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Abstract:

We provide evidence that citizenship catalyzes the long-term economic integration of immigrants. Despite the relevance of citizenship policy to immigrant integration, we lack a reliable understanding of the economic consequences of acquiring citizenship. To overcome non-random selection into naturalization, we exploit the quasi-random assignment of citizenship in Swiss municipalities that held referendums to decide the outcome of individual naturalization applications. Our data combines individual-level referendum results with over 30 years of detailed social security records from the Swiss authorities. This allows us to compare the long-term earnings of otherwise similar immigrants who barely won or lost their referendum. We find that winning Swiss citizenship in the referendum increased annual earnings by an average of approximately 5,000 U.S. dollars over the subsequent 15 years. This effect is concentrated among more marginalized immigrants.

Summary:

Naturalization catalyzes the long-term economic integration of marginalized immigrants.
Many countries have experienced sharp increases in the size and diversity of their immigrant populations in the last decade, prompting governments to reevaluate their immigration and integration policies. Much is at stake in this process. Successful integration opens the door for immigrants to economically benefit their host countries (1). Unsuccessful integration can fuel social conflict and undermine cohesion, given widespread perceptions that immigrants threaten their host country’s culture, security, and social safety net (2, 3). At a personal level, marginalization from the host country society and economy imperils immigrants’ social, mental, and economic well-being (4, 5).

Central to integration is the issue of immigrants’ access to host-country citizenship (6–8). Two conflicting viewpoints structure debates about citizenship policy. One side argues that naturalization itself does not improve integration but rather is the end point of the integration process. According to this view, strict requirements for access to citizenship, such as long residency, language proficiency, and economic self-sufficiency, incentivize integration (9). The other side holds that naturalization improves the integration of immigrants, inspiring them to invest in a future in the host country (9–11) and reducing the discrimination they face in the local labor market (12, 13). This side suggests that expanding immigrants’ access to citizenship facilitates integration.

Does gaining citizenship actually improve outcomes for immigrants? If so, how long does it take for the benefits of citizenship to materialize? And how do the effects vary across immigrant groups? Several studies focusing on economic integration—an important outcome in itself, but also a stepping stone for other dimensions of successful integration (14)—demonstrate important links between naturalization and immigrants’ short-term economic outcomes, such as wages and employment (10, 15–20). Yet, little is known about citizenship’s long-term effects, despite their importance for policy.

Two challenges stand in the way of estimating long-term effects. First, we must isolate the
effect of citizenship from the two-stage selection bias that determines which immigrants apply for and receive citizenship (9, 11). This is challenging because researchers typically cannot control for the myriad of unobserved factors that lead immigrants to apply for citizenship and that lead decision-makers to approve applications (9, 21–24). Second, data constraints have largely prevented researchers from measuring long-term effects of citizenship. Many studies rely on surveys that typically limits analyses to short-term effects and raises concerns about the accuracy of self-reported earnings (25). And studies that have used register data frequently lack information on whether and when immigrants have applied for citizenship, which makes it difficult to account for the two stages of selection bias.

We address these gaps and provide causal evidence on the effects of citizenship on the long-term earnings of immigrants. We leverage a natural experiment in Switzerland, where some municipalities held municipality-wide referendums on the citizenship applications that met the eligibility requirements (including sufficient residency, a clean criminal record, and economic self-sufficiency). Voters received a leaflet containing detailed information about each application, including the applicant’s name, origin country, gender, age, length of residency in Switzerland, and language skills, and then cast a secret ballot to approve or reject each application. An example leaflet is shown in the Supplementary Materials (SM) Figure S.1. Applicants receiving a majority of “yes” votes received Swiss citizenship; rejected applicants kept their permanent residency status and could apply for citizenship again, if they so chose.

This natural experiment allows us to apply two complementary research designs to overcome the double selection bias: a regression discontinuity (RD) design and a difference-in-differences (DD) design. In both designs, we remove the first-stage selection bias, from non-random selection into the application process, by restricting the analysis to successful and unsuccessful applicants. In the RD design, which prior research has shown to have high internal validity and the ability to replicate benchmark results from randomized experiments (26), we
compare applicants who narrowly won or lost their naturalization referendums to remove the second-stage selection bias. Success in close referendums was largely decided by arbitrary factors, such as current events, other referendums being decided at the same election, or even the weather on election day. Consequently, applicants who won or lost by just a few votes were similar on confounding characteristics, and comparisons of their post-referendum earnings represent the causal effect of winning citizenship in the referendum. For the DD design, we overcome the second-stage selection bias by leveraging the panel dimension of our data and compare the trajectories of pre- and post-referendum outcomes of successful and unsuccessful applicants whose vote margins were within a narrow margin. This allows us to examine whether the earnings trends of winners and losers were similar prior to the referendum and then diverged afterward.

Our data combines detailed records from referendums and leaflets that we extracted from municipal archives to identify all 4,160 immigrants whose naturalization applications were decided in the 46 municipalities that used the secret ballot referendum process between 1970 and 2003 (27). From these records, we observe the number of “yes” and “no” votes each applicant received and the information available to voters from the leaflets when they voted in the referendums, including the applicant’s name, birth year, gender, referendum year, and origin country. To measure applicants’ economic outcomes, we worked with the Swiss Central Compensation Office (CCO) to match applicants to records of their mandatory contribution to the Swiss pension system (Old Age and Survivors’ Insurance; OASI) on the basis of their name and date of birth. CCO successfully matched 92% of applicants to the OASI data; the match rate was roughly the same among close referendum winners and losers (Figure S.2). The de-identified matched dataset we received from CCO contains only the OASI information, birth year, gender, referendum year, grouped origin country, rounded vote share, and referendum outcome from the archival records.
The OASI data allows us to track the earnings of matched applicants before and after their naturalization referendums, as all adults between 18 and 65 years of age who live in Switzerland are required to contribute a fixed percentage of their annual income to the OASI. Our primary outcome is each applicant’s annual total earnings from all forms of employment, measured in 2015 consumer price index (CPI) adjusted Swiss Francs (CHF; 1 CHF ≈ 1 US dollar). We exclude non-employment earnings such as income from pensions, scholarships, or disability or unemployment benefits. We observe earnings from 1981 through 2015. Our matched sample includes \( N = 3,814 \) applicants and a total of \( N = 42,160 \) annual applicant observations. Details about the measures, sample, design, and statistical analysis can be found in the materials and methods section of the SM.

Figure 1 shows the results from applying the RD and the DD designs to the matched dataset. Winning citizenship in the referendum increased the long-term earnings of these immigrants. The top-left panel shows a placebo check for the RD design. We find no discernible difference in the earnings of applicants who just barely won or lost their referendums during the pre-referendum period. In contrast, the top-right panel shows that in the post-referendum period, applicants who just barely won achieved higher earnings than those who just barely lost. The bottom-left panel shows that the DD design yields similar results. Focusing on applicants within a 40–60% “yes” vote range, winners’ and losers’ earnings trends were parallel in the five years prior to the referendum but diverged in the years after. Applicants who became citizens enjoyed sustained earnings growth; applicants who lost experienced stagnation followed by earnings losses (in real terms) 11–15 years after their referendums.

The bottom-right panel of Figure 1 shows point estimates and confidence intervals from both the RD and DD designs for the placebo check on pre-referendum earnings as well as for
the short- and long-term effects of winning the citizenship referendum. For the RD design, the estimates are based on standard local linear regressions fitted to applicants who won or lost by ±10 percentage points. There was no discernible difference in the earnings of referendum winners and losers over the five years prior to the referendum \((p=0.599)\). Winning the referendum increased average annual earnings by 3,024 CHF for the five years following the referendum \((p=0.320)\), by 5,105 CHF for the period six to ten years after the referendum \((p=0.124)\), and by 7,958 CHF for the period 11 to 15 years after the referendum \((p=0.036)\). Estimated over the entire 15-year post-referendum period, the effect of winning citizenship on average annual earnings was 5,637 CHF \((p=0.045)\). This amounts to an increase of approximately 13.6% percent over the average post-referendum earnings of narrowly rejected applicants. The DD design estimates are based on a standard panel regression with applicant and year fixed-effects. Similar to the RD design estimates, there was no discernible difference in the earning trends for the five years prior to the referendum \((p=0.897)\), but winning the referendum increased annual earnings by CHF 706 \((p=0.586)\), CHF 3,115 \((p=0.178)\), and CHF 6,393 \((p=0.036)\) for the five, six to ten, and 11 to 15 year periods following the referendum. The estimate for the effect of referendum success on annual earnings over the entire 15-year period was CHF 4,422 \((p=0.004)\). Several checks support the robustness of the results including changes to the earnings adjustments (SM Figure S.5, Tables S.7 and S.8), regression specifications (SM Tables S.9-S.12), and varying the bandwidths for the estimation samples (SM Figures S.6 and S.7).

What mechanisms explain the sizable long-term effect of citizenship on earnings? One possibility is that the earnings differences do not represent a positive effect of citizenship but rather a negative effect of alienation felt by rejected applicants. Several points cast doubt on this explanation. Losing the referendum did not affect unsuccessful applicants’ permanent residency status, and they faced no new restrictions to labor market access or the security of their residence in Switzerland. Consistent with this, rejected applicants’ pre- and post-referendum earnings are
relatively similar (Figure 1, panels A and B), and we observe rejected applicants throughout the post-referendum period at similar rates as accepted applicants (SM Figure S.3). This suggests that losing the referendum did not make them more likely to leave Switzerland. In addition, the earnings trend of rejected applicants begin to look different from successful ones only in the medium- to long-term, and not in the immediate aftermath of the referendum, when an alienation effect would be expected to be strongest.

Alternatively, citizenship may lead to higher earnings by reducing the discrimination immigrants face in the labor market. In Switzerland, employers and search engines typically expect job applicants to report their citizenship, making citizenship status a visible criteria that can factor into the screening of applications. Statistical discrimination (28, 29) occurs when employers wrongly assume that non-naturalized immigrants are lower-skilled and less likely to remain in Switzerland, and then decline to hire, promote, or invest in them based on these assumptions. Acquiring citizenship, because it is costly and requires meeting criteria regarding residency, economic self-sufficiency, and language skill, sends employers a reliable signal of successful integration and commitment to permanent settlement in Switzerland (30). Alternatively, discrimination against immigrants may be “taste-based” (31), i.e. driven by employers’ real prejudice and animus against particular origin groups.

If citizenship improves earnings by reducing discrimination in the labor market, we would expect citizenship to be more beneficial to immigrants belonging to groups most often subjected to discrimination. Consistent with this mechanism, we find that when replicating our analyses for different origin groups, the earnings gains from winning the citizenship referendum are concentrated among immigrants from Turkey and Yugoslavia, whom previous research has identified as as two of the most marginalized immigrant groups in Switzerland (32). Specifically, winning the citizenship referendum increased these immigrants’ annual earnings by CHF 10,721 ($p=0.003$; RD design), while there is no discernible effect for immigrants from other
countries ($p=0.972$; RD design).

Immigrants at the lower quantiles of the earnings distribution, who primarily work in low-skill jobs, comprise another group with a higher likelihood of facing discrimination in the labor market (33). Figure 2 shows the effect of winning citizenship in the referendum at three different quantiles—25th, 50th, and 75th—of the earnings distribution. We find that the gains in earnings from citizenship are largest at the 25th percentile of the earnings distributions. Quantile difference-in-differences regressions, reported in the SM Table S.15, indicate that the annual earnings boost from naturalization is stronger at the 25th percentile (CHF 3,293, $p=0.001$) than at the median (CHF 1,706, $p=0.004$) and at the 75th percentile (CHF 727, $p=0.215$). These results are consistent with the discrimination mechanism, suggesting that citizenship is most beneficial for immigrants with lower earnings.

We provide evidence that naturalization improves immigrants’ earnings over the long term. Leveraging a quasi-experiment that compares similar immigrants who were divided by just a few votes at the time of their naturalization referendum, we found that those who barely won a Swiss passport had higher earnings up to fifteen years later compared to those who barely lost their referendum. This finding is perhaps the clearest evidence to date that citizenship catalyzes immigrants’ long-term economic success, at least in the context of Switzerland. In addition, we find evidence that citizenship is beneficial particularly for more marginalized groups, i.e., immigrants from Turkey and Yugoslavia, as well as those with lower earnings. These findings support the argument that citizenship alleviates some of the labor-market discrimination that impedes immigrant integration.

At a time when governments around the world are striving to design policies that facilitate the integration of large and diverse immigrant populations, our study shows that awarding host country citizenship can create lasting economic returns. These returns not only benefit immigrants themselves; they also can strengthen host communities by increasing tax revenues and
lowering welfare spending. While our study advances understandings of the causal effects of citizenship, more work is necessary to identify its benefits in other contexts and to evaluate the impact of lowering barriers to citizenship, such as lengthy residency requirements or naturalization fees (34).
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Fig. 1: **Citizenship acquisition increases immigrant earnings in the long-term.** Panel A: Placebo test shows no significant differences in earnings between immigrants who barely won or lost their citizenship referendum in the last five years before the referendum ($N=1,340$). Panel B: Regression discontinuity estimate shows sizable and significant differences in earnings between immigrants who barely won or lost their citizenship referendum in the years after the referendum ($N=2,264$). Panel C: The 20-year earning trends spanning the time period before and after the naturalization referendum shows an increasing earnings gap between immigrants who won or lost their referendum (Applicants in 40–60% “yes” vote range; $N=10,734$). Panel A-C show loess smoother and 95% confidence intervals. Panel D: Point estimates for the regression discontinuity and difference-in-differences regressions and 90% (thick line) and 95% (thin line) confidence intervals.
Fig. 2: **Naturalization effect is largest for lower earning quantiles.** Comparing immigrants who barely won or lost their citizenship referendum at the 25th, 50th, and 75th earnings percentile, point estimates and 95% confidence intervals show that the relative and absolute effect of winning citizenship in the referendum is largest for poorer immigrants ($N=10,734$).
Supplementary Materials

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Material and Methods

Institutional Background

Standard Swiss practice is for citizenship applications to be decided at the municipal level, with procedures for resolving applications varying across municipalities (27, 32). Immigrants who seek Swiss citizenship have to apply with the municipality in which they reside. We base our study on the set of municipalities, which we call the “ballot box municipalities”, that decided naturalization requests with secret-ballot referendums (32). In the ballot box municipalities, immigrants seeking naturalization submitted an application to local authorities, who then checked whether the applicant met the formal requirements. Eligible applicants then had their requests voted on by the citizen population. Shortly before the naturalization referendums, resident citizens were sent official leaflets with detailed information about each applicant, which voters used to help inform their decision to approve or reject each application. See Figure S.1 for an example leaflet. Applicants receiving majority “yes” votes were granted Swiss citizenship. Applicants who did not win majority support were able to reapply again, although the length of the application process meant that they typically would not have another referendum for some years. See (9, 11) for more details about the process. These companion studies leverage a targeted survey of barely accepted and barely rejected applicants to show that citizenship has a long-term positive effect on political and social integration. In addition, (32) analyze the impact of the information in the leaflets of applicant’s chances of having their application approved. Contrary to Swiss naturalization law, which says that integration status and language skills should matter most, they find that country of origin was actually the most important predictor of application success.
Translation of leaflet shown in Figure S.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.
**Data**

We base our sample on data collected by (32). They retrieved records of referendums and leaflet information from municipal archives for all immigrants whose naturalization applications were put to public vote in all 46 ballot-box municipalities between 1970 and 2003, when the Swiss Supreme Court struck down the procedure as unconstitutional (27). In total, our sample from the municipal archives contains $N = 4,160$ applicants.

From the voting leaflets, we observe a rich set of pre-referendum covariates. Because this is the same information available to voters when they voted in the naturalization referendums, it is effectively the set of covariates which determined whether applicants did or did not receive citizenship. This set included, among others, applicants’ birth year, gender, referendum year, and origin country. We then connected the leaflet measures to the percentage of “yes” votes received in referendums. To add measures of post-referendum economic outcomes to the sample, we worked with the Swiss Central Compensation Office (CCO; Zentrale Ausgleichsstelle) to match applicants to records of their mandatory contribution to the Swiss pension system (Old Age and Survivors’ Insurance; OASI *Alters- und Hinterlassenenversicherung*) from 1981 through 2015 on the basis of their name and date of birth. CCO successfully matched 92% of applicants to the OASI data; the match rate is balanced between close referendum winners and losers (Figure S.2). The de-identified matched dataset we received from CCO contains only the OASI information, birth year, gender, referendum year, grouped origin country, rounded vote share, and referendum outcome from the archival records.

Because CCO was not able to match 100% of our referendum records to OASI records, this raises the concern that our ability to match the data may be correlated with passing the naturalization referendum, which would be the case, for example, if rejected applicants were more likely to leave Switzerland. This is not the case. Across the entire sample, CCO matched 92% of the application records to OASI data, corresponding to $N=3,814$ matches and $N=42,160$...
annual applicant observations. Figure S.2 shows that match rate in the neighborhood of the passing threshold; winning and losing applicants in referendums decided by a narrow margin were matched at statistically indistinguishable rates. Table S.1 further shows that the match rate is similar across values of the covariates that we received in the matched dataset.

**Fig. S.2: Match Rate for Archival and OASI Data in Close Referendums**

*Note:* Solid lines are local linear smoothers and shaded areas are corresponding 95% confidence intervals. Points represent match rate for two percentage point bins of Percent “Yes.”
Table S.1: Match Rate for Archival and OASI Data Across Covariates

| Gender          | Match Rate | Origin Country (Grouped) | Match Rate |
|-----------------|------------|---------------------------|------------|
| Men             | 0.92       | Africa                    | 0.85       |
| Women           | 0.92       | Asia                      | 0.94       |
|                 |            | Western Europe            | 0.92       |
|                 |            | Central and Eastern Europe| 0.88       |
|                 |            | Turkey and (former) Yugoslavia | 0.92       |
|                 |            | Southern Europe           | 0.92       |
|                 |            | Other                     | 0.86       |

| Referendum Year | Match Rate | Referendum Age | Match Rate |
|-----------------|------------|----------------|------------|
| 1970 - 1974     | 0.95       | < 20           | 0.90       |
| 1975 - 1979     | 0.89       | 20 - 29        | 0.94       |
| 1980 - 1984     | 0.87       | 30 - 39        | 0.94       |
| 1985 - 1989     | 0.94       | 40 - 49        | 0.93       |
| 1990 - 1994     | 0.91       | 50 - 59        | 0.88       |
| 1995 - 1999     | 0.90       | 60 +           | 0.89       |
| 2000 - 2003     | 0.95       |                |            |

Note: Total sample size is $N = 4,160$ in the archival data and $N = 3,814$ in the matched data. The overall match rate is 0.92.
### Variables

Table S.2: Variable Definitions

| Variable                                | Description                                                                                                                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Percent “Yes” Votes                     | Percentage of “yes” votes in an applicant’s naturalization referendum, rounded to the nearest integer.                                      |
| Margin                                  | The margin of acceptance or rejection in an applicant’s naturalization referendum. Calculated as Percent “Yes” Votes - 50.                       |
| Above 50%                               | An indicator for applicants whose naturalization applications are accepted in their naturalization referendum.                               |
| Referendum Year                         | The year of an applicant’s naturalization referendum.                                                                                       |
| Birth Year                              | The year in which an applicant was born.                                                                                                     |
| Age at Referendum                       | Applicant’s age in the year of his/her referendum. Calculated as Referendum Year - Birth Year                                               |
| Female                                  | An indicator for female applicants.                                                                                                          |
| Origin                                  | Indicator for applicant’s country of origin, grouped into seven categories. The categories are: Africa, Asia, Western Europe, Central and Eastern Europe, Southern Europe, Turkey & (former) Yugoslavia, and Other. |
| Earnings (CHF)                          | Applicant’s annual earnings in Swiss Francs, adjusted for inflation according to the year 2015 consumer price index. Earnings are measured using annual contributions to the OASI and include the following sources of income: wages from employment, wages from self-employment, and capital gains. Earnings (CHF) is top-coded at 200,000 (top-coding occurs after CPI adjustment). |
| Number of Observations, X–Y years after Referendum | The number of times an applicant appears in the data over the set of years specified by X and Y.                                             |
| Calendar Year                           | The year in which an applicant’s earnings are measured.                                                                                       |
| Years since Referendum                  | The number of years before or after an applicant’s referendum in which earnings are measured. Calculated as Calendar Year - Referendum Year |
| Mean Earnings, X–Y years before/after Referendum | The average of Earnings (CHF) over the set of years specified by X and Y.                                                                       |
| Unemployment (Months)                   | Number of months per year in which an applicant receives benefits from unemployment insurance.                                                 |
| Mean Unemployment, X–Y years before/after Referendum | The average of Unemployment (Months) over the set of years specified by X and Y.                                                                |
**Statistical Analysis**

We employ two empirical approaches to estimate the effect of naturalization referendum success: a regression discontinuity (RD) design and a difference-in-differences (DD) design. In our RD approach, we estimate effects by fitting regression models specified as:

\[
Y_i = \delta_t + \beta_1 \text{Above 50%} + \beta_2 \text{Margin} + \beta_3 \text{Above 50%} \times \text{Margin} + \text{[covariates]} + \epsilon_i,
\]

where \(i\) indexes applicants, \(Y\) is one of our outcome variables, \(\delta_t\) represents fixed effects for \textit{Referendum Year}, \(\beta_1\) is the effect of winning the naturalization referendum, \text{[covariates]} is our battery of covariates (grouped \textit{Origin}, \textit{Female}, and a series of binary variables for \textit{Referendum Age}), and \(\epsilon\) is an idiosyncratic error term. We fit these regressions to all applicants who were observed at least once after their referendum within a ± 10% vote share margin, following the method for calculating optimal bandwidths introduced in (35).

One of the key features of this design is the assumption that applicants were not able to manipulate their referendum vote share. Figure S.3 shows that the density of applications is fairly smooth at the threshold, confirming that applicants were not able to manipulate their vote shares. While a formal McCrary density test is not feasible in our context because of the rounding procedure applied to the vote shares to protect the anonymity of the applicants, we can compare the density of applicants at the 50% threshold. Among the applicants falling into the 49.5 to 50.5% range, 52% were accepted and 48% rejected. A two-sided exact binomial test of equality of proportions shows no indication of sorting (\(p\)-value = 0.81).
Fig. S.3: Frequency of Referendum Vote Shares
Fig. S.4: Covariate Balance for Regression Discontinuity Design

Note: Points are p-values from regression models fit using the regression discontinuity specification with one of our covariates as the outcome. Models include all applicants within a ± 10% window.
Our second approach is based on a DD design, but restricts the sample only to close referendums. The standard identifying assumption for a DD design is that there are no time-varying variables that confound the relationship between treatment and potential outcomes, i.e., between referendum success and post-referendum earnings. While this assumption is unlikely to hold when considering the full range of referendum outcomes, or in other contexts that compare citizenship applications decided under more opaque procedures, it is plausible when focusing on close referendums, where applicants are relatively similar apart from their levels of referendum support. For this reason, we focus on the same ± 10% vote share set of applicants in our DD models as we do in our RD models. The exact specification we use for our DD models is:

\[ Y_{it} = \alpha_i + \delta_t + \beta \text{ Above 50\%} \times 1(\text{Calendar Year} \geq \text{Referendum Year})_{it} + \epsilon_{it}, \]

where \( i \) indexes applicants, \( t \) indexes calendar years, \( \alpha_i \) is an applicant fixed-effect, \( \delta_t \) is a year fixed-effect, \( \beta \) is the effect of winning the naturalization referendum, \( 1(\text{Calendar Year} \geq \text{Referendum Year}) \) is an indicator function that takes on the value of 1 the year of an applicant’s referendum and all subsequent years and that takes on the value of 0 for all pre-referendum years, and \( \epsilon_{it} \) is an idiosyncratic error term. To account for errors that are correlated within applicants over time, we cluster standard errors by applicant.

In addition to restricting the sample to applicants in the ± 10% vote share bandwidth, we further restrict the sample to applicants who are observed at least once five years or more before their referendum, once in the five years immediately before their referendum, and once after their referendum. As the DD effect is based on comparisons of earnings before and after referendums, these restrictions ensure that only applicants who can contribute to estimating the effect of winning a referendum are included. Further, the restriction that applicants be observed at least once five years or more before their referendum is made so that we have statistical power to estimate the pre-referendum trends in earnings. This is necessary for evaluating the
plausibility of the parallel trends assumption (see pre-referendum period in bottom-left panel of Figure 1).

For our main analyses, we fit five versions of our DD model. First, we fit a placebo model that tests the assumption of no time-varying confounding. To do this, we restrict the sample only to pre-referendum observations and then consider treatment uptake, i.e., the beginning of the post-referendum year period, to have occurred in the final two pre-referendum years. The next three models all include the entire pre-referendum period (and code the treatment normally), but include varying years in the post-referendum period. One model includes observations occurring 0–5 years after the referendum, another only includes observations occurring 6–10 years after the referendum, and the final only includes observations occurring 11–15 years after the referendum. Finally, our main specification includes the entirety of the pre- and post-referendum periods, i.e. from five years before an applicant's referendum through 15 years after an applicant’s referendum. Additional analyses, unless otherwise specified, use the full set of pre- and post-referendum years.
### Descriptive Statistics

#### Table S.3: Descriptive Statistics for Regression Discontinuity Sample

|                          | Mean   | Standard Deviation | Proportion Missing |
|--------------------------|--------|--------------------|--------------------|
| Percent "Yes" Votes      | 64.51  | 17.45              | 0                  |
| Above 50%                | 0.77   | 0.42               | 0                  |
| Referendum Year          | 1994   | 8.35               | 0                  |
| Birth Year               | 1965   | 16.94              | 0                  |
| Age at Referendum\(^1\)  | 28.54  | 14.61              | 0                  |
| Female                   | 0.46   | 0.50               | 0                  |
| Origin: Africa           | 0.01   | 0.10               | 0                  |
| Origin: Asia             | 0.07   | 0.26               | 0                  |
| Origin: Western Europe   | 0.20   | 0.40               | 0                  |
| Origin: Central and Eastern Europe | 0.07 | 0.25 | 0 |
| Origin: Southern Europe  | 0.16   | 0.36               | 0                  |
| Origin: Turkey & (former) Yugoslavia | 0.47 | 0.50 | 0 |
| Origin: Other            | 0.03   | 0.16               | 0                  |
| Earnings, 5 years before Ref. | 42,411 | 30,756             | 0.60               |
| Earnings, 4 years before Ref. | 42,895 | 31,436             | 0.58               |
| Earnings, 3 years before Ref. | 43,392 | 32,286             | 0.54               |
| Earnings, 2 years before Ref. | 43,729 | 32,546             | 0.49               |
| Earnings, 1 years before Ref. | 44,121 | 33,284             | 0.45               |
| Mean Earnings, 1 to 5 years before Ref. | 47,668 | 37,069             | 0.43               |
| Mean Earnings, 0 to 5 years after Ref. | 46,560 | 36,799             | 0.17               |
| Mean Earnings, 6 to 10 years after Ref. | 50,243 | 38,350             | 0.10               |
| Mean Earnings, 11 to 15 years after Ref. | 54,929 | 41,487             | 0.09               |
| Mean Earnings, 0 to 15 years after Ref. | 48,696 | 34,693             | 0                  |
| Mean Unemployment, 1 to 5 years before Ref. | 0.27 | 0.95 | 0.43 |
| Mean Unemployment, 0 to 5 years after Ref. | 0.33 | 0.99 | 0.17 |
| Mean Unemployment, 6 to 10 years after Ref. | 0.35 | 1.11 | 0.10 |
| Mean Unemployment, 11 to 15 years after Ref. | 0.34 | 1.07 | 0.09 |
| Mean Unemployment, 0 to 15 years after Ref. | 0.34 | 0.80 | 0 |
| Number of Post-Ref. Observations | 11.91 | 4.23 | 0 |

---

\(^1\)Three applicants are observed in our data in years before their recorded year of birth. We include these applicants in the main analysis using their referendum age as recorded in our data. In Table S.11 we show that the results are similar if we impute their ages using the median age at referendum, and in Table S.12, we show the results are similar if we drop these observations from the analysis.
Table S.4: Descriptive Statistics for Difference-in-Differences Sample

| Applicant Characteristics | Mean | Standard Deviation | Proportion Missing |
|---------------------------|------|--------------------|-------------------|
| Percent "Yes" Votes       | 61.09| 17.54              | 0                 |
| Above 50%                 | 0.69 | 0.46               | 0                 |
| Referendum Year           | 1998 | 4.58               | 0                 |
| Birth Year                | 1959 | 10.65              | 0                 |
| Age at Referendum         | 38.74| 9.48               | 0                 |
| Female                    | 0.51 | 0.50               | 0                 |
| Origin: Africa            | 0.02 | 0.13               | 0                 |
| Origin: Asia              | 0.10 | 0.30               | 0                 |
| Origin: Western Europe    | 0.08 | 0.27               | 0                 |
| Origin: Central and Eastern Europe | 0.06 | 0.24 | 0 |
| Origin: Southern Europe   | 0.15 | 0.36               | 0                 |
| Origin: Turkey & (former) Yugoslavia | 0.57 | 0.49 | 0 |
| Origin: Other             | 0.02 | 0.15               | 0                 |
| Number of Post-Ref. Observations | 13.36 | 3.40 | 0 |

| Time-Varying Variables    | Mean       | Standard Deviation | Proportion Missing |
|---------------------------|------------|--------------------|-------------------|
| Earnings (CHF)            | 57,810     | 40,123             | 0                 |
| Unemployment (Months)     | 2.85       | 3.84               | 0                 |
| Year                      | 2002       | 7.41               | 0                 |
| Years Since Referendum    | 4.20       | 5.81               | 0                 |
Supplementary Text

Regression Tables for Figure 1

Table S.5: Effect of Referendum Success on Earnings, Difference-in-Differences Design

|                      | (1)     | (2)     | (3)     | (4)     | (5)     |
|----------------------|---------|---------|---------|---------|---------|
| Pre-referendum years | -5 to -1| -5 to -1| -5 to -1| -5 to -1| -5 to -1|
| included:            |         |         |         |         |         |
| Post-referendum years| -0 to 5 | 0 to 5  | 6 to 10 | 11 to 15| 0 to 15 |
| included:            |         |         |         |         |         |
| Above 50% (placebo)  | -179.49 |         |         |         |         |
|                      | (1167.82)|         |         |         |         |
| Above 50%            | 706.38  | 3114.71 | 6393.45 | 4422.37 |
|                      | (1296.93)| (2313.29)| (3039.95)| (1526.95)|
| Applicant F.E.       | ✓       | ✓       | ✓       | ✓       | ✓       |
| Year F.E.            | ✓       | ✓       | ✓       | ✓       | ✓       |
| Observations         | 2,853   | 6,139   | 5,404   | 4,987   | 10,734  |
| Adj. R²              | 0.87    | 0.76    | 0.68    | 0.64    | 0.66    |

Note: Table shows OLS regressions of CPI-adjusted earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ±10% window. All models include applicant and year fixed effects. Standard errors clustered by applicant in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
| DV: Average earnings: | (1) | (2) | (3) | (4) | (5) |
|-----------------------|-----|-----|-----|-----|-----|
| 1 to 5 years before referendum | 1758.90 | 3024.26 | 5105.38 | 7957.54* | 5636.52** |
| 0 to 5 years after referendum | 3345.69 | 3014.27 | 3318.94 | 3798.27 | 2813.78 |
| 6 to 10 years after referendum | 452.35 | 413.26 | 452.57 | 520.51 | 383.97 |
| 11 to 15 years after referendum | 460.70 | 165.89 | 370.29 | 1055.70 | 603.95 |
| 0 to 15 years after referendum | 593.27 | 536.51 | 590.98 | 684.12 | 502.75 |

Above 50% Margin

| Above 50% | −180.62 | −100.60 | −188.86 | −691.58 | −460.10 |
| Margin | (452.35) | (413.26) | (452.57) | (520.51) | (383.97) |

Above 50% * Margin

| Above 50% * Margin | 460.70 | 165.89 | 370.29 | 1055.70 | 603.95 |
| Covariates | ✓ | ✓ | ✓ | ✓ | ✓ |

Observations

| Observations | 788 | 1,084 | 1,201 | 1,231 | 1,339 |

Adj. R²

| Adj. R² | 0.45 | 0.42 | 0.32 | 0.23 | 0.31 |

Note: Table shows OLS regressions of CPI-adjusted earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ± 10% window. All models control for Female, Origin (Grouped), and Referendum Age, and include fixed effects for Referendum Year. Standard errors in parentheses. **p < 0.01, *p < 0.05, *p < 0.1
Robustness Tests

In Figure S.5, we recreate our main analysis without adjusting earnings by the consumer price index (CPI; see Tables S.7 and S.8 for corresponding regression estimates). In Table S.9, we consider DD specifications that include fixed effects for both (calendar) years and Years since Referendum. Next, we show in Table S.10 estimates from RD specifications excluding our battery of covariates. Tables S.11 and S.12 show that our decision to include three applicants with negative Age at Referendum values in the main analysis without recoding these Age at Referendum values is not critical to our results. In Table S.11, we recode these three values to the median Age at Referendum value in the data, and in Table S.12, we exclude these three applicants from the sample. Figure S.6 presents estimates from our DD specification fit to the entire 15-year post-referendum period using Percent “Yes” bandwidths ranging from ± 1% to ± 50%. Similarly, Figure S.7 shows estimates from our RD model with Mean Earnings, 0 to 15 years after Referendum as the outcome and with bandwidths ranging from ± 1% to ± 50%.
Fig. S.5: Regression Estimates without CPI Adjustment to Earnings (CHF)

Note: Points are estimates of the effect of naturalization referendum success on Earnings (CHF). Thin (thick) bars are 95% (90%) confidence intervals. Each estimate is from a separate regression. Regression Discontinuity models control for Female, Origin (Grouped), and Referendum Age and include fixed effects for Referendum Year. Difference-in-differences models include fixed effects for applicants and years, and cluster standard errors by applicant.
Table S.7: Difference-in-Differences Results without CPI Adjustment to Earnings (CHF)

| (1)   | (2)   | (3)   | (4)   | (5)   |
|-------|-------|-------|-------|-------|
| Pre-referendum years included: | -5 to -1 | -5 to -1 | -5 to -1 | -5 to -1 | -5 to -1 |
| Post-referendum years included: | - | 0 to 5 | 6 to 10 | 11 to 15 | 0 to 15 |
| Above 50% (placebo) | -139.73 | 853.34 | 3435.24 | 6796.50** | 4202.53*** |
| (1081.50) | (1224.91) | (2233.25) | (2958.19) | (1465.04) |
| Above 50% | ✓ | ✓ | ✓ | ✓ | ✓ |
| Applicant F.E. | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year F.E. | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 2,853 | 6,139 | 5,404 | 4,897 | 10,734 |
| Adj. R² | 0.86 | 0.75 | 0.68 | 0.64 | 0.66 |

Note: Table shows OLS regressions of earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ± 10% window. All models include applicant and year fixed effects. Standard errors clustered by applicant in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Table S.8: Regression Discontinuity Results without CPI Adjustment to Earnings (CHF)

| DV: Average earnings: | (1) | (2) | (3) | (4) | (5) |
|-----------------------|-----|-----|-----|-----|-----|
|                        | 1 to 5 years before referendum | 0 to 5 years after referendum | 6 to 10 years after referendum | 11 to 15 years after referendum | 0 to 15 years after referendum |
| Above 50%              | 1584.05 (2819.81) | 2542.61 (2787.52) | 5308.93* (3190.45) | 8088.22** (3759.88) | 5391.68** (2685.91) |
| Margin                 | −229.86 (381.25) | −129.53 (378.78) | −232.94 (435.05) | −703.24 (515.25) | −480.76 (366.52) |
| Above 50% * Margin     | 450.26 (500.02) | 217.83 (491.74) | 357.07 (568.10) | 1029.57 (677.21) | 624.94 (479.90) |
| Covariates             | ✓ | ✓ | ✓ | ✓ | ✓ |
| Referendum-year F.E.   | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations           | 788 | 1,084 | 1,201 | 1,231 | 1,339 |
| Adj. R²                | 0.44 | 0.39 | 0.30 | 0.22 | 0.28 |

Note: Table shows OLS regressions of earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ± 10% window. All models control for Female, Origin (Grouped), and Referendum Age, and include fixed effects for Referendum Year. Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1
Table S.9: Difference-in-Differences Results with *Years Since Referendum* and *Year* Fixed Effects

|                                | (1)       | (2)       | (3)       | (4)       | (5)       |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|
| Pre-referendum years included: | -5 to -1  | -5 to -1  | -5 to -1  | -5 to -1  | -5 to -1  |
| Post-referendum years included:| -          | 0 to 5    | 6 to 10   | 11 to 15  | 0 to 15   |
| Above 50% (placebo)            | −200.93   |           |           |           |           |
|                                | (1364.38) |           |           |           |           |
| Above 50%                      |           | 1434.24   | 4149.45*  | 7271.88** | 3713.26*  |
|                                |           | (1602.70) | (2463.79) | (3087.60) | (1965.76) |
| Applicant F.E.                 | ✓         | ✓         | ✓         | ✓         | ✓         |
| Year F.E.                      | ✓         | ✓         | ✓         | ✓         | ✓         |
| Years since Referendum F.E.    | ✓         | ✓         | ✓         | ✓         | ✓         |
| Observations                   | 2,853     | 6,139     | 5,404     | 4,987     | 10,734    |
| Adj. $R^2$                     | 0.89      | 0.76      | 0.69      | 0.65      | 0.67      |

*Note:* Table shows OLS regressions of CPI-adjusted earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ±10% window. All models include applicant, year, and years-since-referendum fixed effects. Standard errors clustered by applicant in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$*
| DV: Average earnings: | (1) 1 to 5 years before referendum | (2) 0 to 5 years after referendum | (3) 6 to 10 years after referendum | (4) 11 to 15 years after referendum | (5) 0 to 15 years after referendum |
|----------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Above 50%            | 4381.77                           | 6703.48*                          | 8475.27**                         | 8962.29**                         | 7795.55**                         |
| Margin               | -499.53                           | -392.30                           | -522.33                           | -671.01                           | -674.33                           |
| (578.88)             | (4264.51)                         | (3792.66)                         | (3850.89)                         | (4137.35)                         | (3225.43)                         |
| Above 50% * Margin  | 319.41                            | -82.14                            | 363.58                            | 900.59                            | 573.22                            |
| (758.15)             | (670.22)                          | (686.46)                          | (741.96)                          | (576.10)                          |
| Referendum-year F.E. | ✓                                  | ✓                                  | ✓                                  | ✓                                  | ✓                                  |
| Observations         | 788                                | 1,084                             | 1,1201                             | 1,231                             | 1,339                             |
| Adj. R²              | 0.03                               | 0.03                               | 0.03                               | 0.03                               | 0.03                               |

Note: Table shows OLS regressions of earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ± 10% window. All models include fixed effects for Referendum Year. Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Table S.11: Regression Discontinuity Results with Unrealistic Referendum Age Values Recoded

|                | (1)         | (2)         | (3)         | (4)         | (5)         |
|----------------|-------------|-------------|-------------|-------------|-------------|
| DV: Average earnings: | 1 to 5 years before referendum | 0 to 5 years after referendum | 6 to 10 years after referendum | 11 to 15 years after referendum | 0 to 15 years after referendum |
| Above 50%      | 1650.26     | 2697.94     | 4769.11     | 7840.02**   | 5391.92*    |
|                | (3339.25)   | (3039.23)   | (3312.94)   | (3789.80)   | (2809.24)   |
| Margin         | −178.36     | −92.40      | −187.55     | −696.08     | −459.69     |
|                | (452.13)    | (413.89)    | (452.19)    | (520.05)    | (383.74)    |
| Above 50% * Margin | 469.00     | 185.33      | 407.73      | 1079.62     | 631.54      |
|                | (592.84)    | (537.17)    | (590.56)    | (683.66)    | (502.51)    |
| Referendum-year F.E. | ✓          | ✓           | ✓           | ✓           | ✓           |
| Observations   | 788         | 1,084       | 1,1201      | 1,231       | 1,339       |
| Adj. R²        | 0.45        | 0.41        | 0.32        | 0.23        | 0.31        |

Note: Table shows OLS regressions of earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ±10% window. All models include fixed effects for Referendum Year. Two applicants that appear in the data before their year of birth have their Age at Referendum values recoded to 26, the median of Age at Referendum in the data, for these models. Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Table S.12: Regression Discontinuity Results Excluding Applicants with Unrealistic Referendum Age Values

| DV: Average earnings: | (1) 1 to 5 years before referendum | (2) 0 to 5 years after referendum | (3) 6 to 10 years after referendum | (4) 11 to 15 years after referendum | (5) 0 to 15 years after referendum |
|-----------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|
| Above 50%             | 1758.90 (3345.69)                | 3024.26 (3041.27)                | 4923.06 (3322.04)                | 7779.92** (3801.83)               | 5515.20* (2816.10)               |
| Margin                | −180.62 (452.35)                 | −100.60 (413.26)                 | −189.31 (452.50)                 | −695.14 (520.49)                  | −461.41 (383.96)                 |
| Above 50% * Margin    | 460.70 (593.27)                  | 165.89 (536.51)                  | 394.59 (591.25)                  | 1084.00 (684.62)                  | 621.69 (503.02)                  |
| Referendum-year F.E.  | ✓                                | ✓                                | ✓                                | ✓                                | ✓                                |
| Observations          | 787                              | 1082                             | 1199                             | 1229                             | 1337                             |
| Adj. R²               | 0.45                             | 0.42                             | 0.32                             | 0.23                             | 0.31                             |

Note: Table shows OLS regressions of earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ± 10% window. All models include fixed effects for Referendum Year. Two applicants that appear in the data before their year of birth are excluded from these models. Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Fig. S.6: Robustness of Difference-in-Differences Results to Alternative Bandwidths

Note: Points are estimates of the effect of naturalization referendum success on CPI-adjusted earnings (CHF) from regressions including fixed effects for applicants and years. All models include observations from five years before an applicant’s referendum through 15 years after an applicant’s referendum. Thin (thick) bars are 95% (90%) confidence intervals based on clustered standard errors. Each estimate is from a separate regression. Values on the x-axis indicate the range of vote share margins included in each model’s sample. The orange point highlights the bandwidth used in the main results (±10%).
Fig. S.7: Robustness of Regression Discontinuity Results to Alternative Bandwidths

Note: Points are estimates of the effect of naturalization referendum success on average CPI-adjusted earnings (CHF) in the 15 years following an applicant’s referendum from regressions controlling for Female, Origin (Grouped), and Referendum Age, and including fixed effects for Referendum Year. Thin (thick) bars are 95% (90%) confidence intervals. Each estimate is from a separate regression. Values on the x-axis indicate the range of vote share margins included in each model’s sample. The orange point highlights the bandwidth used in the main results (±10%).
Additional Analyses

As described in the main text, subgroup analyses show that our effects are largest for applicants originating from Turkey and (former) Yugoslavia. Table S.13 provides specific evidence for this. We see this pattern for both the DD and RD specifications. The estimates reported for subgroups in the main text are from models (3) and (4). In Table S.14, we further consider the possibility that the effects differ by gender. We find positive effects for both genders, with larger effect sizes in both the DD and RD specifications for male applicants. In Table S.15, we provide estimates of referendum success at the 25th, 50th, and 75th quantiles of the earning distribution. We find that effects vary across quantiles, with the largest effect when looking across our entire observation period occurring in the 25th quantile. In Figure S.8, we show evidence that the attrition rate, or frequency with which applicants are observed after their referendum, is not impacted by referendum success (see Table S.16 for corresponding regression estimates). Finally, we consider the impact of referendum success on unemployment in Tables S.17 and S.18. Across these models, we do not find consistent evidence that referendum outcomes had a large effect on the amount of time applicants spent receiving unemployment benefits.
### Table S.13: Effects of Referendum Success for Applicants from Marginalized Origin Countries

| Specification: | Outcome: | (1) | (2) | (3) | (4) |
|----------------|----------|-----|-----|-----|-----|
|               | DD       | Mean Earnings 0-15 Years after Referendum |
| Outcome:      | Earnings (CHF) |                                      |
| Origin countries: | Turkey & Yugoslavia | Other | Turkey & Yugoslavia | Other |
| Above 50%     | 5163.29*** | 3804.89 | 10721.44*** | −274.69 |
|               | (1947.52) | (2504.71) | (3558.18) | (7837.11) |
| Margin        | −898.52** | 1046.17 |                           |
|               | (439.17) | (1300.19) |                                      |
| Above 50% * Margin | 323.63 | −624.42 |                           |
|               | (625.93) | (1469.57) |                                      |
| Applicant F.E. | ✓      | ✓       |                                      | |
| Year F.E.     | ✓      | ✓       |                                      | |
| Referendum-year F.E. | ✓      | ✓       |                                      | |
| Observations  | 7,518   | 3,216   | 870 | 469 |
| Adj. R²       | 0.65    | 0.68    | 0.03 | 0.03 |

**Note:** Table shows OLS regressions of CPI-adjusted earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ±10% window. Models (1) and (3) only include applicants from Turkey and (former) Yugoslavia. Models (2) and (4) include applicants from all other origin countries. Models (1) and (2) include applicant and year fixed effects and cluster standard errors by applicant. Models (3) and (4) include fixed effects for Referendum Year. (Clustered) Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Table S.14: Effects of Referendum Success by Gender

| Specification: | (1) | (2) | (3) | (4) |
|----------------|-----|-----|-----|-----|
| Outcome:       | DD  | RD  |     |     |
| Gender: Female Male | Female Male | Female Male |
| Above 50%      | 1974.32 6497.98*** | 5687.04* | 9363.70* |
| Margin         | (1935.51) (2268.48) | (3333.49) (4932.41) | −641.23 | −620.46 |
| Above 50% * Margin | 375.12 | 767.18 | (598.19) (875.27) |       |       |
| Applicant F.E. | ✓   | ✓   |     |     |
| Year F.E.      | ✓   | ✓   |     |     |
| Referendum-year F.E. | ✓   | ✓   |     |     |
| Observations   | 4,762 5,972 | 631 708 |     |     |
| Adj. R²        | 0.56 | 0.61 | 0.00 | 0.04 |

Note: Table shows OLS regressions of CPI-adjusted earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ±10% window. Models (1) and (3) only include female applicants. Models (2) and (4) only include male applicants. Models (1) and (2) include applicant and year fixed effects and cluster standard errors by applicant. Models (3) and (4) include fixed effects for Referendum Year. (Clustered) Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Table S.15: Effect of Referendum Success on Earnings by Earnings Quantile, Difference-in-Differences Design

|                         | (1)               | (2)               | (3)               | (4)               | (5)               |
|-------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Pre-referendum years included: | -5 to -1         | -5 to -1         | -5 to -1         | -5 to -1         | -5 to -1         |
| Post-referendum years included: | - 0 to 5         | 6 to 10          | 11 to 15         | 0 to 15          |

**Quantile: 0.25**

| Above 50% (placebo) | -546.05 (383.60) |
|---------------------|------------------|
| Above 50%           | 381.92 (591.97)  |
|                     | 1703.05 (1368.24) |
|                     | 2247.53 (2089.94) |
|                     | 3292.76 (947.81)  |

Applicant F.E. ✓ ✓ ✓ ✓ ✓

Year F.E. ✓ ✓ ✓ ✓ ✓

**Quantile: 0.50**

| Above 50% (placebo) | 123.10 (414.10) |
|---------------------|------------------|
| Above 50%           | 322.59 (452.56)  |
|                     | 1885.06 (1189.43) |
|                     | 3289.73 (1653.70) |
|                     | 1706.06 (593.16)  |

Applicant F.E. ✓ ✓ ✓ ✓ ✓

Year F.E. ✓ ✓ ✓ ✓ ✓

**Quantile: 0.75**

| Above 50% (placebo) | 1239.34 (466.41) |
|---------------------|------------------|
| Above 50%           | 101.43 (453.91)  |
|                     | 2094.45 (1175.42) |
|                     | 2849.72 (1703.74) |
|                     | 727.08 (586.46)   |

Applicant F.E. ✓ ✓ ✓ ✓ ✓

Year F.E. ✓ ✓ ✓ ✓ ✓

Observations 2,853 6,139 5,404 4,987 10,734

Adj. $R^2$ 0.87 0.76 0.68 0.64 0.66

**Note:** Table shows quantile regressions of CPI-adjusted earnings (CHF) on receiving 50% or more support in first referendum for all applicants within a ± 10% window. All models include applicant and year fixed effects. Bootstrapped standard errors in parentheses. **∗∗∗p < 0.01, **p < 0.05, ∗p < 0.1**
Fig. S.8: Regression Discontinuity Plot for Post-Referendum Attrition

Note: Points are means for all applicants within a two percentage-point bin. Lines are regression smoothers with shaded 95% confidence regions.
Table S.16: Effect of Referendum Success on Post-Referendum Attrition, Regression Discontinuity Design

| Outcome:                      | (1) | (2) |
|-------------------------------|-----|-----|
| Above 50%                     | -0.35 | -0.05 |
|                               | (0.30) | (0.46) |
| Margin                        | 0.00 | -0.02 |
|                               | (0.04) | (0.06) |
| Above 50% * Margin            | 0.04 | 0.06 |
|                               | (0.05) | (0.08) |
| Covariates                    | ✓   | ✓   |
| Referendum-year F.E.          | ✓   | ✓   |
| Observations                  | 1,339 | 1,339 |
| Adj. R²                       | 0.61 | 0.04 |

Note: Table shows OLS estimates of the effect of winning naturalization referendum on post-referendum observation frequency. Only applicants within a ± 10% window are included. Model (1) controls for Female, Origin (Grouped), and Referendum Age. Both models include fixed effects for Referendum Year. Standard errors in parentheses. **∗∗∗p < 0.01, ∗∗p < 0.05, ∗p < 0.1**
Table S.17: Effect of Referendum Success on Unemployment, Difference-in-Differences Design

|                     | (1)  | (2)  | (3)  | (4)  | (5)  |
|---------------------|------|------|------|------|------|
| Pre-referendum years included: | -5 to -1 | -5 to -1 | -5 to -1 | -5 to -1 | -5 to -1 |
| Post-referendum years included: | - | 0 to 5 | 6 to 10 | 11 to 15 | 0 to 15 |
| Above 50% (placebo) | 0.11 | 0.09 | 0.20 | 0.20 | 0.12 |
|                      | (0.13) | (0.10) | (0.14) | (0.15) | (0.09) |
| Above 50%            | ✓    | ✓    | ✓    | ✓    | ✓    |
| Applicant F.E.       | ✓    | ✓    | ✓    | ✓    | ✓    |
| Year F.E.            | ✓    | ✓    | ✓    | ✓    | ✓    |
| Observations         | 2,853 | 6,139 | 5,404 | 4,897 | 10,734 |
| Adj. R²              | 0.45  | 0.25  | 0.27  | 0.28  | 0.18  |

Note: Table shows OLS regressions of unemployment (months) on receiving 50% or more support in first referendum for all applicants within a ±10% window. All models include applicant and year fixed effects. Standard errors clustered by applicant in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1
Table S.18: Effect of Referendum Success on Unemployment, Regression Discontinuity Design

| DV: Average unemployment | (1) 1 to 5 years before referendum | (2) 0 to 5 years after referendum | (3) 6 to 10 years after referendum | (4) 11 to 15 years after referendum | (5) 0 to 15 years after referendum |
|--------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Above 50%                | −0.14 ± 0.15                      | −0.16 ± 0.13                      | −0.18 ± 0.15                      | −0.11 ± 0.14                      | −0.25 ± 0.10                      |
| Margin                   | 0.01 ± 0.02                       | 0.00 ± 0.02                       | 0.02 ± 0.01                       | −0.01 ± 0.01                      | 0.01 ± 0.01                       |
| Above 50% * Margin       | −0.02 ± 0.03                       | 0.01 ± 0.02                       | 0.00 ± 0.03                       | 0.04 ± 0.01                       | 0.01 ± 0.02                       |
| Covariates               | ✓                                 | ✓                                 | ✓                                 | ✓                                 | ✓                                 |
| Referendum-year F.E.     | ✓                                 | ✓                                 | ✓                                 | ✓                                 | ✓                                 |
| Observations             | 788                               | 1,084                             | 1,201                             | 1,231                             | 1,339                             |
| Adj. R²                  | 0.03                              | 0.03                              | 0.02                              | 0.04                              | 0.01                              |

Note: Table shows OLS regressions of average annual months of unemployment on receiving 50% or more support in first referendum for all applicants within a ±10% window. All models control for Female, Origin (Grouped), and Referendum Age, and include fixed effects for Referendum Year. Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1