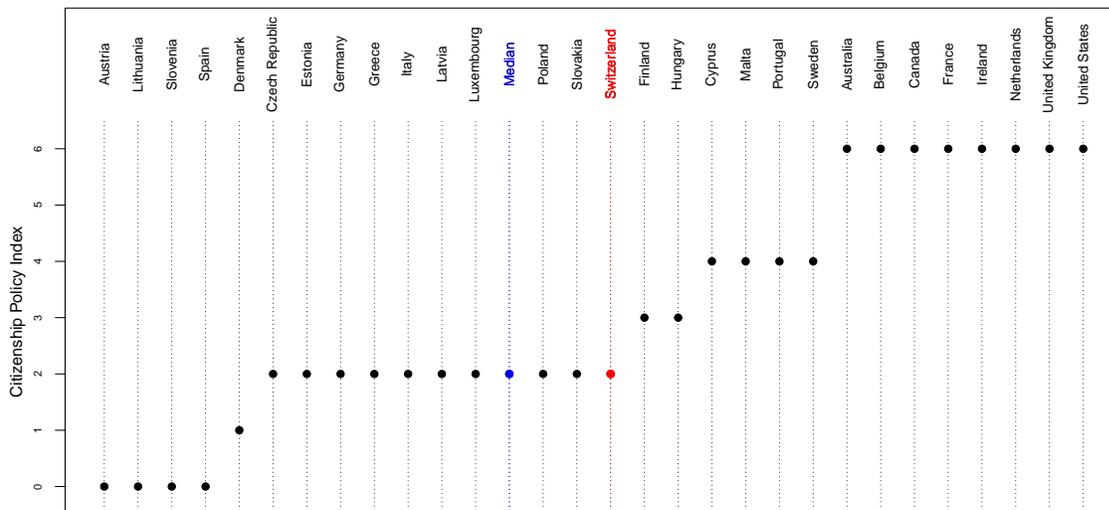
Note: The Citizenship Policy Index (CPI) measures a country's citizenship policy between very liberal (6) and highly restrictive (0) based on citizenship by birth, residency requirements, and acceptance of dual citizenship.

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[6]Note that the CPI scores refer to 2005 which roughly corresponds to the timing of many of the naturalization decisions in our sample from the late 1990s and early 2000s. Some citizenship policies have since changed (see, for example, Goodman (2010)).

The plot reveals that the Swiss citizenship regime is similar to the sample median on the CPI, on par with other restrictive countries like Germany or Italy that also use the jus sanguinis principle (i.e. citizenship is passed on from the parents' citizenship). While Switzerland does require a fairly long residency period, its regime is more liberal insofar as it allows dual citizenship in contrast to many of the restrictive countries.[7]

B. *Naturalization Referendums*

Naturalization applications in Switzerland are decided at the municipal level. An immigrant who has cleared the eligibility requirements and seeks naturalization is required to apply with the municipality in which he or she resides. The municipal authorities then process and green light the application until it is eventually put to a vote (see Hainmueller and Hangartner (Forthcoming) for an overview). We focus on the group of so called ballot box municipalities who until 2003 used secret ballot referendums to decide on the applications.[8][9] A naturalization referendum typically had two phases. In the first phase, a voting leaflet was mailed to all Swiss voters in the municipality that informed the voters about the pending naturalization requests with a short résumé that described each applicant. The résumés typically included information about the applicant's origin, gender, martial status, number of kids, year of arrival, education, occupation, and an assessment of their language skills and integration levels as assessed in the application interview. An example leaflet is provided in Figure A.1 in the SI. In the second phase, voters then cast a secret ballot where they voted 'yes' or 'no' on each applicant and Swiss citizenship was awarded only to applicants who received a majority of positive votes. Note that voting on referendums occurred in regular intervals and naturalization referendums appeared on the ballot alongside other questions about municipal matters that are all typically decided via referendums in Switzerland, such as decisions about the local budget, infrastructure, urban planning, etc.. The use of naturalization referendums ended in 2003 when the Swiss federal court ruled that

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[7]Switzerland requires 12 years of residence (years between ages 10 and 20 count double) (Bürgerrechtsgesetz §15). Notice that we focus on so called "ordinary" naturalizations which cover the large majority of naturalizations in Switzerland.

[8]Note that the first naturalization decisions in our sample were all made at the municipality level. The cantons were not involved in the decision.

[9]Hainmueller and Hangartner (2013) show that ballot box municipalities are very similar to other municipalities in Switzerland and that residential choice of immigrants is mainly driven by where immigrants found their first job, not concerns about citizenship. In addition, switching municipalities to get citizenship is not straightforward because of local residency requirements for naturalization.

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secret ballot referendums can no longer be used for naturalization decisions (see Hainmueller and Hangartner (Forthcoming) for details).

C. Identifying the Effect of Naturalization

The naturalization referendums allow us to devise two identification strategies that overcome the thorny double selection bias and get at the long term effects of naturalization. The identification strategies guard against selection bias in two ways. First, we can remove the selection into applying by limiting the analysis to only those motivated immigrants who applied and cleared the eligibility criteria such that they faced a naturalization referendum. Second, we can remove the second stage selection into who is accepted or rejected for naturalization using two strategies that exploit the use of voting leaflets and the occurrence of close referendums, respectively.

C.1. Instrumental Variable Strategy

In the first strategy we utilize the fact that we can measure and control for all the applicant characteristics that were reported to voters in the voting leaflets when they voted on the applicants and therefore rule out omitted variable bias. In contrast to the situation where an immigration official decides on the applicants based on information that is unobserved to the researcher, here we do observe all the relevant applicant characteristics that were reported to voters who decided on each request. Once we adjust for the reported characteristics and compare applicants who applied in the same municipality, in the same time period, have the same gender, country of origin, marital status, number of kids, education, occupational skill, years of residency, assessed integration level and language proficiency, such matched applicants are observably equivalent to voters and therefore voters cannot systematically discriminate between applicants based on their unobserved characteristics. Therefore among such observably equivalent applicants who are matched on the characteristics that voters see on the leaflets, who wins and who loses is not driven by systematic differences in the integration potential of the individual immigrants, but by idiosyncratic shocks that affect the aggregate vote outcomes such as what else appeared on the ballot or the weather on the day of the referendum. Hainmueller and Hangartner (2013) provide substantial evidence for this selection on observables assumption. For example, they show that the effect of the reported applicant characteristics on the vote outcomes are similar in large and small municipalities which rules out the possibility that private information about the applicants

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might have a systematic effect on the outcomes of the referendums.

One remaining issue that we have to address with this strategy is the issue of non-compliance by which we mean the fact that a sizable proportion of applicants who lost their first naturalization referendum re-applied and subsequently obtained citizenship. Fortunately, we can directly address the issue of re-applications by exploiting the exogenous variation in naturalization status that results from winning or losing the first referendum that each applicant faces. For this we apply the instrumental variable (IV) framework with heterogeneous treatment effects as developed in Angrist, Imbens and Rubin (1996) which allows us to treat the outcome of the first referendum like a randomized encouragement design experiment where those applicants who win their first referendum are encouraged to get citizenship, while those who do not win their first referendum are encouraged not to get citizenship.

Employing the framework of Angrist, Imbens and Rubin (1996) the population of applicants is made up of two subgroups. The subgroup of so-called compliers are the applicants who comply with the encouragement. In other words, they get naturalized if they win their first referendum but do not get naturalized if they lose their first referendum. The other subgroup are the so-called always-takers. These are the applicants who always get naturalized, even if they lose their first referendum they re-apply and subsequently get citizenship.[10]

To identify the local average treatment effect of naturalization (LATE) for the subgroup of compliers we compute the intention-to-treat effect (ITT), which is the effect of wining the first referendum on social integration, and divide it by the proportion of compliers in our sample, which is given by the first stage effect of winning the first referendum on the probability of naturalization or equivalently the difference between the proportion of winning applicants who do get Swiss citizenship and the proportion of losing applicants who nonetheless get citizenship through a re-application. Following the convention in the literature we also refer to the proportion of compliers as the compliance ratio.

To estimate the LATE, we code a binary treatment indicator that captures whether the immigrant is naturalized or not and a binary instrument that captures whether the immigrant won or lost his or her first referendum. We then run a two-stage least squares model regressing the integration outcome on the reported applicant characteristics from the leaflets, municipality and time period fixed effects,

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[10]Note that in our context the non-compliance is purely one-sided since applicants who succeed in their first referendum always get citizenship. Therefore there are no so called defiers (applicants who get citizenship if they lose and do not get citizenship if they win) and also no never-takers (applicants who never get citizenship, even if they win).

and the treatment variable which we instrument with the instrumental variable (Angrist, Imbens and Rubin 1996). Importantly, this strategy relies on the fact that we have enough compliers in our sample and therefore the first stage effect is sufficiently strong. Below we test this assumption and find that the instrument is indeed sufficiently strong.

C.2. FUZZY REGRESSION DISCONTINUITY DESIGN STRATEGY

We also apply a second, complimentary, empirical strategy based on a fuzzy regression discontinuity (RD) design which similarly removes the second stage selection into who is approved for naturalization. The fuzzy RD design exploits the exogenous variation that is generated among the subset of applicants who barely won or lost their first naturalization referendum by just a few votes. In narrowly decided referendums, the outcome of the referendum is largely decided by random factors, such as the weather on election day or other agenda items that appeared on the ballot, rather than the characteristics of the applicants. In other words, who loses and who wins is as good as randomly assigned and we can therefore isolate the causal effect of citizenship on the downstream integration outcomes just like in a randomized experiment. The required identification assumption in the RD design is that the potential integration outcomes of the immigrants are continuous at the threshold (Hahn, Todd and Van der Klaauw 2001). This assumption could fail if immigrants could sort around the threshold such that barely rejected and barely accepted applicants would differ systematically. However, sorting around the threshold would require that individual immigrants have precise control over the aggregate referendum outcome which is not plausible in our secret ballot referendums which are large elections.[11]

Figure 3 illustrates the logic of the fuzzy RD design. The top left panel plots a balance test where the vertical axis is the applicants' vote share margin from the first naturalization referendum and the horizontal axis is the applicants' years of education—as reported on the voting leaflet. The vote margin is computed as the difference between the applicants' share of 'yes' votes and the threshold of 50% of 'yes' votes that the applicant had to exceed to win the referendum and thereby receive Swiss citizenship. The plot is focused on the sample of 'competitive' applicants who are within a ±15% window around the threshold of winning. The red and blue line summarize the average years of education on both sides of the threshold, respectively. We see that in close referendums, which are decided by just a few votes, who loses and who wins is as good as random and therefore the

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[11]Eggers et al. (2015) show support for the no sorting assumption in a wide variety of elections.

education level of close winners and close losers are similar on average at the threshold. Given this local random assignment, we expect close winners and close losers to be similar on all other observed and unobserved confounders, just like in an randomized experiment and this covariate balance allows us to remove the selection bias. Figure B.2 in the SI shows that close winners and close losers are similarly balanced on other background characteristics; the distribution of p-values from the balance tests closely approximates the uniform distribution as expected given randomization at the threshold.[12]

Figure 3: Fuzzy Regression Discontinuity Design: Identification Checks and the Effect of Naturalization on Long-Term Social Integration
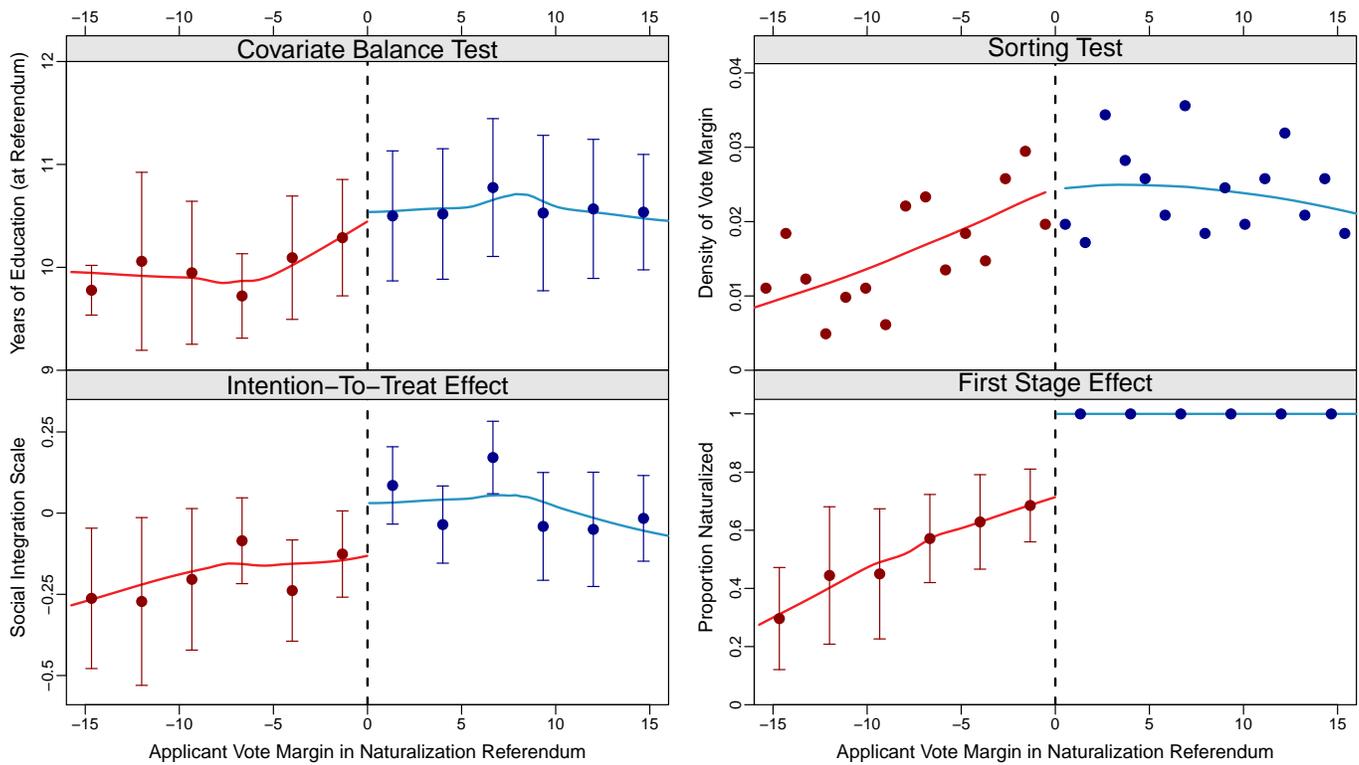
Upper left panel indicates that years of education (a pre-treatment covariate) is balanced at the victory threshold in the naturalization referendums. Lower right panel shows that the density is smooth across the victory threshold suggesting that there is no evidence of sorting. Lower left and right panels show that long-term social integration and the probability of naturalization sharply increase when comparing applicants who barley won and barley lost their first naturalization referendum. (Loess lines; 95% confidence intervals for binned averages).

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[12]Note that the year of the referendum is also well balanced at the threshold which rules out the possibility that the results are driven by confounding that stems from differences in the timing of initial naturalization decision (such as changes in the broader political mood).

The top right panel shows another important identification check for the fuzzy RD design where we follow McCrary (2008) and explicitly test for the no sorting assumption by computing the density of the vote margin variable. If applicants had precise control to manipulate their voting results we should see an unusually large (small) number of applicants who barely win (loose). In other words, we would expect a jump in the density of the vote margin variable as we cross the threshold. Instead, we see that the density is smooth across the threshold which implies that there is no evidence for sorting of applicants around the threshold. This is what we expect given that it is implausible for applicants to precisely control the outcome of referendums that involve thousands of voters.

The plot in the bottom left panel previews the main result for the ITT effect. The lines summarize the applicants' average score on the social integration scale, the summary measure of social integration measured in our recently administered follow-up survey, as a function of the vote share margin. We see that levels of social integration jump considerably at the threshold such that applicants who barely won their first referendum and received Swiss citizenship are today much better integrated on average compared to otherwise similar applicants who barely lost their first referendum. Given the local random assignment at the threshold we can attribute this effect to winning the referendum as opposed to differences on omitted variables.

Note that this ITT effect, which amounts to about a .14 increase on the social integration scale, understates the effect of naturalization for compliers because many applicants who lost their first referendum eventually naturalized by way of re-applications and therefore also received the treatment. To correct for this non-compliance and identify the LATE of naturalization for compliers at the threshold we need to scale the intention-to-treat effect by the compliance ratio at the threshold (Hahn, Todd and Van der Klaauw 2001).

The bottom right panel visualizes the first stage effect. The lines show the share of naturalized applicants as a function of the vote margin. The probability of naturalization increases sharply by about .28 at the threshold and therefore the LATE of naturalization for compliers amounts to about .14/.28=.5. Note that the social integration scale has a standard deviation of .5 so the LATE estimate implies that naturalization considerably increased the long-term social integration of immigrants by about a full standard deviation unit. In the results section below we formally estimate the fuzzy RDD effect at the threshold by fitting a similar two-stage least model which regresses the integration outcome on the treatment indicator and instrument this indicator with a binary instrumental variable

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that captures whether applicants succeed in their first referendum or not. To this regression we also add the vote margin and the interaction of the vote margin with the instrumental variable such that the LATE of naturalization is identified for compliers only right at the threshold of winning.

Note that the two empirical strategies are complementary to each other in that they identify the same naturalization effect based on slightly different assumptions. However, there is an important difference in the external validity between the two designs since they identify this effect for different subgroups of applicants. The IV design offers higher external validity because it identifies the LATE of naturalization for the subgroup of compliers in general, while the fuzzy RD design is limited in its external validity as it only identifies the LATE of naturalization for the subgroup of compliers who are right at the threshold of winning. Because of this local identification we also lose precision in the fuzzy RD design and have less power to detect potential naturalization effects.

IV. DATA

A. Sample and Covariates

We draw on a variety of original data to implement our empirical strategies. The basis for our sample is the data compiled by Hainmueller and Hangartner (2013) based on the voting leaflets and voting outcomes for all 2,225 applicants who faced naturalization referendums between 1970 and 2003 in all the 46 ballot box municipalities who used secret ballot referendums with voting leaflets (see SI for details).

Our covariates capture the applicants characteristics reported on the leaflets. They include the applicant's gender, age, number of kids, country of origin, marital status, highest educational attainment, occupational skill, years of residency prior to the application (including an indicator for immigrants born in Switzerland), language proficiency, and integration status. The SI describes the coding of all variables used in our analysis and provides the descriptive statistics (Tables B.2 and B.3).

To measure the social integration outcomes we administered a survey of all immigrants who faced naturalization referendums. We first extracted the addresses of these immigrants at the time of their naturalization referendum and then tracked down the applicants to the best of our abilities and administered a survey by phone. As expected, several of the addresses were outdated as immigrants had moved, died, or left the country. Nonetheless, we interviewed 768 applicants which amounts to a cumulative response rate 3 (RR3) as defined by the American Association for Public Opinion Research

of 34.5%. Among competitive applicants who are within a ± 15 vote margin of winning the response rate was even higher and we interviewed 474 applicants for an RR3 of 45.9%. This is a higher response rate than is typically achieved by phone surveys in Switzerland or the United States, let alone for surveys of immigrants (see SI for details).

One potential concern might be that the probability of being interviewed is correlated with naturalization and integration. In the SI we provide evidence that this is not a concern in our study. In particular, we find that the probability of being interviewed as well as the characteristics of those being interviewed are no different for immigrants who were narrowly accepted and narrowly rejected for naturalization (see Figure B.1 and Table B.1). Moreover, in our context we would expect that differential attrition would, if anything, lead to an attenuation bias in our effect estimates if naturalized immigrants are more likely to stay in Switzerland than non-naturalized immigrants and among the non-naturalized those with lower levels of integration are more likely to leave than those with higher levels of integration.

B. Outcome Measures

Immigrant social integration is a latent and multifaceted concept that involves several dimensions such as social inclusion, social engagement, intergroup contact, social capital, and discrimination (Berry 1997; Castles et al. 2002; Carens 2005; OECD 2012). Studies have used different measures to capture these various dimensions of social integration and there is no single commonly agreed upon measure that is consistently applied in the literature. Given this our study takes a pragmatic approach to measurement and combines four existing measures in a social integration scale to obtain a comprehensive and reliable summary measure of social integration. The use of a scale ensures that the results are not driven by a single survey question that might only tap into one dimension of social integration. Averaging across multiple measures also addresses the well-known problem of potentially serious attenuation bias due to random measurement error that typically arises in survey research when trying to measure a latent concept with single survey questions (see, for example, Achen (1975)).[13]

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[13]Averaging across multiple items offers an effective remedy to decrease random measurement error, typically at a rate of approximately 1/L where L is the number of questions (see, for example, Ansolabehere, Rodden and Snyder (2008)). We acknowledge that building a scale of existing measures does not provide a silver bullet for solving the general problem of measuring social integration, but it does strike a balance between capturing some of the most important dimensions of the concept as used in prior work while recognizing the limits of what can be accomplished in a single survey. We acknowledge that we do not capture other important dimensions of immigrant integration such as cultural

Our scale is generated from four survey questions that have been used in prior work and tap into various various dimensions of social integration. The first item, *Plans to stay in Switzerland*, is a question that measures whether immigrants are planning to stay in Switzerland for good or whether they have plans to leave Switzerland. It is coded with values one, zero, and minus one, for immigrants who have plans to stay forever, those who are not sure, and those who say they plan to eventually leave Switzerland, respectively (the SI provides all the question wordings). This item captures whether naturalization has changed the long term attachment and settlement plans of immigrants and thereby increased their incentive to invest into a future in Switzerland and reduced the uncertainty associated with potential return migration (Dustmann 1996). This measure is of theoretical importance because it directly taps into the theoretical mechanisms through which naturalization might increase social integration by shifting the time horizons of immigrants towards a long term future in the host country. It is important to emphasize that the immigrants in our sample who did not naturalize still have fulfilled the long residency requirements that make them eligible for naturalization and they all hold a permanent residency permit which allows them to stay in Switzerland for as long as they wish. This comparison group therefore provides a rather high bar for finding an effect of naturalization on changing long-term settlement plans. Permanent residents who have been in Switzerland for a long time can be expected to already have a fairly long time horizon and a high likelihood of wanting to stay in Switzerland for good. It is therefore far from obvious whether naturalization would have enough of an effect to shift time horizons even further towards permanently settling in Switzerland.

The second item, *Discrimination*, is a standard measure of perceived discrimination that is coded as one for immigrants who describe themselves as being a member of a group that is discriminated against in Switzerland, and zero if not (Kesler and Demireva 2011). Discrimination is an important barrier to social integration and a potent source of marginalization and strained intergroup relations between immigrants and host country nationals. As Kesler and Demireva (2011, pg. 215) put it "perceptions of discrimination are therefore likely to be important in generating a sense of social cohesion among immigrants." This measure also directly taps into the psychological mechanisms discussed above where naturalization might act as a signal of acceptance and increases a sense of belonging among immigrants

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integration, language use, political and economic integration (see Hainmueller, Hangartner and Pietrantuono (2015) for the effects of naturalization on political integration). In a follow up project we plan to investigate the economic effects of naturalization by merging the immigrants in our sample to administrative records on income and employment.

and the recognition of naturalized-immigrants as equals by natives.[14]

The third item, *Club membership*, is a measure of social capital that captures whether immigrants are currently an active member of a social club or association in which they participate in regular meetings. The answer options included several potential organizations such as a youth organization, social club, volunteer firefighters, carnival club, political association, a local charter of a charitable organization, or 'other' and we code the measure as one for immigrants who participate in at least one of these organizations and zero otherwise.[15] These clubs form an essential part of the social life in Swiss communities, and are a standard measure of social integration in official statistics in Switzerland and many other European countries (Kesler and Demireva 2011; Avitabile, Clots-Figueras and Masella 2013; Kristensen 2014). This item therefore directly taps into whether naturalization increased the social capital and community engagement of immigrants and thereby their exposure to and interaction with natives which is another relevant dimension of social integration.

The fourth item, *Swiss newspaper*, is a question that measures whether immigrants read newspapers from Switzerland or foreign newspapers from their home country. The answers are coded on a five point scale ranging from 5 for immigrants who read exclusively Swiss newspapers to 1 for immigrants who exclusively read newspapers from their home country. This item also taps into the theoretical mechanisms and captures whether naturalization has indeed shifted the orientation of immigrants towards Switzerland and away from their homelands in the sense that immigrants feel the need to acquire information and knowledge about the host country environment as opposed to their country of origin (Dustmann 1996; Avitabile, Clots-Figueras and Masella 2013).[16]

To construct the social integration scale from these four items we extract the first principal component from a polychoric principal component analysis (PCA) which has the advantage that it takes into account the binary and categorial distribution of the items (see SI for details). To aid the interpretability we rescale the first principal component, which explains about 45% of the total variance,

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[14]Note that the measure might pick up perceptions of individual discrimination as well as perceptions of discrimination at the group level.

[15]While this item does not allow us to perfectly distinguish between "bridging" (ties to other immigrants) and "bonding" (ties to natives) social capital Putnam (2007), we did not count membership in sports clubs (which are often highly segregated) or associations where a particular ethnicity or nationality is a prerequisite (e.g. the Filipino Women's Club). Hence, this variable should primarily measure "bonding" social capital. As pointed out by a reviewer, to the degree that it also captures immigrants interacting with other immigrants, this will lead to an underestimate of the true effect of naturalization on social integration.

[16]To the extent that immigrants read Swiss newspapers to acquire information about Swiss politics it might also capture increased political integration of immigrants.

to have a mean zero and standard deviation of .5. Note that the results of all models are virtually identical if we use a simple equal weighted average of the four items instead.

It is important to emphasize that in contrast to other studies of naturalization our outcomes capture the long-term effects of naturalization. Given that the use of naturalization referendums ended in 2003, at the time of our survey, the average naturalized immigrant has possessed Swiss citizenship for about 15 years. Our design therefore enables us to examine whether naturalization had any lasting effects in promoting the long term social integration of immigrants, rather then resulting in only temporary short term changes.

V. Results

For the effect estimations we focus on the sample of competitive applicants whose vote share margin is within a $\pm 15\%$ window around the victory threshold. Figures B.3 and B.4 in the SI show that the estimated naturalization effects are fairly insensitive to varying the width of the estimation window.

A. First Stage

To check if the instrument is strong enough to create sufficient variation in naturalizations we run the first stage regression on the estimation sample and regress the naturalization indicator on the instrument that measures whether applicants narrowly won or lost their first referendum. To mimic the IV design and the fuzzy RD design we either add the full set of reported applicant characteristics and time period and municipality fixed effects or the margin of victory and its interaction with the instrument, respectively. We find that winning the first referendum did indeed strongly increase the probability of naturalization between .28-.42 depending on the model and this first stage effect is significant at conventional levels (Table B.4 in the SI). In fact, the Stock and Yogo (2005) F-test against the null that the instrument had no effect on the treatment is about 94 for the IV model and 21 for the fuzzy RD model and therefore much higher than the critical threshold of 10 that we need to exceed in order to avoid the problems associated with a weak instrument. For robustness we also estimate the fuzzy RD design adding all applicant characteristics and the results are virtually identical to the fuzzy RD results without adding the extra covariates as expected, given the local random assignment at the threshold.

B. Main Effects of Naturalization

Figure 4 shows the effect estimates with cluster robust 90% and 95% confidence intervals for both identification strategies. The red estimates marked with filled circles refer to the IV model which control for all the applicant characteristics reported on the leaflets (including gender, age, number of kids, country of origin, marital status, highest educational attainment, occupational skill, years of residency prior to the application, language proficiency, and integration status) as well as a full set of time period and municipality fixed effects to focus the identification on applicants who are matched on all characteristics and applied in the same municipality and time period (Table B.5 in the SI reports the regression table). The blue estimates marked with filled triangles refer to the fuzzy RD model where we adjust for the vote margin and its interaction with the treatment to identify the effect at the threshold only (Table B.6 in the SI reports the regression table).

Our main finding is that naturalization considerably improved the long-term social integration of immigrants. Looking at the social integration scale that combines all the integration outcomes in a single measure, we find that among otherwise identical immigrants, naturalization increases the social integration scale by about .51—about a full standard deviation unit—according to the IV model ($p<0.0001$). The effect is also similar when we look at the fuzzy RD strategy that focuses only on compliers at the threshold. If anything the naturalization effect is slightly bigger at .74, although the estimate is also less precise ($p<0.033$) as we would expect given that fuzzy RD identifies the effect only at the victory threshold.

Apart from the main naturalization effect on the social integration scale, we also see that the effects are fairly consistent across the single items that make up the scale despite the fact that the single items are presumably downward biased due to attenuation bias from measurement error. Looking at the IV estimates we find that naturalization makes applicants much more likely to have plans to stay in Switzerland forever, a .49 increase on the three point scale ($p<0.003$). This change in settlement plans amounts to about an 80 percent increase over the sample average of this variable. Similarly, we find that naturalization causes a 28 percentage point decrease ($p<0.016$) in the likelihood that applicants report being the victims of discrimination which corresponds to a 140 percent decrease over the sample average. We also find that naturalization strongly shifts newspaper readership towards Swiss newspapers, as compared to home country newspapers, with an increase of about .51 on the five

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point scale (p<0.023). This corresponds to a about a 13 percent increase over the sample average. We also see that naturalization increases the probability that applicants are members of a social club by about 12 percentage points but the estimates are not significant at conventional levels and not robust across specifications (p<.23). Overall the fuzzy RD results for the single items are similar to the IV estimates although less precise as expected.

As a robustness check we also replicated the fuzzy RD strategy while adding the full set covariates and the full set of municipality and period fixed effects to control for any common shocks and unobserved factors that vary at the level of the municipalities (Table B.7 in the SI). The estimates are similar to the fuzzy RD design without the covariates with naturalization improving long term social integration by about .63 (p<0.045) on the social integration scale. This check strongly corroborates the identification strategy and suggests that the covariates are controlled for by design—just like in a randomized experiment—given that the local random assignment of citizenship in close referendums resulted in two groups of applicants, those who barely won and those who barely lost, that are otherwise similar on all observed covariates.

In stark contrast to the view that naturalization is merely the crown on a completed integration process, these results overall suggest that naturalization in fact has a substantial and lasting causal impact on improving the long-term social integration of immigrants. The estimates are similar in both identification strategies. Two immigrants who are just separated by a few 'yes' votes in their naturalization referendum, but otherwise identical in terms of their pre-referendum characteristics (including motivation, resources, origin, residency, language skills, integration status, age, gender, marital status, education, occupation, etc.) develop remarkably different integration outcomes such that more than a decade and a half later, those who barely won and received Swiss citizenship are much better integrated into the social fabric of the Swiss society than those who barely lost and therefore did not get Swiss citizenship. This boost in integration outcomes is especially striking given that the applicants had spent a long time in Switzerland already prior to their application. Overall these results are consistent with Hainmueller, Hangartner and Pietrantuono (2015) who find similarly strong effects of naturalization on the political integration of immigrants.

Figure 4: Estimates of Effect of Naturalization on Long-Term Social Integration
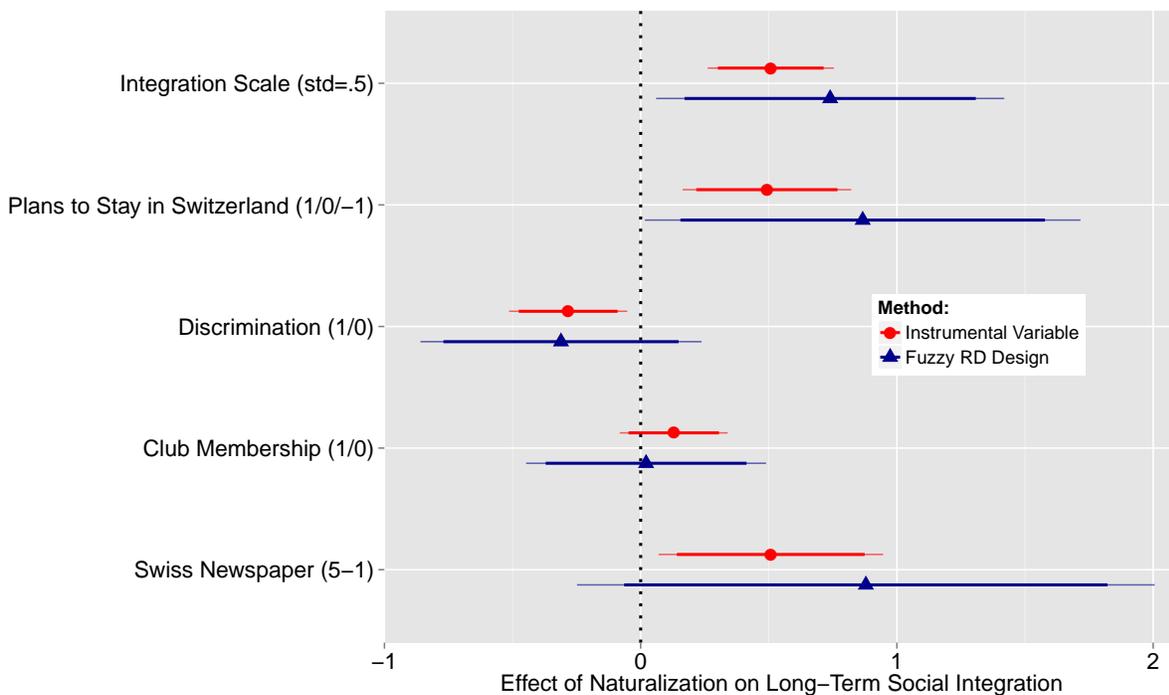
Note: Effect estimates with robust 95% (thin) and 90% (bold) confidence intervals based on the instrumental variable design and the fuzzy RD design. Standard errors are clustered by the municipality. See text for details.

C. Alienation versus Integration

What mechanisms might drive this positive effect of naturalization on integration? Several of the mechanisms outlined in the theoretical discussion are likely at play and conclusively distinguishing between all the specific mechanisms is nearly impossible unless we can obtain (quasi)-randomized variation for each of the mechanisms. That said, it is worth trying to distinguish between two broad classes of mechanisms that would lead us to interpret the effects differently. The first class of mechanisms is based on the idea that the returns to integration are driven by the acquisition of citizenship. In other words, citizenship provides naturalized immigrants with the recognition, incentives, and resources to increase their long-term social integration. The second class of mechanisms is based on an alienation story where the effects of naturalization are driven by those immigrants whose naturalization applications are denied. In other words, it might be that applicants who are denied became more alienated from Swiss society than they would have become had they never applied for naturalization in the first

place. Distinguishing between these two mechanisms is not trivial given that both mechanisms are two sides of the same coin, i.e. they are possible effects of the same causal treatment which is the ultimate naturalization decision. Conditional on applying, naturalization decisions always imply that the application is either denied or accepted.

From a theoretical standpoint one might argue that it is implausible to expect that an alienation effect, even if it exists for some applicants, would be powerful enough to explain both the large magnitude and long-term nature of the naturalization effects that we find. In stark contrast to the accepted applicants who do experience a change in their legal status and acquire the citizenship of the host country, being denied does not change anything about the applicants' legal status compared to a situation where they never had applied in the first place. Unsuccessful applicants retain their permanent residency permit and can still remain in Switzerland for as long as they wish. And even though denied applicants presumably are initially annoyed at or disappointed about the outcome of the referendum, it seems unlikely that this would impact their long-term social integration more than a decade and a half later which is what our integration measure is capturing.

From an empirical standpoint, one way we can distinguish which of the two broad mechanisms can best account for our findings is to consider alternative outcomes which are especially sensitive to one specific mechanism. In particular, if applicants become alienated because their applications have been denied, then we could expect that they would develop a much higher level of distrust of the local authorities who handled the applications and did not avert the potentially discriminatory rejections. We also expect that they would develop a higher level of distrust of the judicial system more broadly because the courts did not overturn a discriminatory rejection upon appeal. Finally, we expect them to grow more distrustful of other people in their community given that a majority of voters voted against their application. In order to test for this alienation mechanism we replicated the models using measures of distrust of the local authorities, distrust of the judicial system, and distrust of other people, accordingly (see the SI for the question wording).

Figure 5: Estimates of Effect of Naturalization on Long-Term Distrust
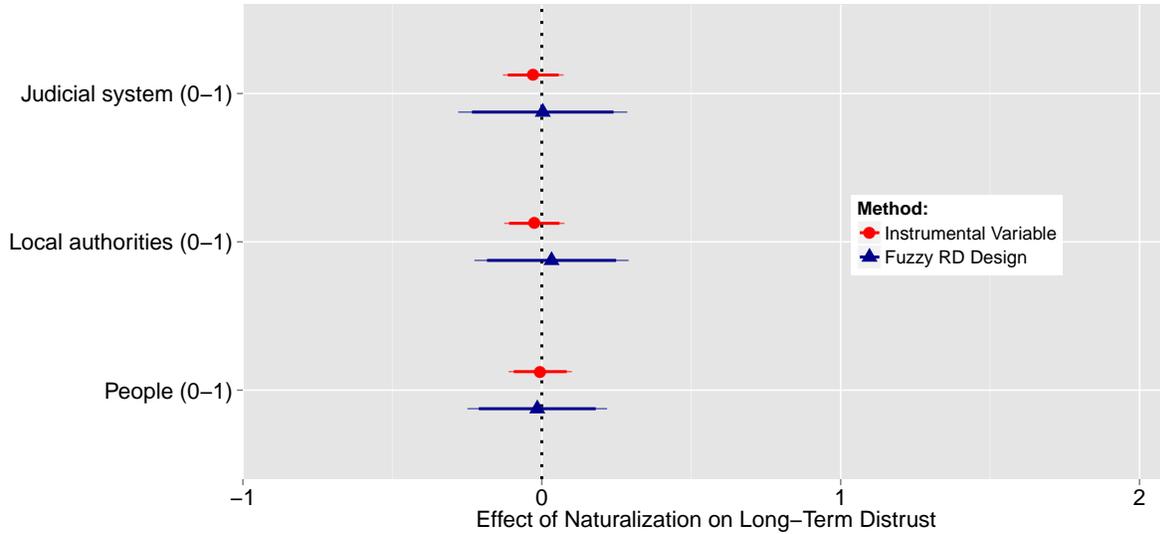
Note: Effect estimates with robust 95% (thin) and 90% (bold) confidence intervals based on the instrumental variable design and the fuzzy RD design. See text for details.

The results, shown in Figure 5, suggest that naturalization had no effect on raising levels of distrust for all three measures. The point estimates are close to zero and precisely estimated.[17] The fact that accepted and denied applicants show identical levels of distrust long after the application decision suggests that the long-term naturalization effects are mainly driven by accepted immigrants becoming more socially integrated once they get citizenship, rather than through an alienation effect where denied applicants become less socially integrated than they would have had they never applied for naturalization. Note that this interpretation is also consistent with the other finding presented below which shows that the effects of naturalization on integration are larger if immigrants naturalize earlier rather than later into their residency period. In other words, even only comparing among those who do eventually get citizenship and therefore should not be affected by a potential rejection effect, a higher "dose" of the treatment of Swiss citizenship does enhance social integration through the cumulative effects of holding Swiss citizenship.

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[17]In the appendix we show that the results are very similar when we replicate this test for the subsamples of the more marginalized immigrant groups who are born abroad and who are from Turkey and the former Yugoslavia.

D. Naturalization Effects by Immigrant Group

As explained above, one important question for policy design and theory is how the effects of naturalization on integration might differ across different types of immigrants, in particular groups of immigrants who are more or less marginalized to begin with. To investigate this question we now replicate the analysis and estimate the naturalization effects while splitting the sample in two ways.

First, we consider how the effects of naturalization vary by the immigrants' origin, distinguishing between applicants from Turkey and the former Yugoslavia with those from other origins. The other origins mostly include applicants from western, northern, and southern European countries like Germany, Austria, and Italy. These two groups differ strongly on their levels of marginalization. In particular, immigrants from the former Yugoslavia and Turkey typically face the most severe discrimination and native backlash in Switzerland (Hainmueller and Hangartner 2013).

Second, we examine how the effects of naturalization vary for immigrants who are born in Switzerland and those who are born abroad. Recall that Switzerland does not award citizenship based on birthright and therefore second-generation immigrants who are born in Switzerland to foreign parents do not get Swiss citizenship unless they apply through the regular naturalization procedure and succeed. However, since these immigrants are born and raised in Switzerland they are typically much better integrated and less marginalized on average compared to immigrants who are born abroad and arrive in Switzerland later in life (Hainmueller and Hangartner 2013).

The results for these subgroup analyses are shown in Figure 6.[18] Strikingly, we find that across both comparisons, the positive effects of naturalization on long-term social integration are concentrated among the marginalized origin groups. For example, naturalization increases the social integration scale by about .52 (p<.001) for immigrants from Turkey and the former Yugoslavia, while the effect is .06 (p<.723) for immigrants from the other origins; the difference between the two effects is statistically significant (p<.053). Similarly, the naturalization effect on the social integration scale is about .59 (p<.001)) for immigrants who are born abroad while the effect is merely .09 (p<.611) for immigrants born in Switzerland and the difference between the effects is again statistically significant (p<.045).

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[18]Note that there is almost no correlation between the two subgroups. For example, the fraction of applicants who are born in Switzerland is 18 percent among applicants from Turkey and the former Yugoslavia and 21 percent among those not from from Turkey and the former Yugoslavia.

Figure 6: Effects of Naturalization on Long Term Social Integration by Origin Group
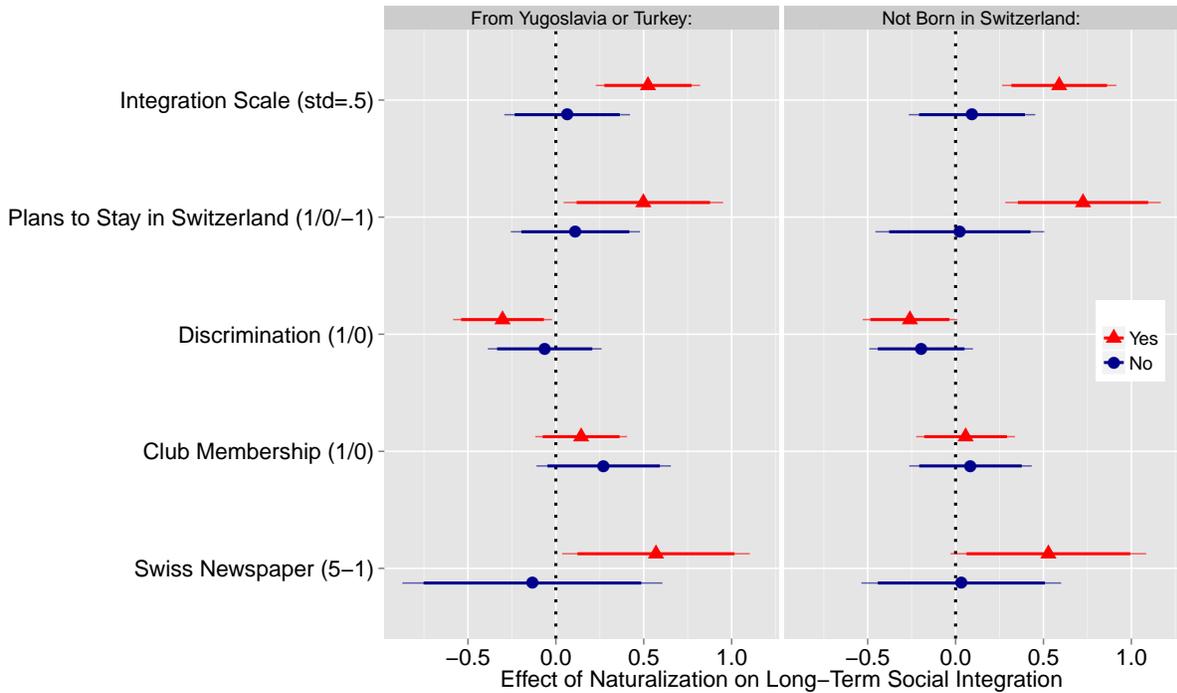
Note: Effect estimates with robust 95% (thin) and 90% (bold) confidence intervals based on the instrumental variable design.

Taken together, these results suggest that the long-term social integration returns to naturalization are much bigger for the more marginalized groups of immigrants from Turkey and the former Yugoslavia and immigrants who are not born in Switzerland. From a policy standpoint, these results starkly contrast with the view that naturalization should be restricted to only the most well integrated immigrants since only they are well equipped to take advantage of citizenship. Quite to the contrary, we find that for these groups the effects of naturalization on integration are, if anything, much more modest. From a theoretical standpoint, the results beg the question of what might explain this heterogeneity in the effects of naturalization. Why are the integration returns to naturalization larger for more marginalized immigrant groups? As we discussed in the theory section above, one possibility is that naturalization enables more marginalized immigrants to overcome their resource constraints and invest in integration, but for less marginalized immigrants naturalization might be less critical given that such immigrants face fewer resource constraints and are better able to invest into integration even in the absence of naturalization. Another possibility is that naturalization affects

integration by mitigating discrimination from natives. In this logic, we see larger integration returns among more marginalized immigrants because they typically face the strongest discrimination unless they naturalize. We see lower integration returns among less marginalized immigrants because they face less discrimination and are more likely to be recognized as equals by natives even in the absence of naturalization.

It is important to recognize that in our study we do not have sufficient data and sample sizes to conclusively distinguish between the investment and discrimination channel as well as other mechanisms that might account for the effect heterogeneity. But in order to shed some light on this issue we can examine how the effect of naturalization varies within the marginalized origin groups between immigrants who have fewer resources and therefore face more binding constraints on their investments. To do so we focus on the two marginalized immigrant origin groups from above—immigrants from Turkey and former Yugoslavia and those not born in Switzerland—and in each group further split the sample according to whether the immigrants at the time of their naturalization referendum worked in low or medium and high skilled occupations, respectively.[19] If the heterogeneity in the naturalization effect is driven predominantly by a personal investment mechanism then we would expect that the integration returns from naturalization are higher for immigrants in low skilled occupations because they face more resource constraints than immigrants in medium and high skilled occupations who tend to have more resources in the form of higher educational backgrounds, better language skills, and other economic advantages despite belonging to the same marginalized origin group. Alternatively, if the heterogeneity in the naturalization effect is predominantly driven by a discrimination mechanism then we would expect that the integration returns to naturalization are fairly similar across low and high skilled immigrants since they belong to the same marginalized group and are at the risk of discrimination by natives.

The results from this test are displayed in Figure 7. We find that the effects of naturalization on long-term social integration are uniform across skill levels and this holds in both of the marginalized immigrant groups. The point estimates of the effects for the low and medium/high skilled are similar

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[19]We constructed the skill measure based on the applicants' occupations that were listed on the résumés in the voting leaflets. The skill levels refer to the first digit of the ISCO-88 occupational classification code. Managers and professionals are coded as highly skilled; technicians, associate professionals, clerical support workers, and service and sales workers are coded as medium skilled; and craft workers, assemblers, elementary occupations are coded as low skilled (see Hainmueller and Hangartner (2013) for details on the coding). We split on low versus medium and high skill because that creates roughly equal sample sizes for the subgroups.

in substantive terms and the differences in the effects are not significant (at p<.84 for immigrants from Turkey and former Yugoslavia and p<.80 for immigrants who are not born in Switzerland). The fact that within the marginalized groups immigrants benefit equally from naturalization despite the differences in their skill levels suggests that—at least in our context—the variation in the effects of naturalization on integration might be more driven by reducing the discrimination from natives rather than enabling immigrants to overcome resource constraints. However, it is important to recognize that this evidence is suggestive at best given that we are dealing with increasingly small sample sizes and lack high frequency measures that would allow us to directly capture how personal investments respond to naturalization over time. Moreover, the evidence about the mechanisms might be rather specific to our case given that most immigrants who have completed the lengthy residency requirements and apply to naturalize have already reached a fairly high threshold level of integration and this might therefore leave less room for potential investments than might be observed for immigrants in other contexts who naturalize at an earlier stage.

Figure 7: Effects of Naturalization on Long Term Social Integration for Marginalized Origin Groups by Skill Level
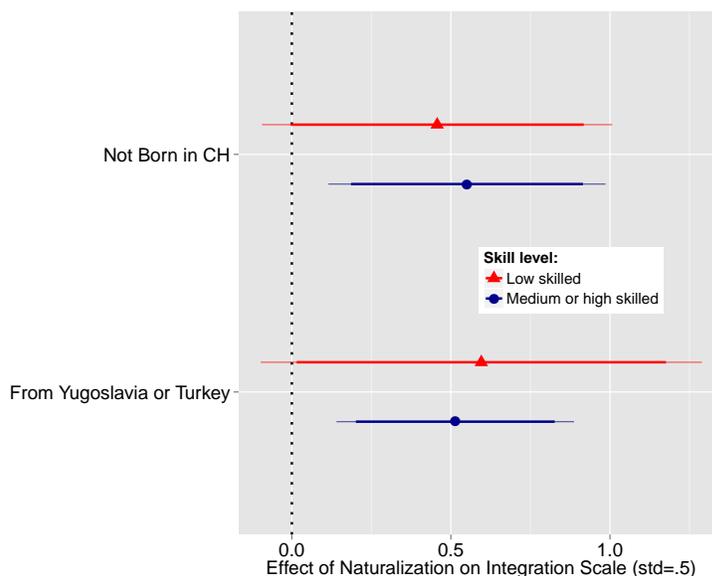
Note: Effect estimates with robust 95% (thin) and 90% (bold) confidence intervals based on a two-stage least squares regression.

E. Early versus Late Naturalization

As explained above, another important question apart from the effect heterogeneity is whether naturalization is more or less effective when immigrants naturalize earlier or later into their residency period. Testing for an effect of early versus late naturalization is difficult empirically because the timing of the naturalization is typically endogenous. The ideal experiment would be to consider a group of immigrants and to randomly assign the time at which they receive Swiss citizenship such that the group of immigrants who get it earlier are identical to the group of immigrants who get it later in terms of all confounding characteristics. This would allow one to isolate the effect of having Swiss citizenship for a longer period on the subsequent integration.

Fortunately, in our setting we can conduct an empirical strategy that closely approximates this ideal experiment. We focus on the group of naturalized applicants and exploit the fact that the outcome of the first referendum provides an exogenous shock to the timing of the naturalization. Among applicants who are otherwise similar in their characteristics—including the year they arrived in Switzerland, the year in which they faced their first naturalization referendum, and the total number of years in Switzerland—those who get lucky and win their first referendum immediately become Swiss while those who get unlucky and lose their first referendum are denied and have to re-apply to subsequently get Swiss citizenship years later. We can exploit this exogenous variation by using an IV design where winning or losing the first referendum is used as an instrument for the number of years that applicants have possessed Swiss citizenship.[20]

As a first step, we run the first-stage regression where the (logged) number of years with Swiss citizenship is regressed on the full set of covariates (applicant characteristics plus municipality and time period fixed effects) and our instrument that captures whether applicants won or lost their first referendum. We also add six categorical indicators to flexibly control for the total prior residency in Switzerland. We find that winning the first referendum strongly increases the number of years with Swiss citizenship by about 60 percent—roughly nine more years on average—and this effect is

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[20]One potential concern with this identification strategy is that the group of immigrants that was naturalized in the first referendum consists of both always-takers and compliers, while the group of rejected applicants that was naturalized in a later attempt consists of only always-takers. We believe that this bias is negligible since we expect the potential integration outcome to be larger for always-takers than compliers. In the SI we derive and conduct a formal sensitivity analysis that shows that the outcome for compliers would have to be more than three times larger than for always-takers in order to render the early versus late naturalization effect on the social integration scale insignificant (and more than eight times larger to change the sign of the relationship).

significant with a Stock and Yogo (2005) F-value of about 48 (see Table B.16 in the SI).

Next, we examine how this exogenous increase in the number of years with Swiss citizenship affects social integration. To do so we fit a two-stage least square model where we regress the integration outcome on the full set of covariates, the six categorical indicators to flexibly control for the total prior residency, and the (logged) number of years with Swiss citizenship and this endogenous variable is instrumented for by winning or losing the first referendum. From the perspective of those who advocate for early naturalizations we would expect a positive effect of naturalizing early versus late, while from the perspective of those who advocate for late naturalizations we would expect a negative effect. Figure 8 shows the estimated effects of naturalizing early versus late as measured by a 20%

Figure 8: Effects of Early versus Late Naturalization on Long Term Social Integration
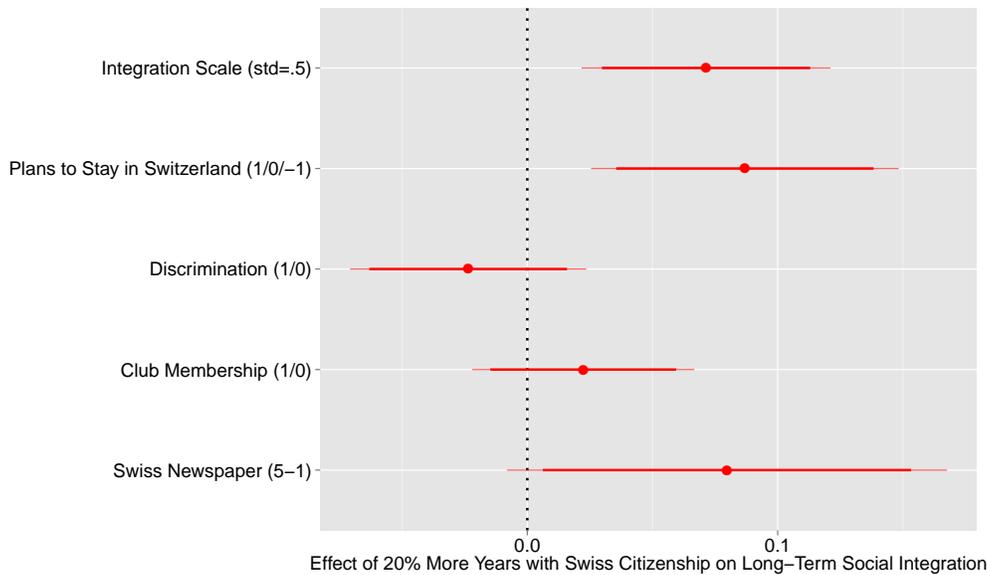
Note: Effect estimates with robust 95% (thin) and 90% (bold) confidence intervals based on a two-stage least squares regression.

increase in the years with Swiss citizenship. We find that the integration returns to having Swiss citizenship earlier, rather than later, are mostly positive. Comparing applicants who are otherwise identical in their characteristics—including the year or arrival, year of the first application, and the total number of years in Switzerland—a 20% increase in the number of years being Swiss increases the social integration scale by about .08 (p<.005), so about a one sixth of a standard deviation unit. This is a substantively big effect given that a 20% increase is roughly equivalent to only three more years of Swiss citizenship.

In the SI we present a variety of additional checks that underscore the robustness of these findings. In particular we show that the results are not driven by an unwarranted linearity assumption for the (logged) number of years with Swiss citizenship (see Figure B.5 and Figure B.6). Taken together these results suggest that naturalization earlier, rather than later, is more effective in terms of increasing the long term social integration of immigrants and this effect is strong in the sense that even a few years earlier can make a real difference for social long-term integration.

VI. Conclusion

In this study, we contribute to the ongoing debates about the theories and design of citizenship policies by providing new causal evidence about the effect of naturalization on the long-term social integration of immigrants in Switzerland. We exploit the quasi-random assignment to citizenship that occurs in naturalization referendums to isolate the effect of naturalization from the non-random selection into naturalization. We find that naturalization strongly improved the long-term social integration of immigrants. Comparing otherwise identical immigrants who only differ in that they barely won or lost naturalization referendums a decade and a half ago, we find that those who won and therefore received Swiss citizenship develop much higher levels of social integration such that today they are about one standard deviation higher on our summary measure of the social integration scale. These lasting effects are robust across two identification strategies and across a variety of robustness checks.

Turning to the questions of effect heterogeneity we find that the integration returns to naturalization are much larger for more marginalized immigrant groups, such as immigrants from Turkey and the former Yugoslavia and those who are not born in Switzerland. In fact, the positive effects of naturalization on long-term social integration are concentrated among these most marginalized groups. Last but not least, we exploit exogenous variation in the timing of the naturalization and find that the integration returns from naturalization are larger if immigrants naturalize earlier rather than later in their residency period.

These findings have important implications for theory and policy. The findings run counter to the paradigm that argues that naturalization is merely a reward for successfully completing the integration process. Instead, the findings support those who argue that naturalization acts as an important catalyst for integration by providing immigrants with the recognition, resources, and incentives to integrate and invest in a future in the host country society. Contrary to those who argue for high hurdles for

access to naturalization, the findings also demonstrate that the returns to naturalization are much larger for more marginalized groups and somewhat larger when naturalization occurs earlier, rather than later in the residency period.

Our estimates only capture the effects of naturalization among immigrants who have applied for citizenship and therefore speak most directly to the impacts of naturalization given the current policy. However, the patterns that the catalytic effects of naturalization are stronger for more marginalized groups and those naturalizing earlier rather than later carry an important implication for policy reform. In particular, the findings suggest that our results provide a lower bound for the naturalization effects we might expect if Swiss policy-makers were to marginally lower the stringent criteria to open the door to naturalization for immigrants who are slightly less integrated or have slightly shorter residency and therefore might realize even larger catalytic benefits from naturalization. While it remains an open question what the optimal threshold for naturalizations is, our results suggest that if the goal is to maximize integration, the current Swiss requirements appear to be too restrictive, especially the long residency period which acts to strongly reduce the number of years that naturalized immigrants can enjoy host country citizenship and reap the social integration benefits associated with it.

While our results have high internal validity due to the quasi-random assignment to citizenship, the generalizability of our results beyond Switzerland is more difficult to assess. One guide to assess the external validity is to examine how the Swiss citizenship regime compares to the regimes in other European and North American countries like we did in the section on the empirical setting above. There we found that the Swiss regime was just about at the sample median in terms of the Citizenship Policy Index, with many countries having similarly restrictive regime like Germany or Italy and some even more restrictive regimes like Austria or Denmark. Our results therefore might well generalize to these other important cases where the citizenship rules are similarly or even more restrictive.

At this point we can only speculate how the results might generalize to other countries with much more liberal citizenship regimes where the eligible population includes many immigrants who have been in the country much shorter. On the one hand, one might argue that our results from Switzerland could provide a lower bound for the effects of naturalization on integration. Since the requirements in Switzerland are higher, most immigrants who apply to naturalize have already reached a high threshold level of integration and those who do not naturalize already have access to many of the same rights and privileges as citizens so that there should be less room for further improvements in integration.

But despite such a possible ceiling effect, we still find sizable impacts of naturalization. This suggests that the effects might be more pronounced in more liberal countries where the pre-naturalization levels of integration are lower on average and therefore there is more room for improvement. Moreover, the higher residency requirements mean that naturalized immigrants have fewer years as naturalized Swiss citizens and as our results show, there are large integration returns to getting naturalized earlier rather than later into the residency period, at least in the Swiss context. This suggests that in more liberal regimes, where immigrants tend to naturalize earlier and they therefore have more time with the host country citizenship, the returns to integration could be even larger.

On the other hand, it could be that there exists a critical threshold in terms of restrictiveness of the citizenship regime below which the naturalization effects become very different. If that is the case, then the results might be quite different in the countries that have much more liberal regimes than Switzerland. In the end, we advise against over- or under-generalizing our results from Switzerland to other contexts. External validity is best examined by replicating the results from multiple internally valid studies in other countries and other time periods, and so we hope that our study will stimulate future research that examines the causal effects of citizenship on economic, political, and social outcomes. Further research is also clearly needed to better understand how the mechanisms through which naturalization propels integration might vary across groups, time, and local context.

References

Achen, Christopher H. 1975. "Mass political attitudes and the survey response." *American Political Science Review* 69(04):1218–1231.

Aleinikoff, T Alexander and Douglas Klusmeyer. 2011. *Citizenship policies for an age of migration.* Carnegie Endowment.

Algan, Yann, Alberto Bisin, Alan Manning and Thierry Verdier. 2012. *Cultural integration of immigrants in Europe.* Oxford University Press.

Angrist, Joshua D, Guido W Imbens and Donald B Rubin. 1996. "Identification of causal effects using instrumental variables." *Journal of the American statistical Association* 91(434):444–455.

Ansolabehere, Stephen, Jonathan Rodden and James M Snyder. 2008. "The strength of issues: Using multiple measures to gauge preference stability, ideological constraint, and issue voting." *American Political Science Review* 102(02):215–232.

Aptekar, Sofya. 2015. *The road to citizenship: what naturalization means for immigrants and the United States.* Rutgers University Press.

Avitabile, Ciro, Irma Clots-Figueras and Paolo Masella. 2013. "The effect of birthright citizenship on parental integration outcomes." *Journal of Law and Economics* 56(3):777–810.

Banulescu-Bogdan, Natalia. 2012. "Shaping citizenship policies to strengthen immigrant integration." *Migration Policy Institute paper, Washington* .

Bauböck, Rainer. 2004. "Civic Citizenship–A New Concept for the New Europe." *Managing Integration: European Union Responsibilities towards Immigrants, Bertelsmann Foundation, Brussels* pp. 146–63.

Bauböck, Rainer, Eva Ersboll, Kees Groenendijk and Harald Waldrauch. 2006. *Acquisition and Loss of Nationality: Comparative Analyses-Policies and Trends in 15 European Countries.* Vol. 1 Amsterdam University Press.

Bauböck, Rainer, Iseult Honohan, Thomas Huddleston, Derek Hutcheson, Jo Shaw and Maarten Peter Vink. 2013. "Access to citizenship and its impact on immigrant integration." *European Summary and Standards. Report in the Context of the Project¿ Access to Citizenship and its Impact on Immigrant Integration (ACIT)¡ Co-funded by the European Fund for the Integration o f Non-EU Immigrants* .

Berry, John W. 1997. "Immigration, acculturation, and adaptation." *Applied psychology* 46(1):5–34.

Bevelander, Peter and Ravi Pendakur. 2011. "Voting and social inclusion in Sweden." *International Migration* 49(4):67–92.

Bevelander, Pieter. 2000. Immigrant Employment Integration and Structural Change in Sweden, 1970-1995 dissertation Lund University.
URL: *http://lup.lub.lu.se/record/19738*

Bevelander, Pieter. 2011. *Naturalisation: A Passport for the Better Integration of Immigrants?* OECD chapter Naturalisation and Social Inclusion, pp. 210–230.

Bevelander, Pieter and Don J. DeVoretz. 2008. *The Economics of Citizenship.* Malmö University (MIM).

Bevelander, Pieter and Justus Veenman. 2008. *The Economics of Citzienship.* chapter Naturalisation and Socioeconomic Integration: The Case of the Netherlands, pp. 63–88.

Bevelander, Pieter and Mikael Spang. 2014. *Handbook of the Economics of International Migration,1A: The Immigrants.* Vol. 1 of *Part 1* Elsevier chapter From Aliens to Citizens: The Political Incorporation of Immigrants, pp. 443–482.

Bloemraad, Irene. 2006. *Becoming a citizen: Incorporating immigrants and refugees in the United States and Canada.* Univ of California Press.

Bloemraad, Irene, Anna Korteweg and Gökçe Yurdakul. 2008. "Citizenship and Immigration: Multiculturalism, Assimilation, and Challenges to the Nation-State." *Annual Review of Sociology* 34(1):153–179.

Bratsberg, B., J. F. Ragan and Z. M. Nasir. 2002. "The effect of naturalization on wage growth: A panel study of young male immigrants." *Journal of Labor Economics* 20(3):568–597. WOS:000177043600005.

Carens, Joseph H. 2005. "The integration of immigrants." *Journal of Moral Philosophy* 2(1):29–46.

Castles, Stephen, Maja Korac, Ellie Vasta and Steven Vertovec. 2002. "Integration: Mapping the field." *Report for the Home Office Immigration Research and Statistics Service* .

Chiswick, Barry and Paul W Miller. 2009. "Citizenship in the United States: The roles of immigrant characteristics and country of origin." *Research in Labor Economics* 29:91–130.

Chiswick, B.R. 1978. "The effect of Americanization on the earnings of foreign-born men." *The Journal of Political Economy* 86(5):897–921.

Dancygier, Rafaela M. and David D. Laitin. 2014. "Immigration into Europe: Economic Discrimination, Violence, and Public Policy." *Annual Review of Political Science* 17(1):43–64.

Dancygier, R.M. 2010. *Immigration and conflict in Europe.* Cambridge Univ Pr.

DeSipio, Louis. 1996. "Making citizens or good citizens? Naturalization as a predictor of organizational and electoral behavior among Latino immigrants." *Hispanic Journal of Behavioral Sciences* 18(2):194–213.

Dustmann, Christian. 1996. "The social assimilation of immigrants." *Journal of population economics* 9(1):37–54.

Eggers, Andrew, Anthony Fowler, Jens Hainmueller, Andrew B Hall and James M Snyder. 2015. "On The Validity Of The Regression Discontinuity Design For Estimating Electoral Effects: New Evidence From Over 40000 Close Races." *American Journal of Political Science* 59(1):259–274.

Ersanilli, Evelyn and Ruud Koopmans. 2011. "Do immigrant integration policies matter? A three-country comparison among Turkish immigrants." *West European Politics* 34(2):208–234.

Fetzer, Joel S. 2000. *Public Attitudes Toward Immigration in the United States, France, and Germany.* Cambridge: Cambridge University Press.

Fibbi, Rosita, Bülent Kaya and Etienne Piguet. 2003. "Le passeport ou le diplome? Etude des discri-minations a l'embauche des jeunes issus de la migration." *Neuchatel: SFM* .

Galston, William A. 2001. "Political knowledge, political engagement, and civic education." *Annual review of political science* 4(1):217–234.

Geddes, Andrew. 2003. *The Politics of Migration and Immigration in Europe.* SAGE Publications.

Giddens, Anthony. 2007. "Doubting diversity's value." *Foreign Policy* (163):86.

Goodman, S.W. 2010. "Naturalisation Policies in Europe: Exploring Patterns of Inclusion and Exclusion." *EUDO CITIZENSHIP Observatory* .

Hahn, Jinyong, Petra Todd and Wilbert Van der Klaauw. 2001. "Identification and estimation of treatment effects with a regression-discontinuity design." *Econometrica* 69(1):201–209.

Hainmueller, J. and D. Hangartner. 2013. "Who Gets a Swiss Passport? A Natural Experiment in Immigrant Discrimination." *American Political Science Review* 107(1).

Hainmueller, Jens and Dominik Hangartner. Forthcoming. "Does Direct Democracy Hurt Immigrant Minorities? Evidence from Naturalization Decisions in Switzerland." *American Journal of Political Science* .

Hainmueller, Jens, Dominik Hangartner and Giuseppe Pietrantuono. 2015. "Naturalization Fosters the Long-Term Political Integration of Immigrants." *Proceedings of the National Academy of Sciences* 112(8):2395–2400.

Hooghe, Marc, Tim Reeskens, Dietlind Stolle and Ann Trappers. 2009. "Ethnic diversity and generalized trust in Europe A cross-national multilevel study." *Comparative Political Studies* 42(2):198–223.

Howard, Marc Morjé. 2005. "Variation in Dual Citizenship Policies in the Countries of the EU." *International Migration Review* 39(3):697–720.

Jennings, M Kent and Richard G Niemi. 2014. *Generations and politics: A panel study of young adults and their parents.* Princeton University Press.

Joppke, Christian. 2010. *Citizenship and immigration.* Vol. 2 Polity.

Just, Aida and Christopher J Anderson. 2012. "Immigrants, Citizenship and Political Action in Europe." *British Journal of Political Science* 42(3):481–509.

Keller, Nicolas, Christina Gathmann and Ole Monscheuer. 2015. "Citizenship and the Social Integration of Immigrants: Evidence from Germany's Immigration Reforms.".

Kesler, Christel and Neli Demireva. 2011. *Naturalisation: A Passport for the Better Integration of Immigrants?* OECD chapter Social Cohesion and Host Country Nationality among Immigrants in Western Europe, pp. 209–236.

Kristensen, Ewa. 2014. Methodenbericht zum Indikatorensystem der Integration der Bevölkerung mit Migrationshintergrund. Technical report Bundesamt für Statistik.

Mazzolari, Francesca. 2009. "Dual citizenship rights: do they make more and richer citizens?" *Demography* 46(1):169–191.
URL: *http://link.springer.com/article/10.1353/dem.0.0038*

McCrary, Justin. 2008. "Manipulation of the running variable in the regression discontinuity design: A density test." *Journal of Econometrics* 142(2):698–714.

OECD. 2012. *Settling In: OECD Indicators of Immigrant Integration 2012.* OECD Publishing, Paris.

OECD, ed. 2011. *Naturalisation: A Passport for the Better Integration of Immigrants?* OECD Publishing.

Oers, R van and B de Hart. 2006. *Acquisition and Loss of Nationality: Policies and Trends in 15 European States.* Amsterdam University Press chapter European trends in nationality law, pp. 317–357.

Olsson, Ulf. 1979. "Maximum likelihood estimation of the polychoric correlation coefficient." *Psychometrika* 44(4):443–460.

Putnam, Robert D. 2007. "E pluribus unum: Diversity and community in the twenty-first century the 2006 Johan Skytte Prize Lecture." *Scandinavian political studies* 30(2):137–174.

Soyal, Yasmin. 1994. "The Limits of Citizenship.".

Steinhardt, Max Friedrich. 2012. "Does citizenship matter? The economic impact of naturalizations in Germany." *Labour Economics* 19(6):813–823.

Steinhardt, Max Friedrich and Jan Wedemeier. 2012. "The Labor Market Performance of Naturalized Immigrants in Switzerland—New Findings from the Swiss Labor Force Survey." *Journal of International Migration and Integration* 13(2):223–242.

Stock, James H and Motohiro Yogo. 2005. *Identification and Inference for Econometric Models: Essays in Honor of Thomas J. Rothenberg.* Cambridge, MA: Cambridge University Press chapter Testing for weak instruments in linear IV regression.

Turcotte, Yvan. 2011. *Naturalisation: A Passport for the Better Integration of Immigrants?* OECD chapter Naturalisation and the Promotion of the Social Integration of Immigrants in Quebec, pp. 261–273.

Vink, Maarten Peter, Tijana Prokic-Breuer and Jaap Dronkers. 2013. "Immigrant naturalization in the context of institutional diversity: policy matters, but to whom?" *International Migration* 51(5):1–20.

Westholm, Anders, José Ramón Montero and Jan W van Deth. 2007. "Introduction: citizenship, involvement, and democracy in Europe.".

Wunderlich, Tanja. 2005. *Die neuen Deutschen: subjektive Dimensionen des Einbürgerungsprozesses.* Vol. 9 Lucius & Lucius DE.

Yang, Philip Q. 1994. "Explaining Immigrant Naturalization." *International Migration Review* 28(3):449.

Supporting Information Appendices (Not for Publication)

Appendix A: Data Sources

Table 1: Question wording and codebook for outcome variables

Variable	Question	Values
Integration Scale	First principal component of polychoric PCA of the four outcome variables	standardized with mean = 0 and standard deviation = .5
Plans to stay in Switzerland	Are you planning to stay in Switzerland for good or do you plan to leave Switzerland at some point?	1 plan to stay in Switzerland for good 0 don't know -1 plan to leave Switzerland
Discrimination	Would you describe yourself as being a member of a group that is discriminated against in Switzerland?	1 yes, 0 no
Club membership	Are you currently a member of a social club or association in which you attend meetings regularly?	1 if member in at least one organization, 0 if member in none (note that membership in sports clubs and ethnic associations are not counted).
Swiss newspaper	When you read newspapers, do you read	1 exclusively newspapers from your home country? 2 mainly newspapers from your home country? 3 both, Swiss newspapers as well as newspapers from your home country? 4 mainly Swiss newspapers? 5 exclusively Swiss newspapers?
Distrust judicial system	How much do you trust [the judicial system]?	11-point scale, rescaled to $0 - 1$ with higher values indicating less trust
Distrust local authorities	How much do you trust [local authorities]?	11-point scale, rescaled to $0 - 1$ with higher values indicating less trust
Distrust for other people	Do you think most people can be trusted or that you can't be too careful in deadline with people?	11-point scale, rescaled to $0 - 1$ with higher values indicating less trust

Aufnahme von ████████████, 1965, italienischer Staatsangehöriger, wohnhaft in Steinen, in das Bürgerrecht der Gemeinde Steinen

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A. BERICHT

Mit Eingabe vom 6.12.1984 stellt ███████████, 1965, italienischer Staatsangehöriger, das Gesuch um Aufnahme in das Bürgerrecht der Gemeinde Steinen.

Der Gesuchsteller wurde am 25.2.1965 in Schwyz als Sohn des ██████████ und der ████████████████ geboren, die damals bereits in Steinen wohnten.
Seit der Geburt hält sich ██████████████ bei seinen Eltern in Steinen, Sonnenbergli, auf, und verbrachte seine Jugendzeit in Steinen.
Er besuchte in Steinen die Primarschule und die Sekundarschule.

Nach dem Schulabschluss trat ████████████ bei der Berner Allgemeinen Versicherungs-gesellschaft in Schwyz in die kaufmännische Lehre ein, welche er im Frühjahr 1984 mit der Abschlussprüfung erfolgreich abgeschlossen hat.

Nach der Abschlussprüfung setzte der Gesuchsteller seine Tätigkeit bei der Direktion der Berner Versicherung in Bern fort, wo er gegenwärtig als Unfallschaden-Sachbearbeiter tätig ist.
Er ist in Bern als Wochenaufenthalter gemeldet, wobei der gesetzliche Wohnsitz nach wie vor bei seinen Eltern in Steinen ist.
Nach Abschluss seiner beruflichen Weiterbildung und Absolvierung der Rekrutenschule beabsichtigt ████████████ seine Tätigkeit in unserer Umgebung fortzusetzen, und weiterhin in Steinen zu wohnen.

Translation for leaflet shown in Figure A.1:

Application of APPLICANT, 1965, Italian citizen, domiciled in Steinen, for naturalization in the municipality of Steinen.

A. Report

On December 6, 1984, APPLICANT, 1965, Italian citizen, applied for naturalization in the municipality of Steinen.

The applicant was born on February 25, 1965 in Schwyz as the son of APPLICANT's FATHER and APPLICANT's MOTHER who at the time already lived in Steinen. Since his birth APPLICANT has been living with his parents in Steinen, Sonnenbergli, and also

lived there during his youth. He attended the primary school and secondary school in Steinen.

After completing school, APPLICANT took up an apprenticeship in business administration with the Bern Insurance Company in Schwyz. He successfully graduated from the apprenticeship in early 1984.

Following the completion of his degree he continued to work for Bern Insurance in Bern where he is currently employed as an accident insurance agent.

Even though he is registered as working in Bern during the week, his permanent legal residence is still in Steinen with his parents. Following the completion of his on the job training and the completion of his vocational training school he plans to continue his work in our area and to continue to live in Steinen.

Appendix B: Additional Results

In this appendix we present additional results that are referenced in the main paper.

A. Citizenship Policy Index

The Citizenship Policy Index (CPI) is a standard measure developed by Howard (2005) that uses a simple additive formula to measure a country's citizenship policy between very liberal (6) and highly restrictive (0). It is based on the three main components of citizenship policy: whether citizenship is granted by place of birth or by the citizenship of the parents, the length of the residency requirement for naturalization, and the acceptance of dual citizenship for immigrants. To generate the index, each country is allocated points if citizenship by birth is allowed (2 points) or not allowed (0 points), if residency requirements for naturalization are five years or less (2 points), between six and nine years (1 point) or ten years or higher (0 points), and if dual citizenship is accepted (2 points) or not accepted (0 points). We use the CPI for the year of 2005[21] to code selected European countries, as well as Australia, Canada, and the United States, to place Switzerland in a comparative perspective.

Figure 2 reveals that there are roughly four groups of countries. The most restrictive countries have a CPI of zero and include countries like Spain, Austria, or Slovenia. These countries use the jus sanguinis principle which implies that citizenship is passed on from the citizenship of the parents. They also require at least 10 years of residency before immigrants become eligible for naturalization and they do not allow for dual citizenship which means that immigrants who naturalize have to renounce their home country citizenship. The second group of less restrictive countries cluster around a CPI value of two and include Switzerland, Germany, Italy, Poland, and or Greece. These countries all use the jus sanguinis principle, but they are more liberal insofar as they either have shorter residency periods (between 5 and 8 years) but prohibit dual citizenship, like Germany and Poland, or they have a long residency period (10 of more years) but allow for dual citizenship, like Switzerland and Italy. The third group of countries, including Sweden and Finland, is more liberal with a CPI value of around four. They still maintain the jus sanguinis principle but have shorter residency requirements (typically 5 years) and allow dual citizenship. Finally, the very liberal countries have a CPI value of six and include the United States, the United Kingdom, or Australia. They feature citizenship by place of birth, shorter residency requirements, and allow for dual citizenship.

B. Sample

We draw on a variety of original data to implement our empirical strategies. The basis for our sample is the data compiled by Hainmueller and Hangartner (2013) who extracted from municipal archives the voting leaflets and outcomes for all 2,225 applicants who faced naturalization referendums between 1970 and 2003 in all the 46 ballot box municipalities who used secret ballot referendums with voting leaflets. The municipalities are located in seven different cantons in the German-speaking region. As shown in Hainmueller and Hangartner (2013) the municipalities are fairly typical of municipalities in the German speaking region of Switzerland. The time period covered varies somewhat due to differences in data availability, but for most municipalities, the data contains all naturalization referendums from 2003 going back to the 1970s and 1980s.

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[21]The only difference to Howard's (2005) coding is that we allocate Germany 1 point for its partial allowance of birthright citizenship.

We conducted the survey between October 3, 2011 and September 19, 2014. The interviews were conducted by native speakers in multiple languages including all of Swiss official languages and all the major immigrant languages including Turkish, Serbo-Croatian, Italian, Portuguese, and English. All interviewers completed a standardized training that included mock interviews and recruitments to assure a high quality of the data.

We obtained a cumulative response rate 3 (RR3) as defined by the American Association for Public Opinion Research of 34.5% (45.9% for the sample of competitive applicants who came within a ± 15 vote margin of winning).

C. Attrition

Figure B.1 displays the non-response rate across the vote share margin. The dots display binned averages with 95% confidence intervals. The red and blue fitted lines from a Loess smoother summarize the average non-response rate for a given vote share margin on the left and the right side of the threshold, respectively. For all competitive applicants, the response rate is constant and between about 40% and 55% for most bins. Importantly, there is no noticeable difference between applicants who barely lost and barely won their first referendum. Note that this response rate is much higher than for comparable surveys. A recent phone survey conducted among voters in Switzerland yielded a response rate (RR3) of 12.8% (Bechtel et al. 2015). A typical study conducted via Knowledge Networks, widely regarded as one of the best probability based online panels in the United States, yields an RR3 of 2.8% (Hainmueller and Hopkins 2015). In our case the primary reason for non-response was that we could not get a valid address. Of the cases where we could get a valid address and therefore were able to contact the applicant, 88% participated in the survey.

Figure B.1: Response Rate across the Vote Margin (95% Confidence Intervals)
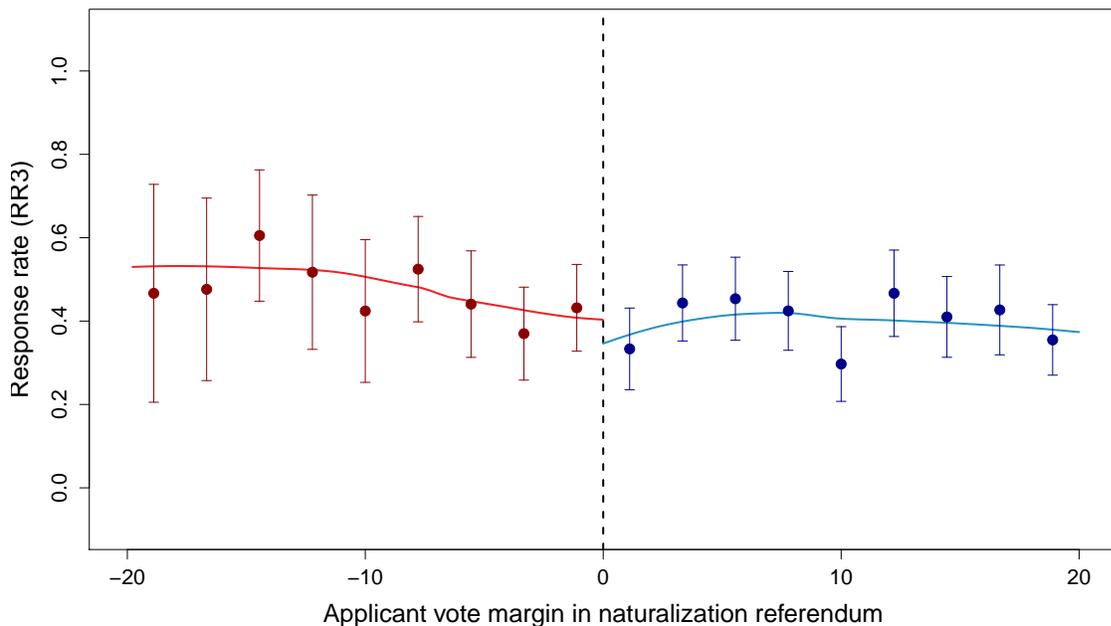

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Table B.1 provides further evidence that applicants who were successfully interviewed are not different from those that we could not contact, have died, emigrated, or declined to be interviewed. In particular, we examine whether the interaction of baseline covariates and the instrument (more than 50% vote share in first referendum) predicts attrition. We do not find that scoring above 50% in the first referendum led to a sample selection bias in terms of the characteristics of individuals who completed the interview.

Table B.1: Instrument Interaction Test for Selective Attrition

Model	(1)	(2)	(3)	(4)
Outcome	Interviewed	Interviewed	Interviewed	Interviewed
Above 50%	0.02	-0.55	0.03	-0.57
	(0.04)	(0.35)	(0.06)	(0.36)
Margin			-0.00	-0.00
			(0.01)	(0.01)
Margin × Above 50%			0.01	0.01
			(0.01)	(0.01)
Controls				
Applicant Characteristics				
Country of Origin	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓
Interactions with Above 50 %				
Country of Origin		✓		✓
Sociodemographics		✓		✓
Fixed Effects				
Time period	✓	✓	✓	✓
Municipality	✓	✓	✓	✓
Parameters tested	1	35	1	35
F-test	0.20	1.33	0.18	1.31
p-value	0.65	0.10	0.67	0.11
Observations	1025	1025	1025	1025

Note: Table shows rrdinary least squares regression of an indicator for interviewed applicants on a binary instrument (=1 if vote share margin above 50%). Model (1) tests for a significant effect of the instrument and controls for country of origin, sociodemographics and fixed effects for each time period and municipality. Model (2) similarly tests for a significant effect of the instrument and adds all 34 interactions of the instrument with the applicant characteristics. Model (3) uses the same specification as model (1) but additionally controls for the vote share margin and the interaction of the margin with the instrument. Model (4) uses the same specification as model (2) but additionally controls for the vote share margin and the interaction of the margin with the instrument. Sample: all applicants within a window ±15%. Robust standard errors in parentheses.

D. *Social Integration Scale*

We use a polychoric principal component analysis (PCA) to construct the social integration scale from the four outcome questions. Polychoric PCA has the advantage that it can handle binary and categorial variables. To extract the principal components, polychoric PCA uses the linear combinations of the polychoric correlation matrix of the input variables, rather than the variables themselves (Olsson 1979). To create the social integration scale we extract the first principal component, which accounts for 45% of the total variance (Eigenvalue = 1.80). For the higher-order components the explanatory power drops sharply: The second component accounts for 22 % (Eigenvalue = 0.89), the third component for 20% (Eigenvalue = 0.79, and the fourth component for 13% of the total variance (Eigenvalue = 0.52). We rescale the first principal component to have a mean zero and standard deviation of .5 for interpretability.

E. Descriptive Statistics

Tables B.2 and B.3 display the descriptive statistics for key covariates and outcome items for the sample of all applicants and the main estimation sample of competitive applicants who obtained enough 'yes' votes to come within a ±15% window around the threshold of winning. Most of the applicants in the competitive sample are immigrants from the former Yugoslavia and Turkey who are often considered to be among the most marginalized immigrant groups in Switzerland. On average, applicants have been living in Switzerland for about 19 years at the time of the their naturalization referendum, but there is a wide variation ranging from 12 to 44 years. The average age at the time of the survey is about 35 years, with a range of 17 to 72 years.

Looking at the social integration items we see that the majority of immigrants have plans to stay in Switzerland for good, but there is also a sizable fraction of immigrants who have plans to leave or are unsure about there long term settlement plans. About 20% of immigrants report being discriminated against in Switzerland and on average only 21% report being a member of a social club. For the newspaper readership the average is about four on the five point scale, so slightly skewed towards immigrants reading mostly Swiss as opposed to foreign newspapers from their home country.

Table B.2: Descriptive Statistics for all Interviewed Applicants

Variable	Observations	Mean	SD	Min	Max
Male	768	0.71	0.45	0.00	1.00
Age	765	51.36	14.95	23.00	89.00
Low skilled	618	0.43	0.49	0.00	1.00
Residency years at time of referendum	654	20.16	6.72	12.00	47.00
Residency years at time of survey	767	36.83	10.50	17.00	82.00
Northern & Western Europe	768	0.17	0.37	0.00	1.00
Southern European Countries	768	0.15	0.35	0.00	1.00
Central & Eastern Europe	768	0.05	0.21	0.00	1.00
(former) Yugoslavia	768	0.37	0.48	0.00	1.00
Turkey	768	0.20	0.40	0.00	1.00
Other Non-European Countries	768	0.02	0.14	0.00	1.00
Asian Countries	768	0.05	0.23	0.00	1.00
Percent yes votes	768	58.69	14.70	12.16	95.74
Above 50%	768	0.71	0.45	0.00	1.00
Naturalized	768	0.86	0.34	0.00	1.00
Integration Scale	740	0.00	0.50	-1.60	0.76
Plans to stay in Switzerland	762	0.66	0.61	-1.00	1.00
Perceived discrimination	758	0.16	0.37	0.00	1.00
Club membership	768	0.24	0.43	0.00	1.00
Newspaper readership	754	4.05	0.88	1.00	5.00
Distrust for the local authorities	757	0.25	0.19	0.00	1.00
Distrust for the judicial system	748	0.25	0.21	0.00	1.00
Distrust for other people	761	0.38	0.21	0.00	1.00

Note: Male, age, skill level, residency years at time of referendum, and origin are measured at the time of the referendum from the voting leaflets and the percent yes votes and above 50 % from the municipal voting records. Residency years at time of survey, naturalized, integration scale, plans to stay in Switzerland, perceived discrimination, club membership, newspaper readership, and distrust are measured in our immigrant survey.

Table B.3: Descriptive Statistics for Competitive Applicants

Variable	Observations	Mean	SD	Min	Max
Male	474	0.72	0.45	0.00	1.00
Age	472	49.72	14.49	23.00	84.00
Low skilled	378	0.48	0.50	0.00	1.00
Residency years at time of referendum	428	19.20	5.70	12.00	44.00
Residency years at time of survey	474	34.91	9.05	17.00	72.00
Northern & Western Europe	474	0.11	0.32	0.00	1.00
Southern European Countries	474	0.06	0.23	0.00	1.00
Central & Eastern Europe	474	0.06	0.24	0.00	1.00
(former) Yugoslavia	474	0.42	0.49	0.00	1.00
Turkey	474	0.25	0.44	0.00	1.00
Other Non-European Countries	474	0.02	0.15	0.00	1.00
Asian Countries	474	0.07	0.25	0.00	1.00
Percent yes votes	474	52.02	8.02	35.13	64.94
Above 50%	474	0.60	0.49	0.00	1.00
Naturalized	474	0.83	0.38	0.00	1.00
Integration Scale	459	-0.05	0.51	-1.48	0.76
Plans to stay in Switzerland	470	0.62	0.64	-1.00	1.00
Perceived discrimination	469	0.20	0.40	0.00	1.00
Club membership	474	0.21	0.41	0.00	1.00
Newspaper readership	467	4.00	0.89	1.00	5.00
Distrust for the local authorities	468	0.24	0.19	0.00	1.00
Distrust for the judicial system	462	0.25	0.21	0.00	1.00
Distrust for other people	469	0.38	0.20	0.00	1.00

Note: Male, age, skill level, residency years at time of referendum, and origin are measured at the time of the referendum from the voting leaflets and the percent yes votes and above 50 % from the municipal voting records. Residency years at time of survey, naturalized, integration scale, plans to stay in Switzerland, perceived discrimination, club membership, newspaper readership, and distrust are measured in our immigrant survey.
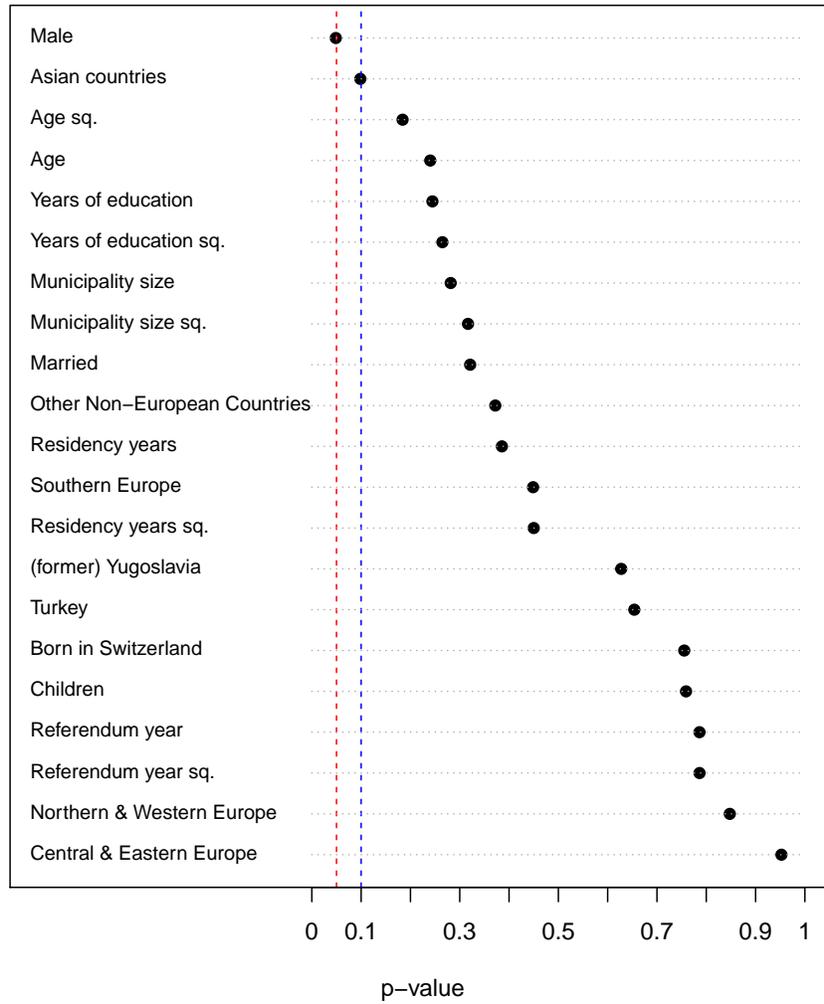
Figure B.2: Balance Tests for Fuzzy RD Design

Every dot shows the p-value of a placebo fuzzy RD effect estimated for each pre-treatment covariate at the threshold of winning obtained from our benchmark local linear regression within a ±15% vote share margin. The red line indicates the 5% and the blue line the 10% level of significance, respectively.

G. First Stage Results

Table B.4 shows that the effect of winning or losing the first referendum on the probability of naturalization. We find that winning versus barely losing the first referendum increased the probability of naturalization by about .28 to 42. The F-test for the strength of the instrument well exceeds the standard threshold of 10 (Stock and Yogo 2005).

Table B.4: First Stage Regression Estimates

Model	(1)	(2)	(3)
Outcome	Naturalized	Naturalized	Naturalized
Above 50%	0.42	0.28	0.29
	(0.04)	(0.06)	(0.06)
Country of Origin	✓		✓
Sociodemographics	✓		✓
Time period Fixed Effects	✓		✓
Municipality Fixed Effects	✓		✓
Margin		✓	✓
F-test	94.66	20.66	20.21
Observations	471	474	471

Note: Table shows ordinary least squares regression of naturalization measure on the binary instrument (=1 if vote share margin above 50%). Model (1) shows the first stage results for the IV model where we adjust for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Model (2) shows first stage results for the fuzzy RD model without covariates where we just include the vote share margin. Model (3) shows first stage results for the fuzzy RD model with covariates where we add country of origin, all sociodemographics, fixed effects for each time period and municipality, and the vote share margin. Sample: all applicants within a vote margin window of ± 15%. Robust standard errors in parentheses.

H. Main Results

Table B.5: 2SLS Estimates of the Effect of Naturalization on Long-Term Social Integration

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Dis-crimination	Club Membership	Swiss Newspapers
Naturalized	0.51	0.49	-0.28	0.13	0.51
	(0.13)	(0.17)	(0.12)	(0.11)	(0.22)
Country of Origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	456	467	466	471	464

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants within a ±15% window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.6: Fuzzy RDD Estimates of the Effect of Naturalization on Long-Term Social Integration (without Covariates)

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Dis-crimination	Club Membership	Swiss Newspapers
Naturalized	0.74	0.87	-0.31	0.02	0.88
	(0.35)	(0.43)	(0.28)	(0.24)	(0.58)
Margin	-0.01	-0.01	0.01	0.00	-0.02
	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)
Margin × Above 50%	0.00	-0.02	-0.01	0.01	0.01
	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)
Observations	459	470	469	474	467

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants within a ±15% window. All models control for the vote margin and the interaction of the vote margin with the instrument. Robust standard errors in parentheses.

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Table B.7: Fuzzy RDD Estimates of the Effect of Naturalization on Long-Term Social Integration (with Covariates)

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Discrimination	Club Membership	Swiss Newspapers
Naturalized	0.63	0.63	-0.37	0.05	0.63
	(0.31)	(0.41)	(0.27)	(0.22)	(0.52)
Margin	0.01	0.02	0.00	-0.00	0.01
	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)
Margin × Above 50%	-0.02	-0.04	0.00	0.01	-0.02
	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)
Country of Origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	456	467	466	471	464

Note: Table shows instrumental variables regressions (1) − (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants within a ±15% window. All models control for the vote margin and the interaction of the vote margin with the instrument, country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.8: Effect of Naturalization on Long-Term Distrust

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Outcome: Distrust for the	judicial system	local authorities	people	judicial system	local authorities	people	judicial system	authorities	people
Naturalized	-0.03	-0.03	-0.01	0.01	0.03	0.05	0.00	0.03	-0.02
	(0.05)	(0.05)	(0.05)	(0.13)	(0.12)	(0.12)	(0.14)	(0.13)	(0.12)
Margin				0.00	-0.00	-0.00	0.00	-0.00	-0.00
				(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Margin × Above 50%				-0.01	0.00	0.00	-0.00	0.00	0.01
				(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Country of Origin	✓	✓	✓				✓	✓	✓
Sociodemographics	✓	✓	✓				✓	✓	✓
Time period FE	✓	✓	✓		✓		✓	✓	
Municipality FE	✓	✓	✓			✓	✓	✓	
Observations	459	465	466	459	465	466	462	468	469

Note: Table shows instrumental variables regressions of measures of distrust for the (i) judicial system (Models 1, 4, 7), (ii) local authorities (Models 2, 5, 8), and (iii) people (Models 3, 6, 9), on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants within a ±15% window. Models 1-3 are instrumental variables regressions controlling for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Models 4-6 are fuzzy RDD regressions without covariates that control for the vote margin and the interaction of the vote margin with the instrument. Models 7-9 are fuzzy RDD regressions with covariates that control for country of origin, all sociodemographics, fixed effects for each time period and municipality, and the vote margin and the interaction of the vote margin with the instrument. Robust standard errors in parentheses.

Table B.9: 2SLS Estimates of the Effect of Naturalization on Distrust for Applicants from (Former) Yugoslavia or Turkey

Model	(1)	(2)	(3)
Outcome: Distrust for the	judicial system	local authorities	people
Naturalized	-0.05	-0.06	0.06
	(0.06)	(0.07)	(0.06)
Country of Origin	✓	✓	✓
Sociodemographics	✓	✓	✓
Time period FE	✓	✓	✓
Municipality FE	✓	✓	✓
Observations	314	316	316

Note: Table shows instrumental variables regressions of outcomes (1) – (3) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants from (former) Yugoslavia or Turkey and within a ±15% window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.10: 2SLS Estimates of the Effect of Naturalization on Distrust for Applicants not from (Former) Yugoslavia or Turkey

Model	(1)	(2)	(3)
Outcome: Distrust for the	judicial system	local authorities	people
Naturalized	0.02	0.11	0.06
	(0.11)	(0.09)	(0.11)
Country of Origin	✓	✓	✓
Sociodemographics	✓	✓	✓
Time period FE	✓	✓	✓
Municipality FE	✓	✓	✓
Observations	145	149	150

Note: Table shows instrumental variables regressions of outcomes $(1) - (3)$ on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants from (former) Yugoslavia or Turkey and within a $\pm 15\%$ window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

J. Subgroup Analysis

Table B.11: 2SLS Estimates of the Effect of Naturalization for Applicants from (Former) Yugoslavia or Turkey

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Dis- crimination	Club Membership	Swiss Newspapers
Naturalized	0.52	0.50	-0.30	0.14	0.57
	(0.15)	(0.23)	(0.14)	(0.13)	(0.27)
Country of Origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	311	316	315	318	315

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants not from (former) Yugoslavia or Turkey and within a ±15% window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.12: 2SLS Estimates of the Effect of Naturalization for Applicants not from (Former) Yugoslavia or Turkey

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Dis- crimination	Club Membership	Swiss Newspapers
Naturalized	0.06	0.11	-0.06	0.27	-0.13
	(0.18)	(0.19)	(0.17)	(0.20)	(0.38)
Country of Origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	145	151	151	153	149

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants not from (former) Yugoslavia or Turkey and within a ±15% window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.13: 2SLS Estimates of the Effect of Naturalization for Applicants born in Switzerland

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Discrimination	Club Membership	Swiss Newspapers
Naturalized	0.09	0.02	-0.20	0.08	0.03
	(0.18)	(0.25)	(0.15)	(0.18)	(0.29)
Country of Origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	95	95	95	95	95

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants who are born in Switzerland and within a $\pm15\%$ window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.14: 2SLS Estimates of the Effect of Naturalization for Applicants not born in Switzerland

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Discrimination	Club Membership	Swiss Newspapers
Naturalized	0.59	0.72	-0.26	0.06	0.53
	(0.17)	(0.23)	(0.14)	(0.14)	(0.28)
Country of Origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	361	372	371	376	369

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants who are not born in Switzerland and within a $\pm15\%$ window. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status), and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Table B.15: 2SLS Estimates of the Effect of Naturalization for Applicants not born in Switzerland or from (Former) Yugoslavia or Turkey by Skill Level

Model	(1)	(2)	(3)	(4)
Outcome	Integration Scale			
Sample	Not Born in Switzerland		From Yugoslavia or Turkey	
Skill level	Medium/High	Low	Medium/High	Low
Naturalized	0.55	0.46	0.51	0.60
	(0.22)	(0.28)	(0.19)	(0.35))
Country of Origin	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓
Observations	155	149	113	132

Note: Table shows instrumental variables regressions of social integration scale on naturalization status, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all applicants within a $\pm15\%$ window. Model (1) focuses on medium and high skilled applicants not born in Switzerland; Model (2) on low skilled applicants not born in Switzerland; Model (3) on medium and high skilled applicants from (former) Yugoslavia or Turkey; Model (4) on low skilled applicants from (former) Yugoslavia or Turkey. All models control for country of origin, all sociodemographics (gender, age, children, marital status, education, years since immigration, refugee status, language competencies, integration status) and are subsetted by occupational skill level. Robust standard errors in parentheses.

K. Robustness tests for different bandwidths

Figures B.3 and B.4 show the estimated effects for various bandwidth to trim the estimation sample based on the margin of victory.

Figure B.3: Robustness Tests for Different Bandwidths IV
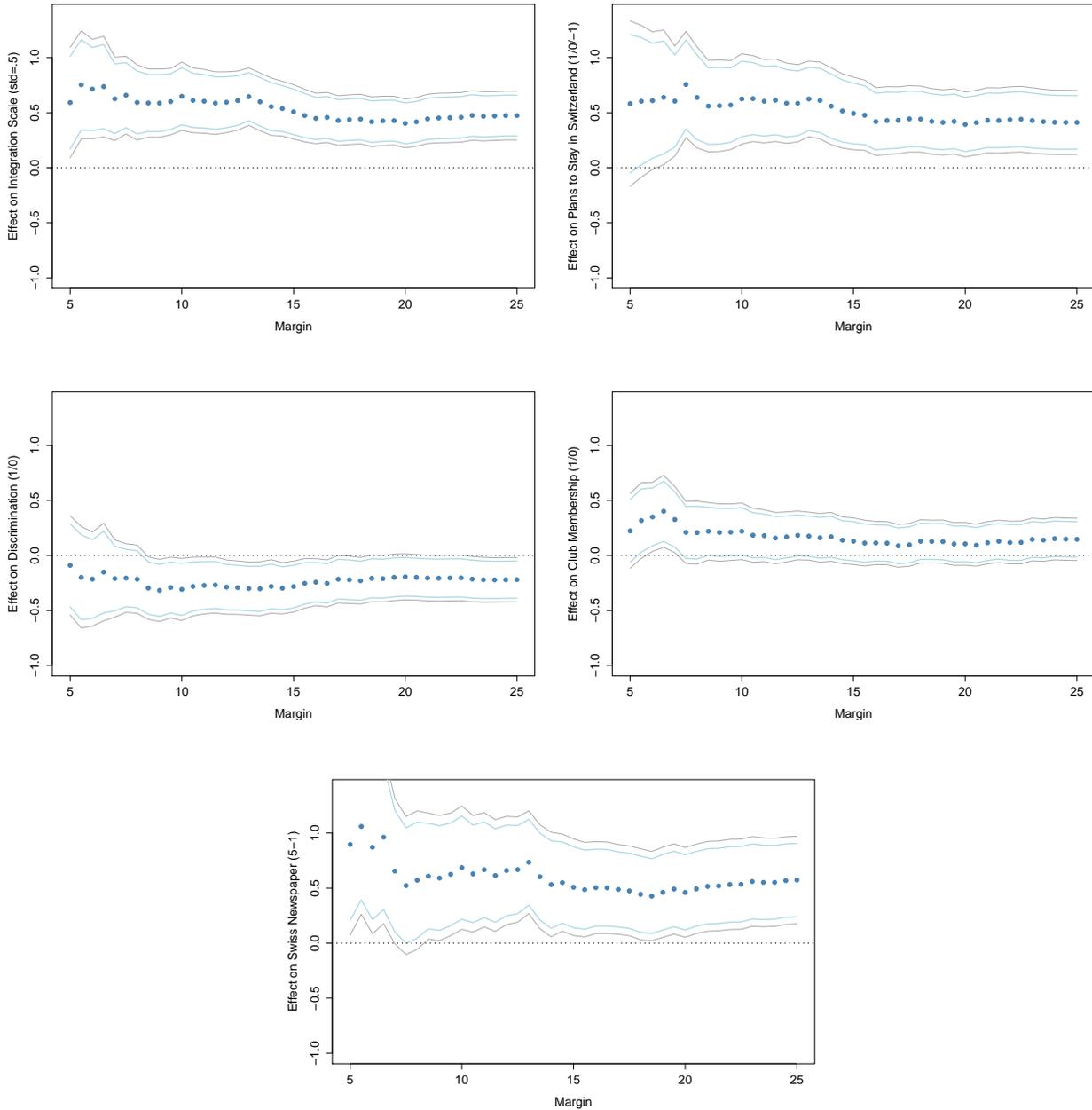
This figure shows the estimated effect of naturalization on each outcome as a function of the bandwidth for the instrumental variables regression. The blue dots indicate the point estimates based on the sample within the corresponding value of the forcing variable (margin), and blue and dark grey lines the 90% and 95% confidence intervals, respectively. Outcomes: social integration scale (std=0.5); plans to stay in Switzerland (1/0/-1); discrimination (1/0); membership in social club (1/0); reading Swiss newspapers (5-1). The following covariates are used as controls: gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status, country of origin, and fixed effects for each municipality and time period.

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Figure B.4: Robustness Tests for Different Bandwidths Fuzzy RDD
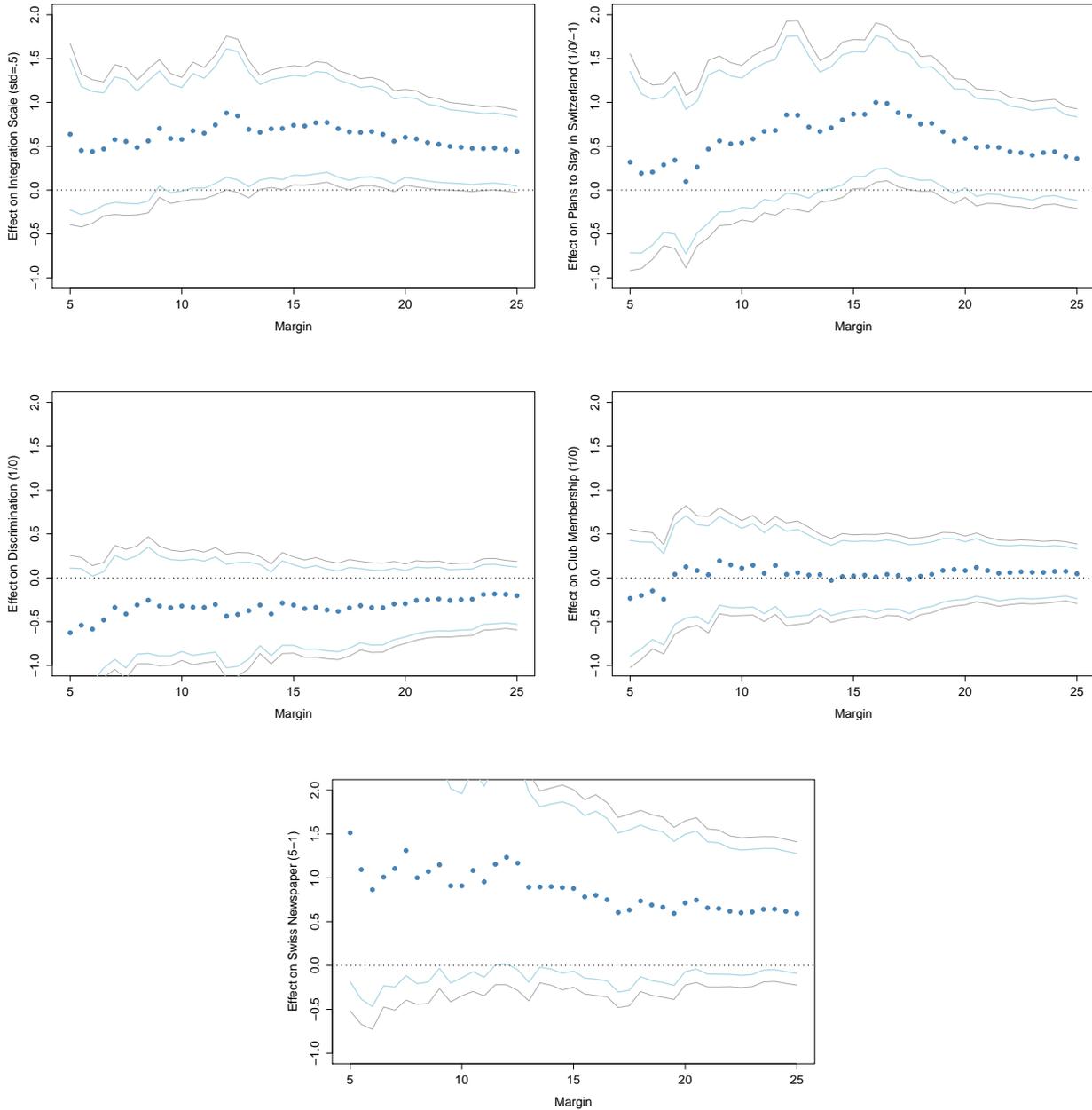
This figure shows the estimated effect of naturalization on each outcome as a function of the bandwidth for the fuzzy RDD regression. The blue dots indicate the point estimates based on the sample within the corresponding value of the forcing variable (margin), and blue and dark grey lines the 90% and 95% confidence intervals, respectively. Outcomes: social integration scale (std=0.5); plans to stay in Switzerland (1/0/-1); discrimination (1/0); membership in social club (1/0); reading Swiss newspapers (5-1). The following covariates are used as controls: gender, age, children, marital status, education, occupation skill level, years since immigration, refugee status, language competencies, integration status, country of origin, and fixed effects for each municipality and time period.

L. Early vs Late Naturalization

L.1. First Stage: Early vs Late Naturalization

Table B.16 shows that the effect of narrowly winning or losing the first referendum on early versus late naturalization. We find that winning over losing the first referendum increases the number of years that applicants are Swiss by about 48 percent (which amounts to roughly four more years over the average) and a decrease of .27 in the probability of being Swiss for more than 13 years (the sample median used as the cutpoint).

Table B.16: First-Stage Effect of Winning First Referendum on Number of Years with Swiss Citizenship

Mean outcome	.48	2.59
	(1)	(2)
Outcome	Years Swiss ≥ 13	Years Swiss (Logged)
Above 50%	0.27	0.48
	(0.06)	(0.07)
Country of Origin	✓	✓
Sociodemographics	✓	✓
Residency in Switzerland	✓	✓
Time period Fixed Effects	✓	✓
Municipality Fixed Effects	✓	✓
Window size	±15%	±15%
Stock and Yogo F-test	20.73	48.81
p-value	0.00	0.00
Observations	390	390

Note: Table shows two-stage least squares regressions of the number of years with the Swiss passport on a binary instrument (=1 if vote share margin above 50 %). Model (1) shows the first stage results for the log of the years with the Swiss passport, model (2) shows the same regression but uses a binary indicator for more (less) than 13 years with the Swiss passport. Both models control for applicant's country of origin, sociodemographics, a categorical indicator for residency at time of interview, and fixed effects for each time period and municipality. Sample: all applicants within a window ± 15%. Robust standard errors in parentheses.

L.2. Treatment Effects: Early vs Late Naturalization

Table B.17: 2SLS Estimates of the Effect of Early Versus Late Naturalization (Continuous Treatment)

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Dis-crimination	Club Membership	Swiss Newspapers
Years Swiss (Logged)	0.36	0.43	-0.12	0.11	0.40
	(0.13)	(0.16)	(0.12)	(0.11)	(0.22)
Country of origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Residency in Switzerland	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	379	387	387	390	384

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on log of the number of years with the Swiss passport, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all naturalized applicants within a ±15% window. All models control for country of origin, sociodemographic, a categorical indicator for residency at time of interview, and fixed effects for each time period and municipality. Robust standard errors in parentheses.
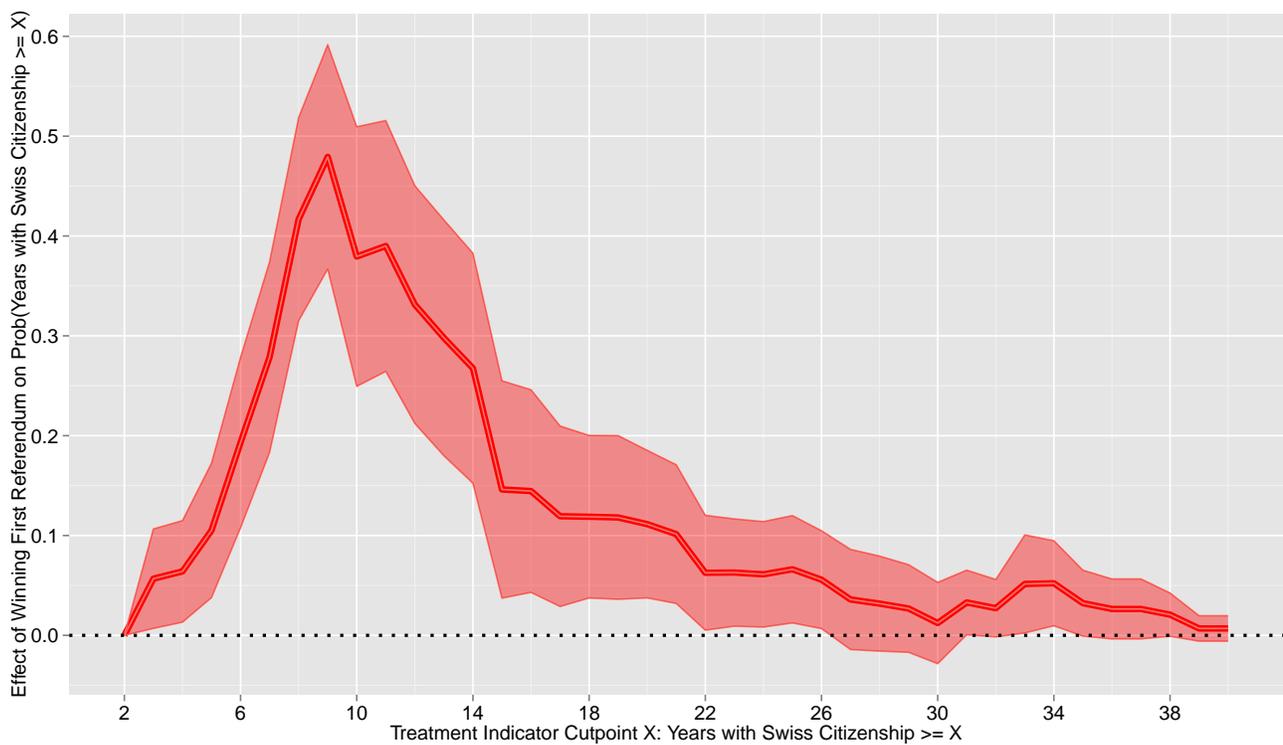
Table B.18: 2SLS Estimates of the Effect of Early Versus Late Naturalization (Binary Treatment)

Model	(1)	(2)	(3)	(4)	(5)
Outcomes	Integration Scale	Stay in Switzerland	Report Dis-crimination	Club Membership	Swiss Newspapers
Years Swiss $\geq$ 13	0.64	0.76	-0.21	0.20	0.72
	(0.25)	(0.31)	(0.22)	(0.21)	(0.42)
Country of origin	✓	✓	✓	✓	✓
Sociodemographics	✓	✓	✓	✓	✓
Residency in Switzerland	✓	✓	✓	✓	✓
Time period FE	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓
Observations	379	387	387	390	384

Note: Table shows instrumental variables regressions of outcomes (1) – (5) on a binary indicator for more (less) than 13 years with the Swiss passport, instrumented by getting more (less) than 50 % of "yes" votes in first referendum, for all naturalized applicants within a ±15% window. All models control for country of origin, sociodemographic, a categorical indicator for residency at time of interview, and fixed effects for each time period and municipality. Robust standard errors in parentheses.

Figure B.5 displays the first-stage estimates of the difference in the probability of being naturalized for a given number of years for immigrants who won or lost their first referendum. We can see that the first stage estimates are strongest for the years 7 to 14, where the compliance rate is between 25 % and 45 %. For this period, Figure B.6 displays the second-stage estimates of the effect of being naturalized for a given number of years on the social integration scale. We find that the effects of these binary indicators of early versus late naturalization are similar regardless of the precise cut-point we use and are significant and large in substantive terms; the equivalent of a full standard deviation increase on the social integration scale.

Figure B.5: Effect of Winning First Referendum on Early vs Late Naturalization

Figure B.6: Effect of Early vs Late Naturalization on Social Integration Scale
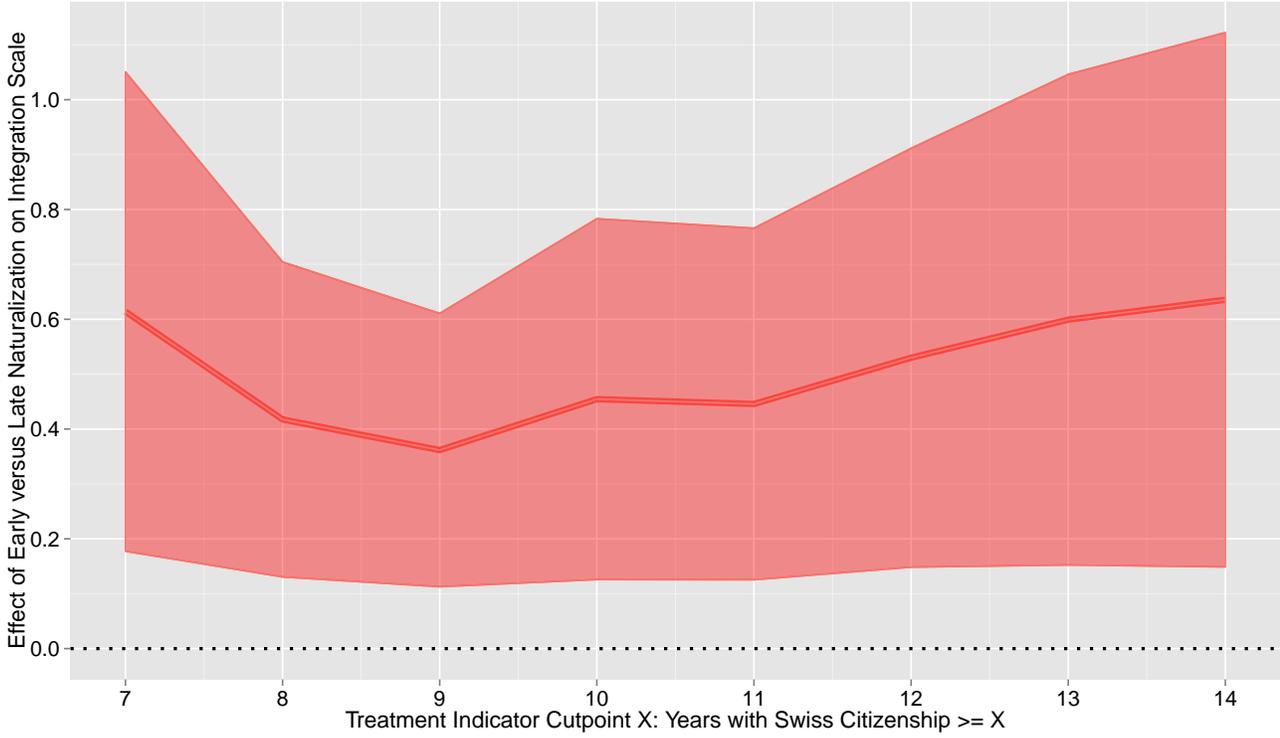
Note: The figure shows second stage estimates of the effect of being naturalized for longer or equal to the number of years on the *x*-axis on the social integration scale. The solid black line shows the point estimates, and the shaded area the 95 % confidence interval based on robust standard errors.

L.3. SENSITIVITY ANALYSIS: EARLY VS LATE NATURALIZATION

One potential concern with our identification strategy to estimate the effect of early versus late naturalization is that the group of immigrants that was naturalized in the first referendum consists of both always-takers, i.e. immigrants that if rejected the first time would successfully apply later, and compliers, i.e. immigrants that remain unnaturalized if rejected the first time, while the group of rejected applicants that was naturalized in a later attempt consists, by definition, of only always-takers. Note that the compliance groups here are defined with regard to naturalization per se, not early versus late naturalization. In order to gauge the sensitivity of our results to differences between the potential outcomes of compliers and always-takers, we inspect the standard two-stage least-squares IV estimator:

$$\alpha = \frac{E[Y|Z=1,X] - E[Y|Z=0,X]}{E[D|Z=1,X] - E[D|Z=0,X]} \ , \tag{1}$$

where Y is the social integration scale, D is the log of the years with the Swiss passport, and $Z=1$ if applicant passed the first naturalization referendum and 0 otherwise. While $E[Y|Z=1,X]$ and $E[D|Z=1,X]$ consist of both compliers, C, and always-takers, A, that were naturalized in their first referendum, $E[Y|Z=0,X]$ and $E[D|Z=0,X]$ consist only of always-takers that were naturalized in a later attempt. Immigrants that were rejected in the first referendum but have obtained citizenship

by the time of interview are, by definition, alwaus-takers, hence $E[Y|Z = 0, X] = E[Y|Z = 0, X, A]$ and $E[D|Z = 0, X] = E[D|Z = 0, X, A]$. If the potential outcomes are different for always-takers and compliers, α may exhibit bias. To inspect the sensitivity to this bias, we rewrite the first term $E[Y|Z = 1, X]$ as a weighted average of always-takers and compliers:

$$E[Y|Z = 1, X] = E[Y|Z = 1, X, A]\Pr(A) + E[Y|Z = 1, X, C]\Pr(C) \tag{2}$$

and express this equation in terms of always-takers:

$$E[Y|Z = 1, X, A] = \frac{E[Y|Z = 1, X] - E[Y_1|Z = 1, X, C]\Pr(C)}{\Pr(A)} \tag{3}$$

Under the simplifying assumption that the first stage effect of naturalization in the first attempt on post-naturalization residency years is the same for both always-takers and compliers, i.e. $E[D|Z = 1, X, A] = E[D|Z = 1, X, C]$, we can write equation 1 in terms of always-takers only:

$$
\begin{aligned}
\tilde{\alpha} &= \frac{E[Y|Z = 1, X, A] - E[Y|Z = 0, X, A]}{E[D|Z = 1, X, A] - E[D|Z = 0, X, A]} \\
&= \frac{\frac{E[Y|Z=1,X] - E[Y|Z=1,X,C]\Pr(C)}{\Pr(A)} - E[Y|Z = 0, X, A]}{E[D|Z = 1, X, A] - E[D|Z = 0, X, A]}
\end{aligned}
\tag{4}
$$

Since we cannot distinguish always-takers and compliers in the group that passed the first referendum, we also cannot identify $E[Y|Z = 1, X, C]$ or $\tilde{\alpha}$ directly. However, we can employ a sensitivity analysis that tells us how much bigger (smaller) $E[Y|Z = 1, X, C]$ than $E[Y|Z = 1, X, A]$ would have to be in order to render $\tilde{\alpha}$ i) insignificant or ii) equal to 0. We incorporate the sensitivity parameter

$$\gamma = \frac{E[Y|Z = 1, X, C]}{E[Y|Z = 1, X, A]} \tag{5}$$

directly into equation 4:

$$\tilde{\alpha}(\gamma) = \frac{\frac{E[Y|Z=1,X] - \gamma E[Y|Z=1,X,A]\Pr(C)}{\Pr(A)} - E[Y|Z = 0, X, A]}{E[D|Z = 1, X, A] - E[D|Z = 0, X, A]} \tag{6}$$

such that we can calculate the value of γ that gives us $\tilde{\alpha}(\gamma)/\text{SE}(\tilde{\alpha}) = 1.96$ and $\tilde{\alpha}(\gamma) = 0$, respectively. By plugging in the sample analogues (of subsection E) in equation 6, we produce Figure B.7 and find that it would take $\gamma > 3.15$ to render $\tilde{\alpha}(\gamma)$ insignificant and $\gamma > 8$ to turn $\tilde{\alpha}(\gamma) = 0$.

Figure B.7: Sensitivity Analysis for the Effect of Early versus Late Naturalization on Long Term Social Integration
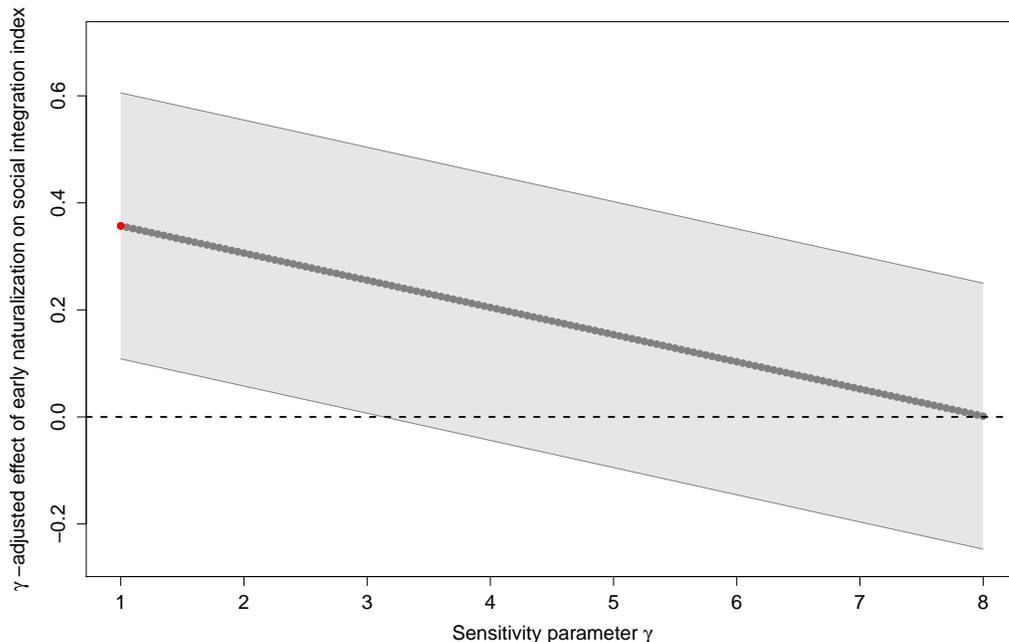
Note: Sensitivity analysis for the adjusted effect estimates with robust 95% confidence intervals based on a two-stage least squares regression for different values of *gamma*.

We believe the integration potential of always-takers to be, if anything, higher than that of compliers, such that $\gamma \leq 1$, because unlike compliers, always-takers were willing to repeatedly invest in their naturalization. Therefore, we think that it is extremely unlikely that the average of the social integration scale is more than three times larger for the latter compared to the former group.

References

Bechtel, Michael M, Jens Hainmueller, Dominik Hangartner and Marc Helbling. 2015. "Reality Bites: The Limits of Framing Effects for Salient and Contested Policy Issues." *Political Science Research and Methods.* doi:10.1017/psrm.2014.39.

Hainmueller, Jens and Daniel J. Hopkins. 2015. "The Hidden American Immigration Consensus: A Conjoint Analysis of Attitudes toward Immigrants." *American Journal of Political Science* 59(3):529-548.

Howard, Marc Morjé. 2005. "Variation in Dual Citizenship Policies in the Countries of the EU." *International Migration Review* 39(3):697-720.

Olsson, Ulf. 1979. "Maximum likelihood estimation of the polychoric correlation coefficient." *Psychometrika* 44(4):443-460.