

Do Dual Citizenship Laws Increase Naturalization Rates? Mixed Evidence from the United States and Switzerland

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Many countries allow immigrants who naturalize to retain their home country citizenship. Recent studies have argued that these dual citizenship laws considerably increase naturalization rates, but these studies examined reforms from only a small set of origin countries. We re-evaluate the impact of dual citizenship laws using a temporal regression discontinuity design applied to dual citizenship reforms adopted by 38 origin countries between 1992 and 2015. We examine these reforms' effects on 19.7 million immigrants living in the United States and Switzerland, which have some of the least and most restrictive naturalization regimes, respectively, of the world's destination countries. Among the effects of these reforms, 59 percent are null, while only 23 percent are positive and 18 percent are negative. Our findings indicate that dual citizenship reforms alone are often not an effective policy tool to increase naturalization rates.

Introduction

Many countries have seen substantial increases in the number of immigrants in recent decades, and integrating these immigrants—socially, politically, and economically—has become a major policy challenge. Ongoing, heated debates over these issues have failed to generate much progress, in part because there exists little rigorous evidence about which policies are most effective in facilitating immigrant integration. A partial exception is the naturalization of immigrants, which is often heralded as an important catalyst for immigrants' integration (1). Recent research provides causal evidence that citizenship promotes the political (2), social (3) and economic (4) integration of immigrants. For example, recent studies that use quasi-random variation in naturalization decisions in Switzerland find that fifteen years after the naturalization decision, those immigrants who got Swiss citizenship achieve a more than one standard deviation higher integration level (on a composite measure of social and political integration) than an otherwise identical group of non-naturalized immigrants who did not get Swiss citizenship (2, 3).

Despite these benefits of citizenship, naturalization rates in many countries remain relatively modest, and governments have struggled to build consensus for policies that would expand access to citizenship and increase naturalization rates. In recent decades dual citizenship laws, which permit immigrants to keep their home country citizenship after they naturalize in the host country, have emerged as a prominent policy tool to increase naturalization rates and encourage the integration of immigrants. Many countries have adopted these reforms, but the impact of these laws on naturalization rates has not been comprehensively studied, neither theoretically nor empirically.

At a theoretical level, many authors have hypothesized that the introduction of dual citizenship in home and destination countries should lead to considerable increases in naturalization

rates since they reduce the costs of naturalization for immigrants (5–9). Without dual citizenship recognition, immigrants who naturalize have to renounce their home country citizenship and thereby lose the rights and benefits associated with the home country passport (6, 10). Beyond these instrumental concerns, immigrants might also be reluctant to renounce their citizenship due to a sense of national identity and loyalty to the home country (5, 11).

However, there are also good theoretical reasons to expect that dual citizenship might have rather limited effects. Many immigrants who seek to naturalize are presumably better off acquiring the host country citizenship even if that means giving up their home country citizenship. For example, given that immigrants typically become eligible for naturalization only after having lived in the host country for many years, immigrants who consider naturalization might have reached a point in life when they are unlikely to move back to their home country, so there would be little reason to hold on to the home country passport. In addition, the benefits of receiving the host country citizenship might far exceed the benefits of keeping the home country passport if the host country passport opens up access to jobs, the right to vote, and permanent protection from deportation. Giving up their home country citizenship might not be a binding constraint for naturalization, and as a result we would expect that removing this constraint would not significantly raise naturalization rates among immigrants from many origin countries.

In addition to the theoretical ambiguity, we also lack comprehensive empirical evidence on the effects of dual citizenship reforms. A set of recent studies documents substantial increases in naturalization rates among immigrants from some Latin American countries in the United States after these countries introduced dual citizenship reforms (9, 12, 13). These studies improve on other research from Canada (7, 14, 15), the United States (16, 17) and Europe (18, 19) that used purely cross-sectional data comparing naturalization rates across countries with and without recognition of dual citizenship and yielded contradictory results. One of the main problems with all of this evidence is that it is very limited in scope. The best existing studies that use

panel data only focus on a single destination country, the United States, and a single region of origin, Latin America. In addition, even the panel data studies suffer from data limitations and cannot separate the effect of dual citizenship reforms from generic trends in naturalization rates that correlate with the timing of the reforms.

In this study we provide a more comprehensive and robust test to examine the effect of dual citizenship reforms in home countries on naturalization rates in destination countries. We improve upon earlier studies in three important ways. First, instead of focusing on a single destination country and region of origin, we estimate the effect of all dual citizenship reforms that affect immigrants to the United States for the entirety of the period for which data with sufficient temporal resolution is available. This is important, because it circumvents the risk of selective reporting of reforms that happen to yield a stimulating effect on naturalization rates.

Second, in addition our analysis for the United States, which has a very liberal naturalization regime, we also examine the impact of dual citizenship reforms on immigrants living in Switzerland, a destination country with a very different mix of immigrants and one of the most restrictive naturalization regimes. This allows us to broaden the external validity and examine whether any findings from the United States context hold up in this very different context of Switzerland.

Third, to identify the effect of the introduction of dual citizenship, we employ a temporal regression discontinuity design (RDD) that exploits the exogeneity in the timing of the citizenship reform in immigrants' home countries. Our temporal regression discontinuity design compares naturalization rates just before and just after the home country recognizes dual citizenship. This is important because it avoids the problem, present in previous studies, of confounding changes in naturalization rates due to dual citizenship reforms with changes due to other factors. While we cannot entirely rule out the presence of other factors that might have cropped up in the short time period immediately before and after the dual citizenship reform, the relative shortness of

the time period and the fact that different origin countries adopt reforms at different time periods minimize the chance that our aggregate results are attributable to other changes.¹

To determine the impact of dual citizenship reforms on immigrants in the United States, we draw on monthly data from the Current Population Survey (CPS), which cover the years 1994-2015. The CPS data provide us with a representative sample of the immigrant and native resident population in the United States ($N = 2,980,109$). The outcome of interest is the naturalization rate, which is defined as the share of naturalized immigrants among all immigrants (eligible and naturalized). For Switzerland, we leverage annual registry data (PETRA and STATPOP databases) for the period 1992-2015, which covers the entire immigrant resident population ($N = 16,790,629$). This data allows us to measure the number of immigrants who were eligible for naturalization in each year as well as the number of immigrants who naturalized in that year. Therefore we defined our outcome of interest for the Swiss data as the modified naturalization rate, which measures the share of newly naturalized immigrants among all eligible immigrants. Note that both measures of the naturalization rate are equally well suited to assess the effect of dual citizenship reforms on naturalization rates among immigrants within the host country (see Materials and Methods section).

During the periods for which data is available we identified 24 analyzable dual citizenship reforms in the origin countries of immigrants in the United States and 14 in those of immigrants in Switzerland, resulting in a total of 38 reforms. To identify the reforms we used a version of the MACIMIDE 2.0 dataset (20) to compile a tentative list of dual citizenship reforms in immigrants' home countries. We then double-checked all cases during our study period and used public sources to find evidence that a country introduced dual citizenship. We further updated

¹For example, (9) relied on census data published every ten years, so there is a much higher risk that differential trends confound the estimate for dual citizenship reforms.

this list with information on the month a reform was passed and when it became effective.² We matched this list with our naturalization rates for immigrant groups in the United States and Switzerland. From this matched dataset we excluded countries with fewer than 100 observations either before or after the reform was passed and where we could not observe at least 5 years (Switzerland) or 12 months (United States) before and after the reform became effective. These thresholds allow us to retain as many reform cases as possible and still able to implement our empirical strategy (described below). Table 1 in the Supplementary Appendix (SM) shows the list of all 43 reform cases we identified during the study period (1992-2016) as well as the 38 reforms that we included in our analyses.

Results

Figure 1 shows the naturalization rates for the six largest groups of U.S. immigrants whose home countries introduced dual citizenship over the sample period. Figure 2 shows the same results for the six corresponding groups in Switzerland. As expected given our different definitions of naturalization rates (see the Materials and Methods section), the rates for the United States, which include the whole stock of naturalized immigrants, are generally higher than those in Switzerland, which include only newly naturalized immigrants in a given year. Moreover, we see that naturalization rates tend to increase over time independently of dual citizenship reforms. It is critically important to account for these generic time trends in the research design in order to isolate any independent effect of dual citizenship reforms. To accommodate these time trends we leverage a temporal regression discontinuity design in which we fit flexible semi-parametric regressions separately before and after dual citizenship reforms were enacted in the home country (blue lines). We use the difference in the regressions' fitted values one year after

²We do not include reforms that introduced “citizenship light” for emigrants abroad that are forced to renounce their citizenship, e.g. Turkey (“Mavi-Card” or “Blue Card”), India (“Overseas Citizenship of India”), and Ethiopia. We also focus only on reforms introducing dual citizenship, not reforms abolishing it³.

the reform as an estimate of the dual citizenship reform (see Materials and Methods). When dual citizenship reforms have no impact on the naturalization rates, the two regression lines would come together at the same point one year after the reform.

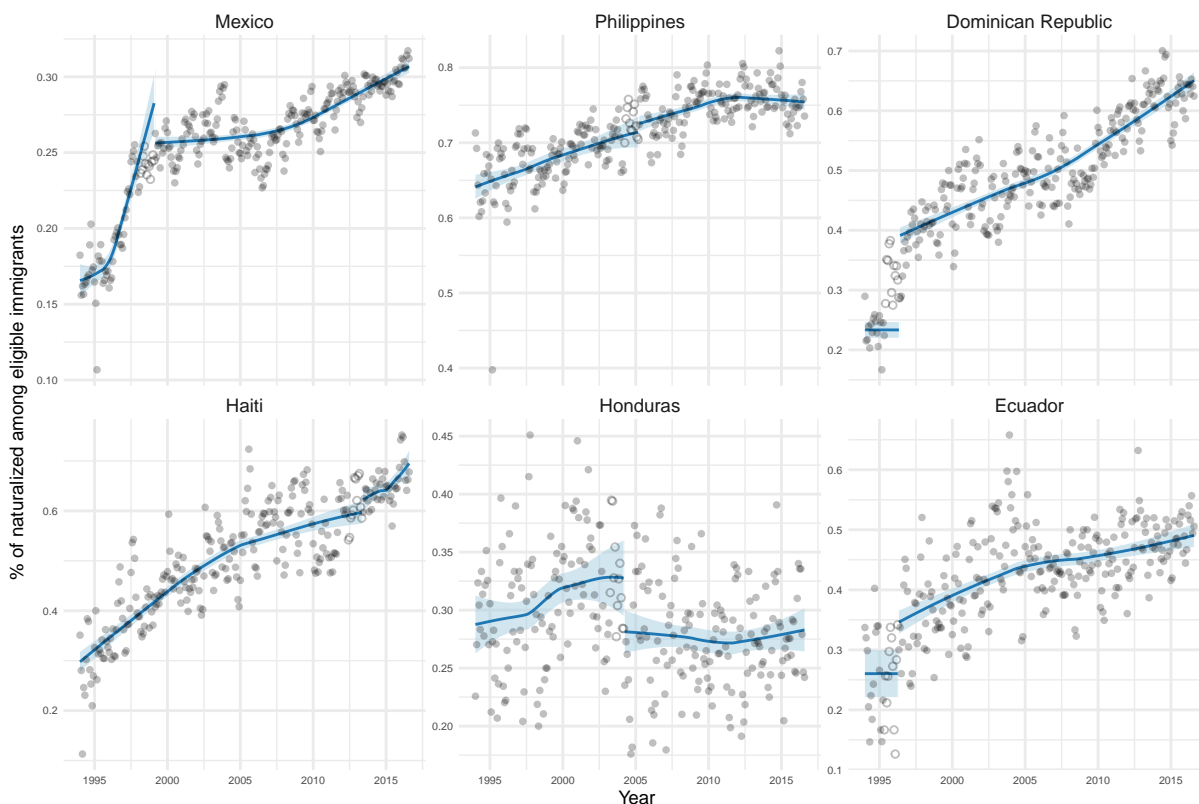


Figure 1: The naturalization rates between 1994 and 2015 for the six largest immigrant groups in the United States originating from countries that introduced dual citizenship during those years. Local linear regression curves in blue (span=0.8 and degree of 1) are estimated separately to the right and left of the cut-point, which is defined as the first year after the reform. Lightly shaded areas indicate the 95% confidence interval. Notes: 1) All panels use country-specific scaling of the y-axis to increase readability. 2) We exclude all data points in the reform year from fitting, shown as hollow circles in the figure. 3) For countries with less than 2 years of data (Dominican Republic, Ecuador), we fit a constant linear regression only.

Figure 3 summarizes our effect estimates from the temporal regression discontinuity design. The left panel shows the results for the United States. With respect to the six largest immigrant groups, we estimate a positive effect on naturalization for immigrants coming from the Domini-

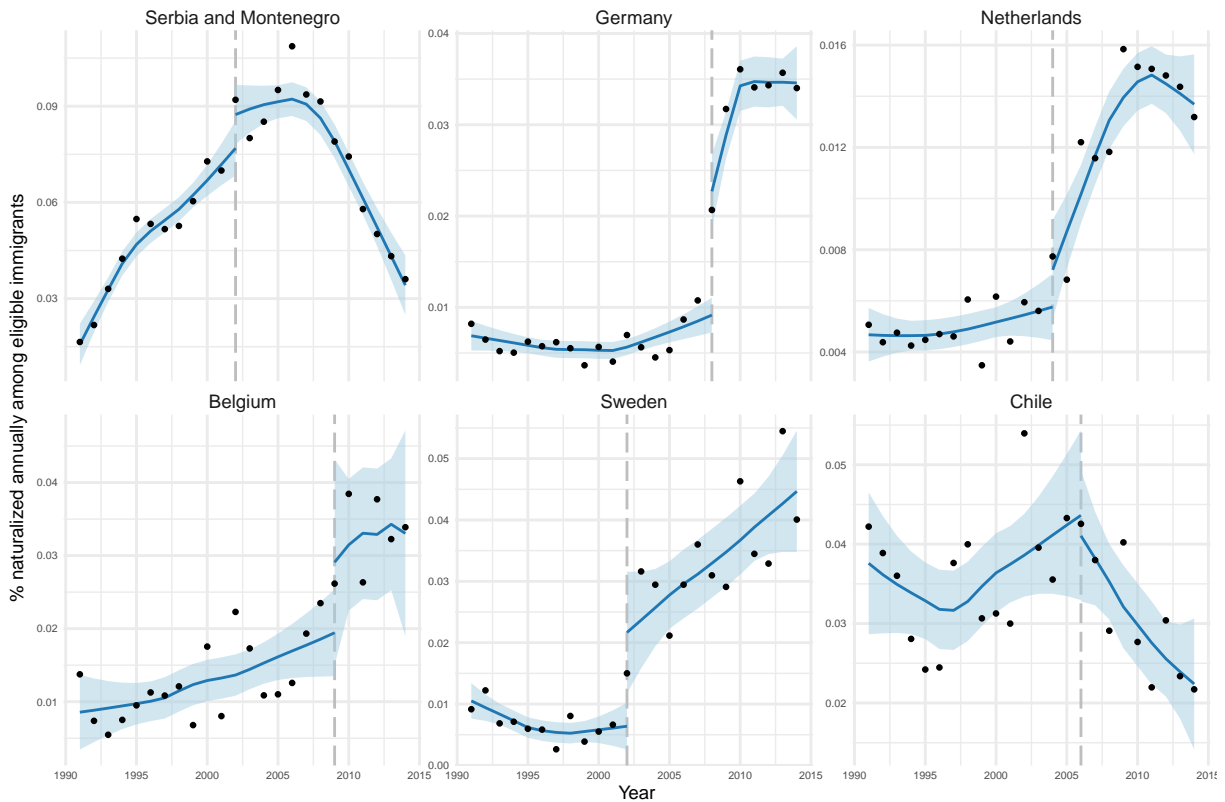


Figure 2: The modified naturalization rates between 1992 and 2015 for the six largest immigrant groups in Switzerland originating from countries that introduced dual citizenship during those years. Local linear regression curves in blue (span=0.8 and degree of 1) are estimated separately to the right and left of the cut-point, which is defined as the first year after the reform. Lightly shaded areas indicate the 95% confidence interval. Notes: 1) All panels use country-specific scaling of the y-axis to increase readability. 2) "Serbia and Montenegro" refers to immigrants with the following nationalities: Serbia, Montenegro, Serbia and Montenegro, Kosovo, and Socialist Federal Republic of Yugoslavia.

can Republic and Ecuador. For Haitian and Filipino immigrants we find no discernible effect, and for Mexican and Honduran immigrants the effect estimate is negative. Across the 24 reforms in our United States sample, we estimate that 6 reforms have a positive effect, 6 have a negative effect, and 12 have a null effect. When we pool the data from all origin countries together we similarly find an (unweighted) average reform effect of .028, which is not statistically different from zero ($p = 0.294$, two-sided). Interestingly, even for the reforms in Latin America

that have been at the center of previous studies (9), we find little evidence of a consistently positive effect on naturalization rates. Our findings differ from those of previous studies in part because they essentially compared average naturalization rates before and after dual citizenship reforms, without taking into account the typically upward trends that naturalization rates exhibit independent of those reforms. As mentioned above, this introduces the risk of misattributing to the reforms increases caused by other factors.

The right panel shows the effect estimates for immigrants in Switzerland, and the pattern is roughly similar. Among the six largest immigrant groups, two reforms significantly increased naturalization rates (Germany and Sweden), but we detect no statistically significant effect for the other four groups (Serbia and Montenegro, Netherlands, Belgium, and Chile). Overall, for the 14 reforms in our sample, we estimate a significant positive effect for three reforms (Finland, Germany, Sweden), no significant effect for 10 reforms, and for one a significantly negative effect. When we pool the data we find that the unweighted average reform effect is -0.008 , which is, again, not statistically different from zero ($p = 0.455$).

As a robustness check we also replicated our results using a difference-in-difference (DID) strategy based on a two-way panel fixed effects regression of the naturalization rates on a treatment indicator for whether the home countries allow dual citizenship or not in a given period, as well as country and period fixed effects. The results are displayed in SM Table 5 and further confirm that there is, on average, no positive effect of dual citizenship reforms on naturalization rates across both countries: The DID estimate is -0.022 for the United States ($p = 0.001$) and -0.001 for Switzerland ($p = 0.964$). Tables 6 and 7, visualized in SM Figures 4 and 5, replicate the DID models and add several leads and lags of the reform indicator. These models show that not only is there no short-term effect in the time period right after the reform; there is also no indication of a longer-term effect that would lead to increasing naturalization rates in the years following the reform.

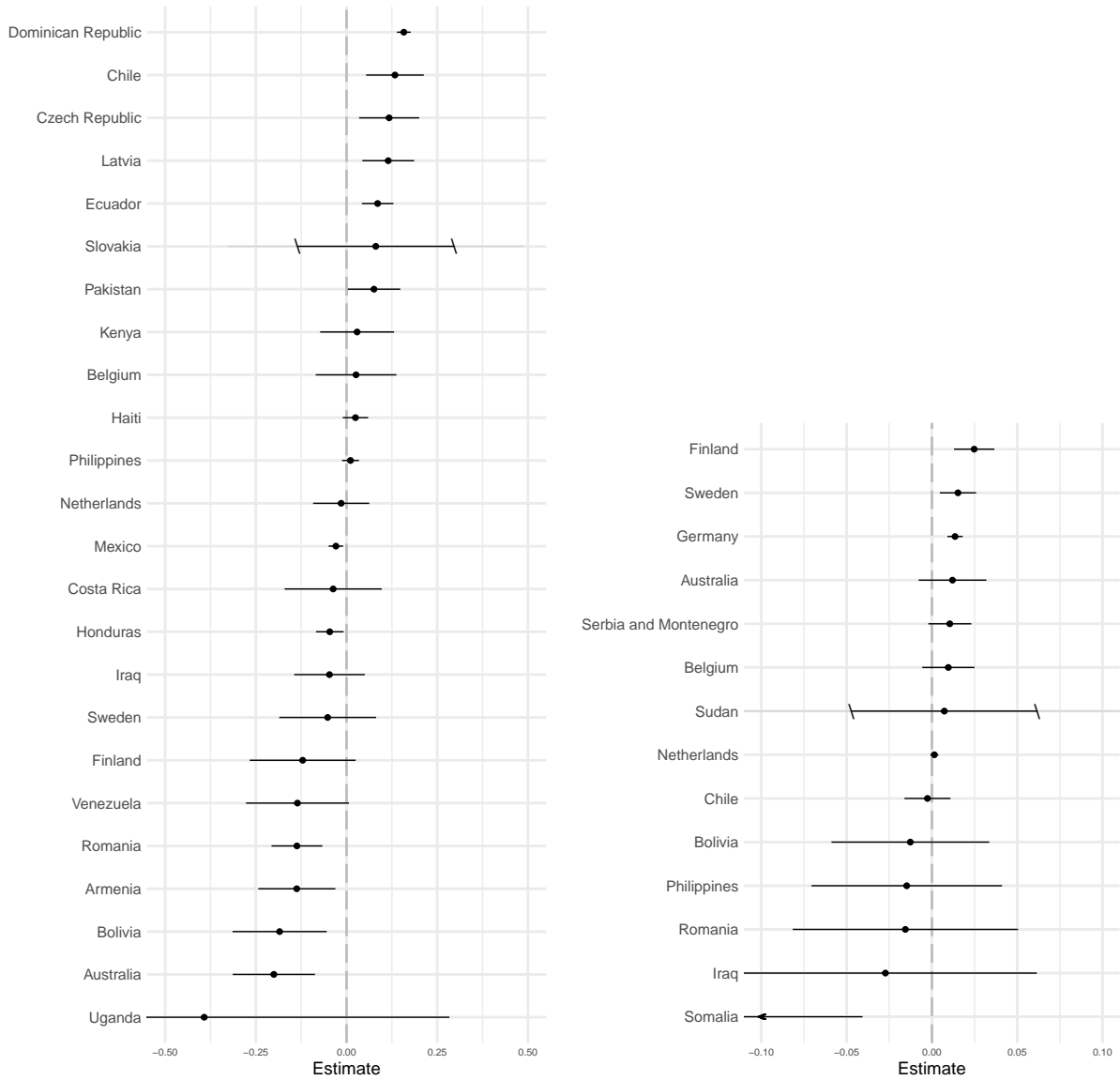


Figure 3: Estimated reform effects in the United States and Switzerland. The point estimates and 95% confidence intervals are based on the difference between the predicted values from a local linear regression to the right and left of the cutoff (the first year after the reform) on the naturalization rates.

Discussion

Do dual citizenship reforms increase naturalization rates? Previous studies have found that they do, but these were limited to only a small set of countries, and in some cases the results were

driven by confounding generic time trends. Our more comprehensive test suggests that these positive effects were anomalies rather than the norm. By contrasting estimates from countries that cover a broader universe of reforms, and by applying a causal research design that focuses the comparisons on the years just before and after the reform, we provide a more complete and accurate picture than previous studies, which inadvertently overestimated the positive impact of dual citizenship reforms on naturalization rates. In fact, our tests show that across 38 dual citizenship reforms that affected 19.7 million immigrants in United States and Switzerland—two major destination countries with very different naturalization regimes—dual citizenship reforms have had no discernible effect on naturalization rates on average. Across both destination countries the effect estimates were positive for 23 percent of reforms, null for 59 percent of reforms, and negative for 18 percent of reforms, and the distribution of country-specific effects is centered at zero in both destination countries.

These new results have important implications for our theoretical understanding of citizenship policies. Our research shows that the impact of reforms allowing for dual citizenship is rather limited overall, suggesting that the costs of giving up their home country citizenship are not a binding constraint for most immigrants who seek naturalization. One might worry that these results are specific to the two destination countries we were able to study, but the fact that the patterns look similar across the United States and Switzerland, even though they have different immigrant populations and very different naturalization regimes, suggests that the results might generalize to other countries as well.

We can only speculate as to why dual citizenship reforms have such a limited effect on naturalization rates, but one important factor is likely the probability of return migration. In many cases, immigrants who seek to naturalize may have reached a point when they are unlikely to return home, so there are only limited benefits to keeping their home country passport. Further investigations into this potentially crucial factor would require detailed and reliable data

on return migration, which as far as we know does not exist. In addition, the effect of dual citizenship reforms likely depends on other factors that contribute to the differential costs and benefits of the home country versus host country citizenship. Further research in other countries and regions is needed to complete our understanding of when, where, and for whom dual citizenship reforms matter.

Our findings also have significant policy implications. Several well-identified studies have shown that naturalization benefits immigrants and their host communities by fostering integration (2–4). While the introduction of dual citizenship has a positive effect on naturalization rates for some immigrants in some host countries, it is clear from our results that dual citizenship reforms alone are often ineffective in motivating eligible immigrants to apply for citizenship. Specifically, if increasing naturalization rates is an important goal for host countries, then one must look for other avenues to lower barriers to citizenship, such as reducing residency requirements (3) or naturalization fees (21).

Methods

Measuring Naturalization Rates

The CPS data provide us with a representative sample of the immigrant and native resident population in the United States. The outcome of interest is the *naturalization rate*, which is defined as the share of naturalized immigrants among all immigrants (eligible and naturalized). Formally, the naturalization rate for period t is defined as $N_t/(E_t + N_t)$ where N_t is the number of individuals naturalized up to period t and E_t is the number of individuals who are eligible (but have not yet naturalized).

The registry data from Switzerland allow us to measure the number of immigrants who were eligible for naturalization in a year as well as the number of immigrants who naturalized in that year. Therefore we defined our outcome of interest for the Swiss data as the *modified naturalization rate*, which measures the share of the share of newly naturalized immigrants among all eligible immigrants. Formally, the modified naturalization rate for period t is defined as n_t/E_t where n_t is the number of immigrants that naturalized in period t and E_t is the number of individuals who are eligible (but have not yet naturalized). Note that immigrants are removed from the registry data for subsequent years once they naturalize and we therefore cannot infer N_t , the stock of all naturalized immigrants.

Note that both measures of the naturalization rate are equally well suited to assess the effect of dual citizenship reforms on naturalization rates among immigrants within the host country. The measures simply result in different levels, since the naturalization rate we can compute in the United States uses as the numerator the stock of all naturalized immigrants and as the denominator the stock of all immigrants while the modified naturalization rate

we can compute in Switzerland uses as the numerator the newly naturalized immigrants and as the denominator the stock of all eligible immigrants.

Statistical Analysis

Our empirical strategy is designed to estimate the effect of dual citizenship reforms one year after a reform became effective. We use the month (year) a reform became effective, which typically is the date the reform was passed. In two cases we have been unable to determine the month when a reform became effective (Dominican Republic, Somalia). In both instances we assumed it was June.

We implement our baseline analysis for each immigrant group—defined by the country of birth for the US data are by citizenship for the Swiss data—separately. We denote the outcome (the naturalization rate) for an immigrant group at some time point with y_i and a variable that counts the number of months (or years) up to and from the first year after the reform with x_i . The reform year is denote as x_0 and takes the value 0.

We fit a standard local linear regression using the LOESS algorithm for observations before and after the reform separately. The underlying local linear regression for x_0 (the year after the reform) takes the following form:

$$(\hat{\beta}_0, \hat{\beta}_1) = \arg \min_{(\beta_0, \beta_1)} \sum_{i=0}^N w_i(x_0) [y_i - (\beta_0 + \beta_1(x_i - x_0))]^2$$

where $w_i(\cdot)$ is the tricubic weight on the i^{th} observations in the neighborhood of x_0 . The neighborhood is defined by the span which we typically set to 0.8. This means that about 80% of the data is used for fitting. For data from the United States, we use a local constant regression with a maximum span if there is less than 36 months of data before the first reform year (24 months after the first reform year).

We denote the predicted value from the regression using the observation after the reform year with \hat{y}_R and the predicted value using observation from before the reform as \hat{y}_L . Our reform estimate is then $\delta = \hat{y}_L - \hat{y}_R$. Notice that \hat{y}_L is the value predicted 12 time periods ahead in the case of the United States since we exclude the 12 months between the passage of the reform and the estimation of the reform effect. We use a Welch's two-sample t-test to test if the difference is statistically indistinguishable from zero.

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Data availability: The data used in this article and the code to replicate the analyses are online at Dataverse link added here upon acceptance.

Supplementary information is available for this paper <http://www.dx.doi.org/XXXX>.