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Paths to Citizenship

Using Data to Understand and Promote Naturalization

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Executive Summary

With the exclusionary tenor of the United States federal government towards immigrants and constant new policy proposals threatening newcomers, immigrant families and immigrant allies are seeking ways to better protect their communities and secure the American Dream for all. Some have begun linking arms with local immigrants' rights groups, while others have sharply limited their contact with authorities of any type. Many of those who have legal status have become naturalized citizens as a way to become more protected under federal law and to exercise voting rights in order to change the law itself.

Given the context, one would imagine that all eligible immigrants would make the choice to become a U.S. citizen. Yet the number of lawful permanent residents (LPRs) who are eligible to naturalize in the U.S. stands at nearly 9 million and has risen slowly and relatively steadily over the past several years. In *Paths to Citizenship*, we explore the factors that influence naturalization rates among eligible-to-naturalize adults in the United States, including individual characteristics (such as English language ability, income, and knowledge about the process) and contextual factors (such as the receptivity of the state or region to immigrants and their families).

Encouraging naturalization has long been a point of unity among those on all sides of the immigration debate. After all, the benefits of naturalization include increased wages, better job opportunities, enhanced security, and greater civic engagement. As such, immigrant integration advocates and practitioners have generally sought to boost naturalization rates. Knowing more about which characteristics are most strongly associated with naturalization can help identify which barriers need to be addressed. In addition, understanding which groups are more likely to naturalize than others and where they live can help the non-profit, public, and private sectors to effectively direct resources to boost naturalization rates. Such is the purpose of this research brief and its accompanying interactive maps (which can be found at dornsife.usc.edu/csii/map-eligible-to-naturalize-puma/).

To offer a data-driven approach to encouraging naturalization, we use publicly available datasets—the 2012-2016 American Community Survey and the 2014 Survey of Income and Program Participation—to generate individual-level estimates of who is eligible to naturalize and the probabilities of naturalization for eligible adults. We find that the main drivers of an eligible adult's propensity to naturalize are related to (1) individual demographic characteristics, such as English language ability, educational attainment, income, and whether they are married to a U.S. citizen or have an undocumented family member in the same household; (2) country-of-origin characteristics, such as whether dual citizenship is allowed and whether they come from a refugee-sending country; and (3) characteristics of where eligible adults live in the U.S., such as whether they reside in a Democratic-leaning state and the concentration of immigrants in their sub-county area.

Some of our main findings include:
- **Language**: Those who report speaking English "well" or "very well" have about 130 to 150 percent higher odds of naturalizing than those who report not speaking English at all.
- **Education**: Eligible adults who have some college education or a bachelor's degree have about 30 to 35 percent higher odds of naturalizing, compared to those who have less than a high school diploma.
- **Gender**: The odds of females naturalizing are about 12 percent higher than males.
- **Family structure**: Having an undocumented family member in the household is associated with nearly 50 percent lower odds of naturalizing compared with not having one, likely due to concerns about interacting with the government.

Building on this analysis, we are able to place eligible adults into three categories: low, medium, and high probability of naturalization. Each of these groups might require more or less effort (and different types of effort) to encourage naturalization, and this could be a guide to more efficiently targeting outreach. As it turns out, about 40 percent of eligible adults in the United States have a low probability of naturalization, 35 percent have medium probability, and 25 percent have high probability.

Some of the characteristics of these three groups are as follows:

- **Low probability:** This group is generally older, more Latino, has lower educational attainment and income, and is less proficient in their English speaking abilities. About 23 percent of this population is 65 years or older, 71 percent identify as Latino, 60 percent report speaking English "not well" or "not at all," and 54 percent has a family income below 200 percent of the federal poverty level.

- **Medium probability:** This population is majority middle-aged (ages 35-54), has moderate levels of educational attainment, and tends to speak English at least "well." More than 70 percent of this group has at least a high school degree and 70 percent report speaking English "well" or better. Compared to the low probability group, this group is more economically resourced with 60 percent living at or above 200 percent of the federal poverty level. Though majority Latino, at 53 percent, there is a stronger presence of those identifying as Black and Asian American/Pacific Islander (AAPI).

- **High probability:** Eligible adults in this category are typically younger, have higher levels of educational attainment, and report higher English speaking fluency. Within this group, only 12 percent have less than a high school degree while 67 percent have at least some college education. About 88 percent report speaking English "well" or better. Compared to those with low or medium probabilities of naturalization, this group has higher levels of income with 69 percent at or above 200 percent of the federal poverty line. Black and AAPI eligible adults are more likely to be in this group than eligible adults of other races and ethnicities, with AAPI individuals making up 34 percent of high probability adults.

To add further richness to this research, we developed an interactive mapping tool (see prior link). The maps show how eligible adults with different probabilities of naturalization are geographically distributed. Specifically, these maps identify the number of eligible adults in different locations (i.e., on

the state, congressional district, and local levels) along with demographic information for each of the three groups.

Distinguishing these groups helps when considering what types of support and services would be most effective in boosting naturalization rates. Mapping the distribution of eligible adults by their probabilities of naturalizing provides guidance to service providers, elected officials, and policymakers with different objectives. For example, some may be more focused on equitably helping those with the most barriers (i.e., the low probability group), while others may be looking to substantially boost civic engagement and voting among those who may only need a nudge towards naturalization (i.e., the high probability group). Still others may want to work with populations that need more than a nudge but for whom the barriers to citizenship are more surmountable (i.e., the medium probability group). Our tool and data can help users determine the effectiveness and possible trade-offs between numbers of adults naturalizing and the resources providers may have.

Our case studies highlight the types of services offered by different organizations and infer which groups may benefit most from the services. For example, Citizenshipworks provides online resources and step-by-step guidance through the citizenship eligibility requirements and the naturalization application itself. Services like these may be beneficial to individuals categorized as having a *high probability of naturalizing* considering that they are more likely to have the skillsets to navigate the naturalization process and the online tools provided by Citizenshipworks. CASA is a membership-based organization that provides comprehensive naturalization support to its members, such as eligibility screenings, in-person application assistance, and referrals to attorneys. Resources like these may be particularly helpful in addressing some of the barriers to naturalization for individuals categorized as having a *medium probability of naturalizing* and who are able to afford the modest membership fee. Lastly, Asian Americans Advancing Justice – LA is an organization that provides free extensive and comprehensive naturalization support, including legal helplines available in eight AAPI languages, in-person application assistance, legal representation, and follow-up services. Those categorized as having a *low probability of naturalizing* may benefit from an organization that provides a range of comprehensive and accessible services that address multiple barriers to the naturalization process.

While useful, we are aware that categorizing eligible adults into three groups is imperfect and could result in equity issues. For example, among our high probability group, there are some who may have the language skills, education, and financial resources necessary for an easy path to naturalization but may not desire to naturalize for other reasons not captured by our predictive model. In terms of equity issues, if organizations promoting naturalization focus solely on the "low-hanging fruit" to improve their naturalization outcomes, resources could be diverted away from those who need the most support. Indeed, if organizations promoted the naturalization of those with the most barriers, those with fewer barriers would benefit along the way.

Despite these nuances and cautions, we trust that *Paths to Citizenship* is a useful contribution to the growing body of research on the eligible-to-naturalize population. For example, the higher probability of naturalization among women suggests that providers could both target women and support them as "ambassadors" who can encourage naturalization among other groups (much like the popular health *promotora* model). In addition, the fact that having an undocumented family member reduces the probability of naturalization suggests the interaction of different elements of our immigration system. If we want to encourage naturalization, we should also understand the "chilling effect" of the current

emphasis on deportation and family separation. Service providers and policymakers can collectively increase naturalization rates by providing a sense of security throughout the naturalization process. For example, service providers can proactively collaborate with other organizations and groups that have trust among the undocumented community, while policymakers can advocate for more institutional changes, such as removing questions on the N-400 form that ask about the legal and citizenship status of family members and spouses.

We are at a time in the history of our nation where our values of inclusion, equity, and diversity are being challenged. In order to overcome this challenge, we must add voices to the chorus of those who understand the importance of immigrants to our nation. Regardless of status, immigrants can work with others to make the case for the positive contributions immigrants make to our economy and our polity. But those who are LPRs will be even more effective at shifting public policy and public attitudes through naturalization and the new forms of civic engagement that naturalization facilitates. We hope that the analysis and tools we offer here help encourage citizenship, better support immigrants, and move us towards a more inclusive nation.

Photo credit:

Citizenship Photos, Asian Americans Advancing Justice, Fall 2018

Introduction

Immigrants become citizens through naturalization. Currently, there are about 24 million non-citizen immigrants in the United States, approximately 37 percent (8.97 million) of whom are eligible to naturalize. According to the U.S. Office of Immigration Statistics (OIS), the number of those eligible has risen slowly and relatively steadily since 2002 (Lee and Baker 2017). Basic eligibility is largely achieved by maintaining lawful permanent resident (LPR) status for five years (or three if married to a U.S. citizen). Of course, to become a U.S. citizen, one also must be able to pay a substantial application fee of $725 (which includes the biometric fee) and pass the naturalization test in English, which requires a certain level of English proficiency as well as a knowledge of U.S. history and government (U.S. Citizenship and Immigration Services 2018c).[1] As such, immigrants who are eligible to naturalize vary in terms of their preparedness—and eagerness—to do so.

Citizenship grants immigrants access to new opportunities and resources. These include the right to vote, access to certain government benefit programs and jobs, prioritized sponsorship of immediate family members to the United States, and protection from deportation. Economists, sociologists, and other researchers have also found naturalization to be associated with long-term socioeconomic benefits like increased wages and earnings, even when accounting for variations in demographics and human capital (i.e., things that add to labor productivity like education and work experience) (Pastor and Scoggins 2012; Sumption and Flamm 2012). Additionally, naturalization increases access to certain public benefits that became restricted to citizens under the welfare reform undertaken with the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (Johnson et al. 1999).

With the overall goal of promoting naturalization, this research has three specific aims. First, we aim to determine the characteristics and barriers that contribute to an eligible adult's probability of naturalization. Second, we seek to identify the typical characteristics of those eligible adults who have low, medium, and high propensity to naturalize. In doing so, we can better understand the challenges faced by eligible adults and also identify groups that may need more services compared to groups who may only need a nudge towards naturalization. Third, our research takes advantage of a unique dataset with geographic identifiers to map the three different groups (low, medium, and high probability) with the intention of supporting services and interventions tailored to the needs of the eligible population in different areas.

Understanding who is eligible to naturalize is timely. The U.S. Citizenship and Immigration Services (USCIS) implemented the Citizenship and Assimilation Grant Program in July 2018 that offers around $10 million in funding for citizenship and naturalization programs across the country (U.S. Citizenship and Immigration Services 2018b). Community-based organizations have long understood the barriers their communities face to naturalization; we hope that this analysis will equip them with the data to show government agencies and funders their specific needs.

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[1] There are some exceptions to these requirements, as discussed below.

In this report, we first examine existing research on the drivers of naturalization by discussing how work in this field has developed. We then turn to our own analysis, including the data and methodology used to determine individual and place-level drivers of naturalization. We present our results in three parts: drivers of naturalization, probabilities of naturalization, and a state-by-state analysis. When looking at the drivers of naturalization, we lay out which characteristics show up as the strongest predictors of naturalization. The modeling results lead us to assign different probabilities of naturalization to individuals in our dataset based on their characteristics, which we use to create three different groups of eligible adults by their probability of naturalization. We then report some detailed demographic characteristics of each group, followed by a closer look at their distributions across states. We conclude the report with a case study analysis of three different organizations and how their resources may most effectively serve different eligible groups based on their needs.

Photo credit:

Volunteers Assisting with N-400 Completion, Miami New Americans Campaign and Catholic Legal Services, Archdiocese of Miami, North Dade Regional Library, September 15, 2018

Review of Past Research

For many decades, researchers across disciplines and agencies have sought to better understand naturalization. The range of existing literature includes the costs and benefits of naturalizing as well as discussions on which characteristics seem to correlate with an immigrant's likelihood of naturalizing; such characteristics range from individual-level to place-specific. Researchers are able to be increasingly comprehensive in their analyses as data become more readily available. Here, we review the past research on naturalization, drawing from the fields of sociology and migration studies.

The earliest studies on the likelihood of naturalizing focus exclusively on individual-level characteristics. Bernard (1936) developed a model that specifically looks at socioeconomic determinants and found that immigrants with higher levels of education, household income, and employment are significantly more likely to naturalize. Scholars built on this early work by including other individual-level determinants. For example, Barkan and Khokhlov (1980) incorporated individual-level, non-socioeconomic determinants that influence an immigrant's cultural, economic, and structural assimilation, including English proficiency, length of stay in the United States, and homeownership status. More recently, Johnson and colleagues (1999) highlighted the importance of social networks that could increase the likelihood of naturalization through information sharing and found that being married to a U.S. citizen has a strong positive effect on the probability of naturalizing compared with being unmarried.

Beyond individual and family characteristics, researchers have paid attention to the social contexts of immigrants' countries of origin and the areas they have settled in the U.S. For example, Yang (1994) found through regression analysis that country of origin matters: immigrants from socialist or refugee-sending countries and immigrants migrating from more distant countries were more likely to naturalize. The country of origin's gross national product (GNP) had a negative effect on an individual's propensity to naturalize; immigrants from wealthier countries were less likely to naturalize. Yang also tested whether the country of origin's allowance of dual citizenship mattered, finding a negative (but statistically insignificant) impact if dual citizenship was allowed. However, Johnson and colleagues (1999) later found that allowing dual citizenship was associated with a positive and significant effect on the likelihood of naturalizing.

Yang (1994) found that LPRs were more likely to naturalize if they came from countries with many immigrants in the U.S. and with a larger share living in urban areas, which brings into question how U.S.-based places figure into naturalization. Johnson and colleagues (1999) found that only the regional unemployment rate of the metropolitan area in which immigrants live in the U.S. is significant among the place-based variables tested, showing a small negative effect on naturalization with higher unemployment. The other place-based variables tested include the average income level and the percentage of immigrants in the residing PUMA, a sub-state (and frequently sub-county) geographic unit

of analysis.[2] The characteristics of where immigrants migrate from and where they now live contribute significantly to the likelihood of naturalization, and these results have been elevated by scholars in recent decades (Abascal 2015; Dziadula 2018; Johnson et al. 1999; Yang 1994).

Other researchers have delved deeper into trying to explain why some states and counties have higher naturalization rates than others. Johnson and colleagues (1999) suggested that differences across California counties are largely explained by residing immigrants' personal, family, community, and country-of-origin characteristics. They also found, however, that the variance in naturalization rates across counties was not entirely explained by individual immigrant characteristics; it was also partly due to varying naturalization activities, organizations, and larger societal factors. Woroby and Osborne-Groves (2016) found that states with more favorable economic and political environments for immigrants experienced higher rates of naturalization among their eligible population. In sum, these studies suggest that place matters for naturalization outcomes.

Though more recent works include a series of place-level variables in their models, researchers remain concerned that models are not adequately accounting for the highly diverse contexts in which immigrants live (Johnson et al. 1999; Jones-Correa 2001). The issue is that many place-level factors may matter for naturalization outcomes that we cannot account for due to insufficient data. Examples of these factors include local attitudes towards immigrants, institutional and policy differences, and the availability of organizations and services to help immigrants integrate.

Some of the challenges to previous research include the inability to remove undocumented immigrants from the data and the lack of information on when immigrants naturalized (Amuedo-Dorantes and Lopez 2018; Johnson et al. 1999; Woroby and Osborne Groves 2016). Undocumented immigrants are ineligible for naturalization, and because the majority of past work inappropriately counts them as LPRs (usually due to data limitations), naturalization rates and individual probabilities are underestimated and findings around which characteristics matter for naturalization (and how much) can be misleading. Similarly, without knowing when an LPR naturalized, it's unclear whether increases in income, education, and English language abilities led to naturalization, or vice versa. Untangling these variables is especially important given ample research suggesting that naturalization leads to positive social and economic outcomes.

Our analysis attempts to address these challenges by applying a methodology to select only those immigrants who are documented and thus actually eligible. We also use more recently available information from the American Community Survey on the timing of naturalization to focus only on those who naturalized recently. As a result, we can focus our statistical model on those who naturalized recently (rather than at any point prior to the survey), avoiding the feedback problem for variables like income discussed above. We discuss all these issues and strategies in the methodology section below.

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[2] Briefly, ACS data are aggregated to a geography called a PUMA (Public Use Microdata Area) in order to protect the anonymity of respondents. PUMAs are areas that include approximately 100,000 people. Multiple PUMAs can exist within a single city's or county's boundary or cross multiple cities and counties within a state.

Analysis

Methodology and Data Reliability

We developed a methodology to help us better understand who is the most and least probable to naturalize. Our analysis is useful because it can help us identify barriers to naturalization and provide data on the size, characteristics, and geographic distribution of different groups of eligible adults with low to high probabilities of naturalization. Moreover, knowing where different groups of eligible adults are located can assist in addressing some of the barriers identified through strategic interventions, as we illustrate in the final section of this research brief.

Our methodology relies on creating a dataset that includes all eligible adults and adults who have recently naturalized so we can examine which individual characteristics and other factors are most strongly associated with naturalization to estimate each individual's probability of naturalizing.[3] Including only the recently naturalized in the data is important for two reasons: it helps avoid the issues of unclear causality mentioned above, and it ensures that the effects of different characteristics and the probabilities we estimate are relevant to the contemporary social, economic, and political climate.[4]

Our primary dataset is the 2016 5-year American Community Survey (ACS) U.S. Census microdata from IPUMS USA, covering the years 2012 through 2016 (Ruggles et al. 2017). We chose this dataset because it contains a wide variety of individual and household characteristics and the sample size is large enough to make reasonably accurate estimates for sub-state geographies. One critical shortcoming of this dataset for our purposes, however, is that while it allows us to identify non-citizen immigrants, it does not tell us which non-citizens are documented and which are not. In order to figure out who is eligible to naturalize, we first had to determine who is documented and who is an LPR.

To make a long story short, this involved first determining who, among non-citizen immigrants in the sample, was likely to be undocumented and then assuming that the rest were LPRs.[5] Our estimation of who is undocumented is based on a statistical model developed using the 2014 Survey of Income and Program Participation (SIPP) that was then applied to the ACS microdata. For those interested in the

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[3] The reason we focus on adults is that one must be an adult to naturalize. Children can gain citizenship but only through what is known as "derivative citizenship"—that is, they derive citizenship through their parents when their parents naturalize.

[4] By considering only those who naturalized very recently, if we find a positive relationship between income and naturalization, we can be much more certain of the causal direction—that is, that income was already high when the decision to naturalize was made. This greater certainty is because of the relatively short window—less than two and a half years—over which an individual's income could have grown post naturalization.

[5] Of course, this ignores the group of non-citizen immigrants who have temporary lawful status, such as those with student or work visas. However, given the challenges associated with identifying this group, along with their relatively small share of the non-citizen population, our methodology does not separate them out.

details of our methodology, please refer to Pastor and Scoggins (2016). For the current research, we applied the same methodology to more recent datasets.[6]

With identifiers for documented non-citizens in the ACS microdata in place, we applied some basic conditions to determine who among them were likely to be eligible to naturalize. We began by reviewing the description of who is eligible according to the USCIS. The agency reports that immigrants must meet the following requirements to apply for citizenship (U.S. Citizenship and Immigration Services 2018c):

- Be at least 18 years old at the time of filing Form N-400, Application for Naturalization
- Be a permanent resident (have a "Green Card") for at least five years
- Show that you have lived for at least three months in the state or USCIS district where you apply
- Demonstrate continuous residence in the United States for at least five years immediately preceding the date of filing Form N-400
- Show that you have been physically present in the United States for at least 30 months out of the five years immediately preceding the date of filing Form N-400
- Be able to read, write, and speak basic English (with certain exemptions for older, long-time residents and those with disabilities)[7]
- Have a basic understanding of U.S. history and government (civics)
- Be a person of good moral character
- Demonstrate an attachment to the principles and ideals of the U.S. Constitution

In addition, there is a caveat to the second requirement listed: only three years of permanent residency is required for LPRs who are married to U.S. citizens and immigrants who served in the military may be eligible to have the length of residency requirement waived (U.S. Citizenship and Immigration Services 2018a).

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[6] There were a couple of key changes to the methodology to accommodate the new datasets. Prior estimates by both our team and others have relied on Wave 2 of the 2008 SIPP because it included information on whether individuals who arrived without documentation had subsequently changed their status to LPR (Bachmeier, Van Hook, and Bean 2014; Capps et al. 2013; Pastor and Scoggins 2016). Unfortunately, the 2014 SIPP—which has the advantage of being more consistent with the 2012-2016 ACS—does not include information on who adjusted status (i.e., became an LPR) after arriving in the U.S. without permanent status. Thus, for the current analysis, we added a step to the methodology in which we used a series of conditions to label some of those who arrived without permanent status as LPRs, or status adjusters, with the remainder assumed to still be undocumented. It is important to note that we were careful to use conditions or "logical edits" when assigning LPR and undocumented statuses to individuals; these conditions were different than those later used to assign non-citizens in the ACS microdata to a documented/LPR status as in Pastor and Scoggins (2016). As in prior exercises, the SIPP yields probability estimates on key factors that are then applied to the ACS data to determine status. The other change to the methodology is that we assumed that the undercount of 12.5 percent applied to all non-citizens, rather than only to the undocumented.

[7] For example, those who are over 50 years old and have lived in the U.S. for at least 20 years since gaining LPR status, and those who are over 55 years old and have lived in the U.S. for at least 15 years since gaining LPR status may take the civics test in their native language (U.S. Citizenship and Immigration Services 2015). Some people with disabilities may also be granted an exemption from the English and civics naturalization requirements (U.S. Citizenship and Immigration Services 2015).

Among these requirements, our dataset provides useful information on the first two (age and LPR/Green Card status) as well as length of residency in the U.S. and English language ability, though, as we note below, we do not use English language ability as a screen in our estimates. Accordingly, we tagged respondents in the ACS microdata as eligible adults if they were at least 18 years old, were identified as LPRs based on the methodology described above, and had been in the U.S. for at least five years prior to the survey (or three years if married to a U.S. citizen).[8] We also assumed that LPRs on active military duty were eligible regardless of their length of tenure in the U.S.

While the ACS microdata includes information on English speaking ability (which differs a bit from the basic literacy requirement), we did not use this as a criterion for determining eligibility for three reasons. First, English speaking ability is not a criterion used to determine eligibility in the official estimates of the size of the eligible-to-naturalize population published by the U.S. Office of Immigration Statistics (Lee and Baker 2017). Second, English can be acquired—indeed, one of the strategies groups promoting naturalization pursue is the widespread availability of classes for English learners. Third, according to the ACS microdata, there are many immigrants who have naturalized despite reporting limited English speaking abilities. For example, our dataset suggests that among immigrant adults who report speaking English "not at all," 18 percent are naturalized citizens, a share that rises to 31 percent for those who report speaking English "not well." This may be partly because of the language exemption for older residents who have lived longer in the United States, or because immigrants tend to underrate their English abilities. In any case, if we were to restrict our definition of eligibility to only those who report some level of English speaking proficiency, we would be understating the size of the eligible population.

With the undocumented, LPRs, and eligible adults identified, our dataset is complete and ready for analysis.[9] In order to validate our estimates of the eligible to naturalize, however, we first compared them to the most recent estimates available from OIS (Lee and Baker 2017). OIS estimates are used for reference as their numbers are arguably the most reputable and official, based on government administration data. Given that their estimates appear to include children under 18, we temporarily identified LPR children in our dataset as eligible to naturalize if either of their parents were eligible—this is called "derivative" eligibility—so that we could make a more consistent comparison. The results of our comparison are shown in Table 1. There we can see that while we estimate a slightly larger eligible-to-naturalize population than OIS (8.97 million versus 8.88 million), the distribution of the population by years of eligibility, country of birth, and state of residence is relatively similar.

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[8] Given that the ACS is an ongoing sample (i.e., the survey is conducted every month), the last half year of observations needs to be censored in the calculations (Warren and Kerwin 2015). For example, someone who answers in January and reports that they arrived five years before could have arrived in December of that year and so would only have been in the country for a bit over four years; since we don't know when they answered or arrived in that year, we simply randomize and include only half from those on the "edge" year as eligible to naturalize.

[9] Unless otherwise noted, all data reported in this brief are from the dataset described here.

Table 1: Comparing OIS and CSII estimates of the eligible to naturalize

	OIS (January 2014)		CSII (2012-2016)	
	Number	**Percent**	**Number**	**Percent**
Years of eligibility				
1-5 yrs	2,242,000	25%	2,310,000	26%
6-10 yrs	1,672,000	19%	1,620,000	18%
11-20 yrs	2,339,000	26%	2,370,000	26%
>20 yrs	2,627,000	30%	2,660,000	30%
Total	**8,880,000**	**100%**	**8,970,000**	**100%**
Country of birth				
Mexico	2,710,000	31%	3,060,000	34%
China	330,000	4%	330,000	4%
Philippines	340,000	4%	280,000	3%
India	250,000	3%	390,000	4%
Dominican Republic	300,000	3%	250,000	3%
Cuba	300,000	3%	330,000	4%
Vietnam	200,000	2%	130,000	1%
El Salvador	250,000	3%	310,000	3%
Canada	260,000	3%	260,000	3%
Korea	190,000	2%	180,000	2%
United Kingdom	230,000	3%	280,000	3%
Haiti	150,000	2%	120,000	1%
Jamaica	160,000	2%	130,000	1%
Colombia	140,000	2%	130,000	1%
Guatemala	120,000	1%	200,000	2%
Rest of Countries	2,950,000	33%	2,590,000	29%
Total	**8,880,000**	**100%**	**8,970,000**	**100%**
State of residence				
California	2,470,000	28%	2,270,000	25%
New York	1,040,000	12%	900,000	10%
Texas	960,000	11%	1,050,000	12%
Florida	830,000	9%	810,000	9%
Illinois	380,000	4%	360,000	4%
New Jersey	370,000	4%	340,000	4%
Massachusetts	200,000	2%	200,000	2%
Arizona	190,000	2%	210,000	2%
Washington	180,000	2%	180,000	2%
Virginia	160,000	2%	160,000	2%
Rest of States	2,100,000	24%	2,480,000	28%
Total	**8,880,000**	**100%**	**8,970,000**	**100%**

Note: Numbers are rounded to the nearest 10,000.

Determinants of Naturalization

To determine which factors matter most to the decision to naturalize, we began by comparing the characteristics of all naturalized immigrants, including those who have recently naturalized, to those who are eligible to naturalize but have not yet naturalized.[10] We defined the recently naturalized as those that naturalized two to three years prior to the survey.[11] As noted earlier, part of the reason we focus on the recently naturalized is that we know from past research that things like income, education, and English language abilities often improve post naturalization. Thus, a simple finding of higher income among the entire naturalized population would not be strong evidence that income makes people more likely to naturalize. However, if we find higher income among the recently naturalized, the evidence is stronger because the time over which income could have grown is much shorter. Focusing on the recently naturalized also ensures that our results better reflect the current social, economic, and political climate.
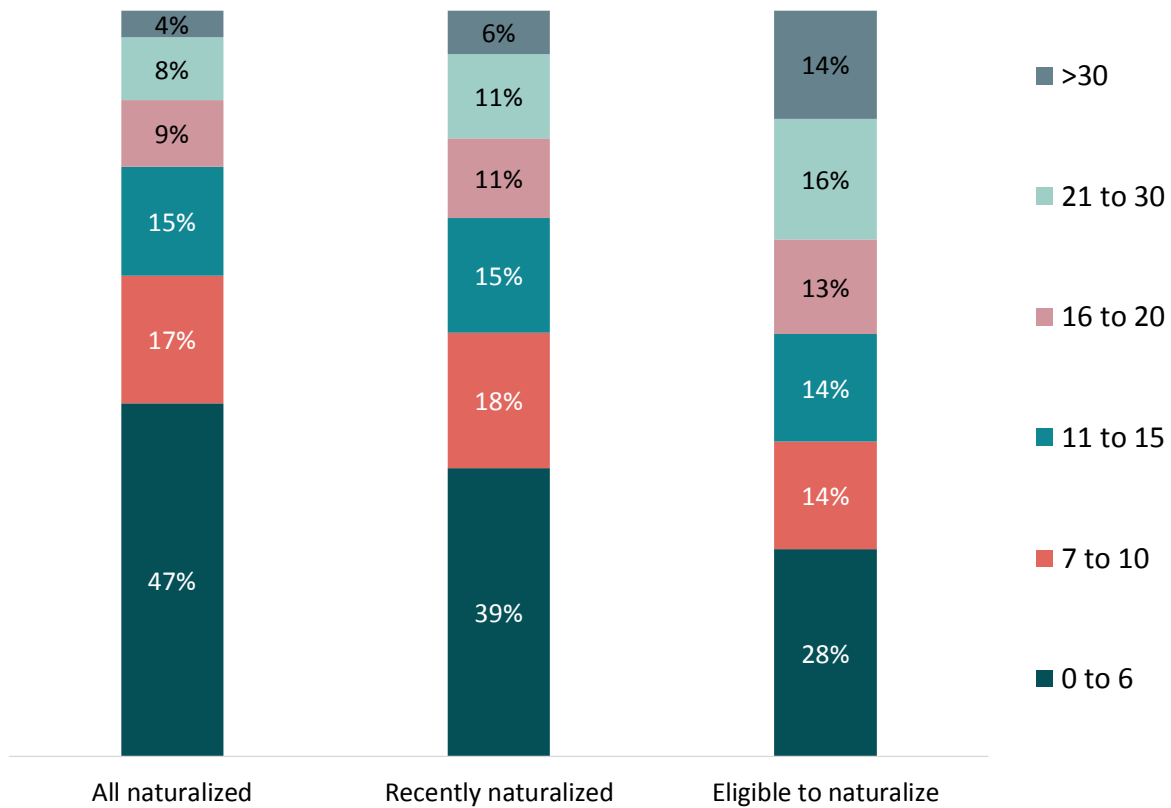
One very important factor for naturalization is the number of years of eligibility. Of course, as time goes on, the number and percentage of all of those who are eligible that become citizens can only increase. However, if we look at years of eligibility prior to naturalization for all naturalized individuals and the recently naturalized, and compare that to years of eligibility for those currently eligible, we see an interesting pattern. As shown in Figure 1, it appears that it is taking longer to naturalize in recent years than in the past.[12] Among all naturalized, nearly half (47 percent) were eligible for six years or less prior to naturalization. However, among the recently naturalized, that share drops to only 39 percent. Among those who are eligible but not yet naturalized, only 28 percent have been eligible for six years or less and a much larger share have been eligible for a longer period of time.

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[10] It should be noted that here and for the remainder of the brief, our analysis includes only those who naturalized as an adult and adults who are eligible to naturalize. Thus, when we use the terms "naturalized," "recently naturalized," and "eligible," we are referring only to those who naturalized as an adult (and not those who derived citizenship as children through a parent) and eligible-to-naturalize adults. While a subtle distinction, we made these restrictions intentionally so that the naturalized sample is more comparable to the eligible-to-naturalize sample, which only includes adults. Furthermore, we exclude from the dataset all persons living in group quarters (e.g., prison, military barracks, etc.) as they have no data for certain key variables such as household income and housing tenure (i.e., living in an owner- versus renter-occupied household). This restriction reduces the sample size by about 1.4 percent.

[11] The reason we describe the recently naturalized as those that naturalized "two to three years" prior to the survey is due to the sampling design of the ACS. As noted earlier, it is a monthly survey that is conducted each year. While we specify the recently naturalized as those that naturalized during the past three years (so, a naturalized immigrant in the 2016 sample would be considered recently naturalized if they reported naturalizing in 2014 or later), we are only likely to identify about two and a half years of naturalizations because about half of those naturalizing during the survey year are likely to have done so after being interviewed.

[12] For the calculations shown in Figure 1 and all analysis that follows, we also exclude from the naturalized sample those for whom our estimated number of years of eligibility prior to naturalization came out negative. This is likely caused by a misreporting of the year of arrival or naturalization, return migration (e.g., if someone reports the last time they entered the U.S. rather than when they first came to stay, which could be after they naturalized), or past military service that can shorten the wait time for eligibility. These individuals are excluded so that data on years of eligibility among the naturalized sample are more comparable to that for the eligible-to-naturalize sample, for which estimated years of eligibility are never negative. The number of cases excluded from the naturalized sample due to this issue is very small—less than one percent of the total.

Figure 1: Years of eligibility for the naturalized, recently naturalized, and eligible to naturalize

Note: For all naturalized and recently naturalized, years of eligibility reflects the number of years of eligibility prior to naturalization.

Other factors that we know to be important for the decision to naturalize include gender, race/ethnicity, English language skills, educational attainment, household income, and poverty status. We explore how these characteristics differ for all naturalized, the recently naturalized, and the eligible to naturalize in Table 2. There we can see a clear gendered dynamic: women make up a larger and nearly identical share of the naturalized and recently naturalized than they do of the eligible, indicating that they are more likely to naturalize than men. There is also an interesting racial dynamic. The naturalized and recently naturalized are more likely to be white, Black, Asian American/Pacific Islander (AAPI), or a non-Hispanic other race, and less likely to be Latino. However, unlike the gender composition, there are noticeable differences between all naturalized and the recently naturalized. Given that we would not expect an immigrant's racial/ethnic identification to change after naturalizing, the data suggest that the flow of naturalization is trending less white and AAPI and more Black, Latino, and other races.

Table 2: Selected characteristics of the naturalized, recently naturalized, and eligible to naturalize

	All naturalized	Recently naturalized	Eligible to naturalize		All naturalized	Recently naturalized	Eligible to naturalize
Gender				**Household income (in 2016 dollars)**			
Male	45.5%	45.6%	48.0%	$9,999 or less	3.9%	4.0%	4.8%
Female	54.5%	54.4%	52.0%	$10,000-$19,999	7.3%	6.7%	8.6%
Race/ethnicity				$20,000-$34,999	11.9%	13.2%	15.8%
White	22.9%	19.5%	17.6%	$35,000-$49,999	11.8%	13.2%	14.9%
Black	9.7%	13.4%	6.8%	$50,000-$74,999	17.4%	19.0%	19.3%
Latino	33.6%	36.7%	54.0%	$75,000-$99,999	13.3%	13.4%	12.5%
AAPI	31.8%	28.1%	20.1%	$100,000-$124,999	9.9%	9.4%	8.0%
Other	2.0%	2.3%	1.6%	$125,000-$149,999	6.7%	6.0%	4.9%
English speaking ability				$150,000-$199,999	8.0%	7.1%	5.3%
Not at all	4.4%	5.0%	14.4%	$200,000 or more	9.6%	8.0%	5.8%
Not well	14.6%	14.5%	22.8%	**Poverty status (relative to Federal Poverty Level - FPL)**			
Well	23.4%	23.1%	19.7%	Below 50% FPL	3.5%	5.0%	6.3%
Very well	39.7%	42.6%	27.6%	50-99% FPL	7.6%	9.1%	11.3%
English only	17.9%	14.9%	15.5%	100-149% FPL	9.4%	11.0%	13.4%
Educational attainment				150-199% FPL	9.4%	10.7%	12.4%
Less than high school	21.3%	18.8%	34.4%	200-249% FPL	9.0%	10.0%	10.6%
High school grad	22.0%	22.7%	26.0%	250-299% FPL	8.1%	8.5%	8.4%
Some college	23.3%	25.4%	17.4%	300-349% FPL	7.2%	7.3%	6.8%
Bachelor's degree	19.7%	20.2%	12.5%	350-499% FPL	16.2%	15.0%	12.6%
Greater than a bachelor's degree	13.7%	12.9%	9.6%	At or above 500% FPL	29.6%	23.4%	18.2%

Note: "AAPI" refers to those who identify as non-Hispanic Asian American or Pacific Islander. "Other" includes those who identify as Native American, some other race, or being of mixed racial background. All racial/ethnic groups other than Latino are non-Hispanic.

English speaking ability, education, and income characteristics all appear to matter for naturalization. The naturalized and recently naturalized tend to have a much stronger command of English, higher levels of educational attainment, more income, and a lower likelihood of falling below the federal poverty level. As expected, there is also some indication that income levels tend to rise after naturalization. For example, among the recently naturalized, about 31 percent have household incomes of at least $100,000 per year, but that share rises to 34 percent for all naturalized. For the eligible, only 24 percent have income levels as high. So, while income clearly appears to matter for naturalization, it matters relatively less when making the more valid comparison between the eligible and the recently naturalized than when we compare the eligible to all naturalized.

What is not expected, however, are the small differences seen in English speaking abilities and educational attainment between the recently naturalized and all naturalized. Both groups have about 81 percent speaking English at least "well" and 33 percent with a bachelor's degree or higher. One interpretation of this could be that English speaking abilities and education do not increase much, on average, after naturalization. Another interpretation—and one that is more consistent with the finding that people are taking longer to naturalize now than before—is that gains in English speaking abilities and education are made prior to naturalization. This result, at least on the face of it, is consistent with recent evidence from the Netherlands that human capital investments are made by immigrants prior to naturalization in anticipation of the citizenship premium (Peters, Vink, and Schmeets 2018).

Modeling Naturalization

As can be discerned, naturalization is not a product of any single characteristic. However, while all of the characteristics in Table 2 appear to matter in the decision to naturalize, we want to understand which hold more weight and how they stack up against the many other factors not included in the table. Getting at this requires regression analysis, which allows us to determine the impact of a particular variable (e.g., country of origin) on a particular outcome (naturalization) as compared with other variables (e.g., income, occupation, and location).

As for which type of multiple regression strategy to take, recall that our goal is to compare the individual, place, and other characteristics of the eligible to naturalize to the recently naturalized, both to determine which factors matter most and to estimate individual probabilities of naturalizing. Given that there are two outcomes—recently naturalized and eligible but not naturalized—and that we are interested in the probability of moving from one outcome to the other, the appropriate type of regression for our purposes is a binomial logistic regression.[13]

We developed four models to test the impact of many different characteristics, or variables, on naturalization. The particular variables included in each model are described in Table A1 of the appendix. In order to discern the best possible estimates of each eligible individual's probability of naturalizing, we use the results from Model 1, which includes many important individual variables as well as "fixed effects" for country of origin and state of residence.[14] The fixed effects essentially capture whether one's country of origin or state of residence impacts the probability of naturalizing; they improve our prediction of who, overall, is likely to naturalize but provide limited insight as to what specific factors make an individual more or less likely to naturalize.[15] Given that our additional objectives are to tease out which characteristics, on average, carry more weight in determining naturalization, we developed other models that drop these place-based fixed effects so we can test for more specific characteristics of countries of origin and state of residence such as distance, if dual citizenship is allowed, and if the state is considered liberal.[16]

To gauge the impact of specific characteristics and variables, we rely on different models and focus on what are called "odds." Odds are related to the more commonly understood concept of probabilities, but they are distinct in that they are figured as the probability that the event will occur (e.g., naturalization) divided by the probability that it will not occur (e.g., no naturalization). For example, if four eligible adults each had a 25 percent probability of naturalizing, we would expect one of them to naturalize and three of them not to, which translates to odds of 1 to 3, or 0.33. When we consider the

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[13] In particular, we use the logit functional form for all logistic models used in our analysis.

[14] While noted in the text, all four models (including Model 1) include fixed effects for the year the survey was taken in order to account for changes associated with time that might not otherwise be understood.

[15] Mechanically, for example, fixed effects for country of origin are multiple binary dummy variables (one for each country of origin) indicating whether the eligible adult is from that specific country or not.

[16] We expect the models with host state and country of origin fixed effects to more precisely explain the odds of naturalization but also expect that in some cases they will obscure certain causal patterns. For example, including both the Canada and Mexico variables will diminish any distance effects, as these two countries have historically had among the lowest rates of naturalization, but it may be that proximity and hence perceived ease of return is what explains the country effect. Balancing fit against explanatory or revelatory power is why we deploy four models.
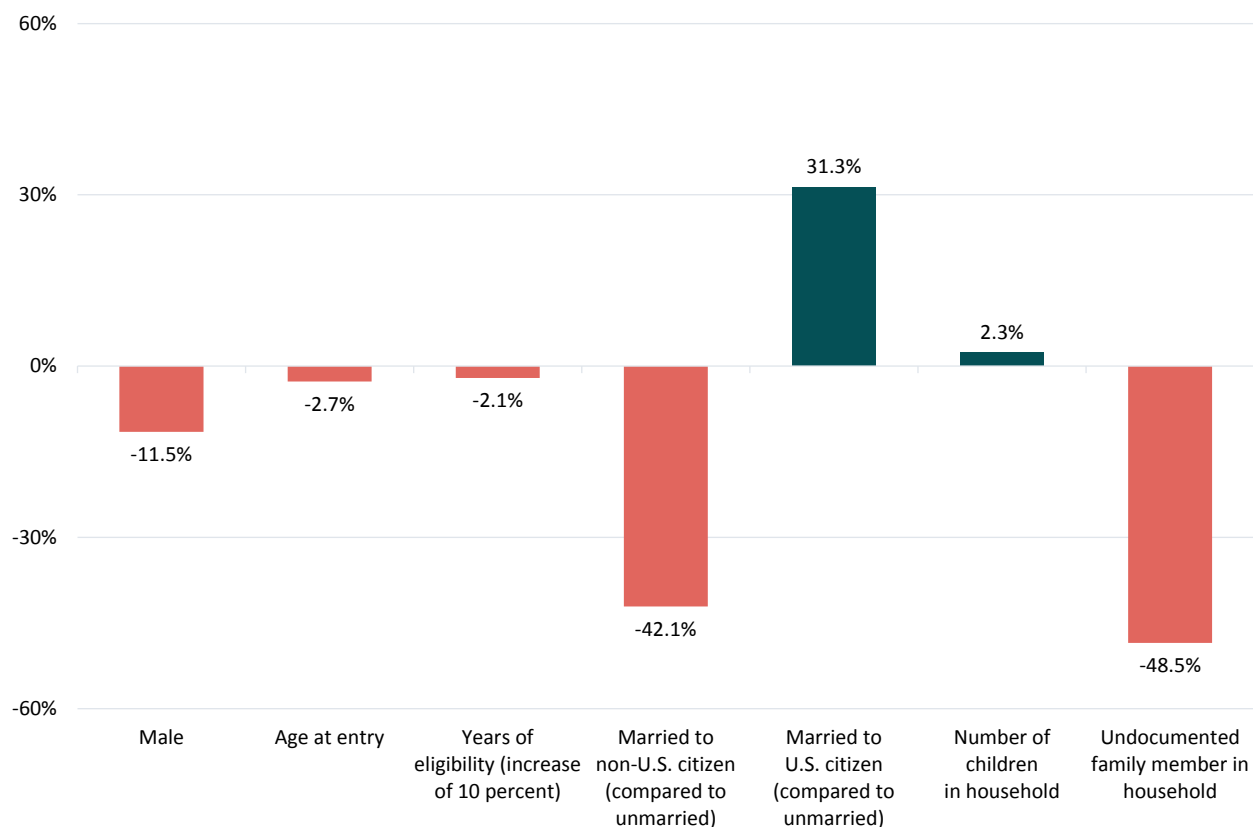
impact of a characteristic (e.g., being male) on the odds of naturalizing, we use what are called "odds ratios," which are simply the ratio of the odds for one group (males) to their counterpart or comparison group (females), with the odds for the comparison group normalized to one. In the analysis presented below, we find an odds ratio for being male of 0.885 (0.885/1), indicating that, holding other important factors constant, the odds of naturalizing for males is 0.885 times the odds for females, or 11.5 percent lower (0.885 - 1 = -.115, or -11.5 percent). Thus, we can say that males are about 11.5 percent less likely to naturalize compared with females who have otherwise similar characteristics.

We used Model 1 to test individual-level demographic characteristics, human capital variables, and whether or not the individual has an undocumented family member. Generally, the human capital variables are positively associated with an individual's likelihood of naturalizing as they are indicative of abilities to access resources and services related to the naturalization process. The mixed-status variable indicates the presence of an undocumented family member living in the same household. As anti-immigrant rhetoric, social tension, and immigration enforcement grow, many immigrants have been found—in statistically significant ways—to delay the naturalization process, possibly because they fear that contact with immigration officials will result in the deportation of themselves or members of their family (Amuedo-Dorantes and Lopez 2018).

Figure 2 below shows the extent to which an eligible adult's gender, age at entry, years of eligibility, marital status, number of children, and mixed-status family affect their likelihood of naturalization as predicted by Model 1. Marriage to a U.S. citizen most positively influences the odds of naturalizing: eligible adults with a U.S. citizen spouse have 31.3 percent higher odds of naturalizing than their unmarried counterparts. Recall that this is after we have restricted the dataset to eligible adults and the recently naturalized, so our model is not capturing how being married to a citizen makes someone eligible but rather how a U.S.-citizen spouse may facilitate the naturalization process. For example, an LPR's spouse may have already undergone the naturalization process themselves and therefore has knowledge and resources to help. Or, if the spouse is U.S. born, it may be English proficiency, knowledge of governmental bureaucratic procedures, or other social capital that could aid in an LPR's naturalization process. Alternatively, if an eligible LPR is married to a non-U.S citizen, they have 42.1 percent lower odds of naturalizing compared to those who are not married at all.

While the results for the age at entry variable are somewhat closer to zero, age does negatively affect naturalization. Further analysis reveals that each additional year of age at the time of entry decreases the odds of naturalization by almost 3 percent. Of course, older immigrants may also be less educated and have weaker English speaking abilities—other factors impacting naturalization which we discuss below—but recall that here we are holding other such factors constant and so this is a "pure" age effect. These findings may be because those who have been in the U.S. longer have fewer years left to reap the benefits of citizenship. Similarly, the more time that passes after becoming eligible, the less likely immigrants are to become citizens, which means that some naturalization programs should make contact with immigrants early in their period of eligibility.

Figure 2: Impact of demographics on the odds of naturalization

Note: All estimates are from Model 1 (see appendix).

Consistent with prior research, we found in Model 1 that those with an undocumented family member living in the same household have 48.5 percent lower odds of naturalizing than those who do not. This pattern raises a challenge for organizations promoting immigrant integration. On the one hand, becoming a citizen may afford individuals the ability to protect themselves and their family members, but on the other hand, the current heightened fear of detention and deportation may be standing in the way of citizenship. As noted before, some eligible adults may not naturalize for fear of exposing undocumented family members to the federal government.

We also found from Model 1, shown in Table 3, that eligible adults who report speaking English "very well" have 153.7 percent higher odds of naturalizing than those who do not speak English at all. Educational attainment is also important: those with some college education or a bachelor's degree are 34.8 percent and 32.3 percent, respectively, more likely to naturalize than those with less than a high school education. Model 1 also reveals the substantial impact of homeownership: homeowners have 30.4 percent higher odds of naturalization than renters.

Table 3: Impact of characteristics on the odds of naturalization

Characteristics of eligible LPRs	
English speaking ability (compared to not at all)*	
Not well	56.7%
Well	133.0%
Very well	153.7%
English only	88.3%
Race (compared to white)	
Black	84.5%
Latino	-15.7%
AAPI	25.5%
Other	30.1%
Human capital*	
Homeowner (compared to renter)	30.4%
Not in labor force (compared to unemployed)	-7.7%
Employed (compared to unemployed)	13.4%
Household income (increase of 10 percent)***	1.0%
Educational attainment (compared to less than a high school degree)*	
High school degree only	0.7%
Some college	34.8%
Bachelor's degree	32.3%
Greater than a bachelor's degree	3.2%
Characteristics of country of origin**	
Dual citizenship allowed	20.0%
Distance (per 1,000 km)	1.2%
Country has TPS status	-26.7%
Refugee sending country	42.5%
GDP per capita adjusted by PPP (increase of 10 percent)	-3.4%
Characteristics of host country/place of residence**	
Percent immigrant population in PUMA (increase of 10 percentage points)	6.6%
Unemployment rate in metropolitan area (increase of 1 percentage point)	1.4%
Resides in a "blue" state	15.4%

Note: "AAPI" refers to those who identify as non-Hispanic Asian American or Pacific Islander. "Other" includes those who identify as Native American, some other race, or being of mixed racial background. All racial/ethnic groups other than Latino are non-Hispanic. "TPS" refers to those from countries with Temporary Protection Status. "PPP" refers to purchasing power parity. "" indicates estimates are from Model 1; "**" indicates estimates are from Model 2 (excludes fixed effects for country of origin to test impact of race variables); "***" indicates estimates are from Model 3 (excludes all variables that are predictive of income to test impact of income); "****" indicates estimates are from Model 4 (excludes fixed effects for country of origin and state of residence to test impact of place-level variables). See appendix for a detailed list of variables included in each model.*

Model 1 additionally showed us that country-of-origin and race variables had a collinear effect on naturalization—that is, they were likely explaining the same impact on naturalization. Race/ethnicity is of particular interest to us given the way immigration can be racialized in the U.S. (e.g., Iceland 2009). To reduce redundancy and gain a clearer picture of naturalization and race dynamics, we removed the country-of-origin fixed effects in Model 2. When compared to white eligible adults, non-white immigrants are typically more likely to naturalize, with the exception of those who identify as Hispanic or Latino. This is consistent with previous work that found eligible adults from Mexico, specifically, have an extremely low probability of naturalization (Abascal 2015; Amuedo-Dorantes and Lopez 2018; Johnson et al. 1999).

Similarly, to capture a more accurate measure of the impact of income on naturalization, we omitted variables found to be correlated with income. Researchers, immigrant stakeholders, and politicians question if lowering the naturalization fee or providing subsidies to lower-income eligible adults would increase odds of naturalization. Model 3 addresses this issue, in part, by focusing on income. We essentially drop all variables from Model 1 that indirectly get at income (e.g., education, age at entry, years of eligibility, employment, language ability, and homeownership status). As expected, income has a positive effect on the probability of naturalization but to a smaller degree than the human capital variables such as English speaking fluency. As shown in Table 3, Model 3 reveals that when there is a 10 percent increase in income, there is approximately a 1 percent increase in the odds of naturalizing.

Model 4 helps us understand how specific place-based characteristics impact naturalization. We build from Model 2 (with country-of-origin fixed effects dropped) and additionally drop the state fixed effects. As a result, we can explore how place (e.g., states, metropolitan areas, and neighborhoods) matter by including specific place-level characteristics, which are listed in full in Table A1 in the appendix. These place-level characteristics can be grouped into two types: host-state characteristics and country-of-origin characteristics.

Let's begin with host-state characteristics. We measure (imperfectly) the political climate of a state by whether it voted for the Democratic or Republican presidential candidate in the 2012 election. The limitation of this variable is that it does not fully measure the nuances of politics—conservatives who support immigration have created important political opportunities in the U.S.[17] However, it is also true that, in general, residents of liberal-leaning states express more positive attitudes towards immigration and are more supportive of policies that promote citizenship (Krogstad 2015).[18] We found from Model 4 that if an eligible adult is living in a state that voted for the 2012 Democratic presidential candidate, they have 15.4 percent higher odds of naturalization than if they live in a state that voted for the Republican candidate. This is not to say that those living in blue states require fewer naturalization efforts and resources—indeed, this political climate variable may be signaling a state's willingness to provide such

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[17] For example, see the Bibles, Badges, and Business coalition convened by the National Immigration Forum at immigrationforum.org/landing_page/bibles-badges-business/.
[18] To determine the political climate of the state, the results of the U.S. Presidential Election in 2012 are used as a proxy to measure the state's general political leaning during that time. Though there are underlying assumptions that are needed to be made to use election results as a measure of state ideology, election results have been consistently used in political research due to their simplicity, the availability of data, and their representation of constituency behavior (Leogrande and Jeydel 1997).

resources to its immigrant residents—but it is useful to understand the context in which eligible adults live and how their environment contributes to their naturalization process.

The immigrant share of the population in a particular geographic area is also a contextual variable and can be an indirect measure of network resources and information sharing within the local immigrant community. Such information sharing of the naturalization process and networking with other eligible adults with similar racial/ethnic backgrounds has been shown to affect naturalization outcomes (Johnson et al. 1999; Yang 1994). Specifically, Yang (1994) studied the concentration of immigrants from the same country of origin at the national level whereas Johnson and colleagues (1999) looked at the concentration of all immigrants at what is called the PUMA level.

As mentioned in an earlier note, a PUMA is a geographic area used in the ACS that includes at least 100,000 people; it is the lowest level of geography for which the microdata (or individual answers) are aggregated and such microdata are key to determining who is eligible to naturalize. Multiple PUMAs can exist within a single city's or county's boundary or cross multiple cities and counties within a state; they often tend to line up with a broad notion of "neighborhood" or sub-region, although they are not constructed with as much attention to socioeconomic homogeneity as, say, census tracts.

Like Johnson and colleagues (1999), we chose to look at immigrant concentrations at the PUMA level, as a proxy for communities, as higher concentrations present more likely and tangible interactions among immigrants. We include the metropolitan statistical area (MSA) unemployment rate for immigrant adults, as well, as some adults may naturalize as a way to increase employment opportunities and earnings (Amuedo-Dorantes and Lopez 2018). Using Model 4, we find that the concentration of immigrants in an eligible adult's PUMA of residence and the unemployment rate in their MSA are positively associated with higher odds of naturalization. A 10 percentage point increase in the immigrant share of the PUMA population is associated with a 6.6 percent increase in the odds of naturalization, whereas a 1 percentage point increase in the MSA unemployment rate is associated with a 1.4 percent increase in the odds of naturalization.

In regard to country-of-origin characteristics, we included variables in Model 4 that capture a range of factors past research has found to be significant to naturalization. Yang (1994) found that the further the country of origin, the more likely an eligible adult is to naturalize. Model 4 confirms this finding, showing that a 1,000-kilometer increase from country of origin to state of residence in the U.S. is associated with approximately 1.2 percent higher odds of naturalizing. Another factor is dual citizenship: naturalization could incur the possible costs of forfeiting citizenship rights in an eligible adult's country of origin, but such costs are dramatically lowered if dual citizenship is permitted (Mazzolari 2017). Using Model 4, we found that if an eligible adult is from a country that allows dual citizenship, their odds of naturalizing increase by approximately 20 percent.

Temporary Protected Status (TPS) and refugee status are included in Model 4 to measure political, physical, and social turmoil related to an eligible adult's home country, which may be indicative of an inability or lack of desire to return (Yang 1994). For example, if an eligible LPR is from a country that is traditionally refugee-sending, their odds of naturalizing increase by about 42.5 percent. However, our results suggest that eligible adults from TPS-designated countries have a 26.7 percent lower probability of naturalization than those who are not from TPS countries. This may be due to LPR's from TPS countries, such as those in Central America, having characteristics that tend to be associated with lower rates of naturalization; there may also be some measurement issues given that our approach to

estimating the undocumented (and hence who is an LPR and eligible to naturalize) does not do a good jobs of distinguishing which individuals in the survey may or may not have TPS status. We recommend that this issue receives further analysis in the future.

GDP per capita adjusted by purchasing power parity (PPP) is also included as an indicator of the economic opportunities available in the country of origin (Yang 1994). This GDP measure is often used instead of nominal GDP values because it takes into account the relative cost of living. Immigrants from wealthier countries with more economic opportunities are likely to have less incentive to naturalize than those from impoverished countries. Model 4 confirms that a 10 percent increase in the PPP-adjusted GDP per capita of an eligible adult's country of origin is associated with a 3.4 percent decrease in the odds of naturalization.

Three Groups by Likelihood of Naturalization

Based on the probabilities developed above, we are able to estimate the likelihood of any eligible adult to naturalize in the dataset—to assign them a probability from zero to 100 percent. We draw the probability assignments from Model 1 because it has the highest predictive power.[19] We group eligible adults into three categories by their probability of naturalization—low, medium, and high—which can be seen in Table 4. The categories were created by calculating the mean and standard deviation of predicted probabilities for all eligible adults; those with a probability lower than one-half of a standard deviation below the mean were assigned to the low probability group, those with a probability higher than one-half of a standard deviation above the mean were assigned to the high probability group, and those in the middle were assigned to the middle probability group. While we tested other cuts, half of a standard deviation around the mean seemed to result in the most defined differences between groups, in terms of key characteristics, and more similarity within each group. Of all the eligible adults nationwide, 40 percent have a low probability of naturalizing, 35 percent have a medium probability, and 25 percent have a high probability. In sum, the three categories represent approximately 8.5 million eligible adults.

Table 4 compares the demographics and characteristics of the three cohorts. The low probability cohort is, on average, older than the medium probability cohort, which is older than the high probability cohort. Nearly half of the low probability cohort is 55 years or older, a share that is only 17 percent for those in the high probability cohort. Those entering the United States at an older age are likely to have more difficulties assimilating (such as struggling with English language development) than their younger counterparts. For all three cohorts, the largest share of eligible adults is in the 35- to 54-year-old age range, which is the prime working age.

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[19] The other models which relax the fixed effects are better able to explain why states and countries of origin matter, but in this section we are concerned primarily with predictive power.

Table 4: Characteristics of eligible adults by probability of naturalization

	Probability of naturalization		
Overview	**Low**	**Medium**	**High**
Share of total	40%	35%	25%
Number (millions)	3.4	3.0	2.1
Probability of naturalizing	<9.7%	9.7%-21.7%	>21.7%
Years of age by share of cohort			
18 to 24	2%	6%	9%
25 to 34	7%	15%	24%
35 to 54	46%	51%	49%
55 to 64	22%	16%	11%
65 and up	23%	12%	6%
Race/ethnicity by share of cohort			
Black	1%	6%	17%
Latino	71%	53%	29%
Asian Pacific Islander	11%	21%	34%
White	17%	19%	18%
Other	1%	2%	3%
Poverty by share of cohort			
Below 50% federal poverty line (FPL)	7%	6%	5%
50-99% FPL	15%	10%	7%
100-149% FPL	17%	12%	9%
150-199% FPL	15%	12%	10%
200% and above FPL	46%	60%	69%
Educational attainment by share of cohort			
Less than a high school degree	54%	29%	12%
High school degree only	26%	29%	21%
Some college	9%	18%	29%
Bachelor's degree only	6%	13%	23%
Degrees above a bachelor's	5%	12%	15%
English speaking ability by share of cohort			
Not at all	29%	7%	1%
Not well	31%	22%	10%
Well	15%	22%	24%
Very well	12%	30%	49%
English only	14%	18%	15%

Looking at race/ethnicity across the cohorts, about the same share (nearly one in five) are white, suggesting that the white immigrant population is more diverse in terms of their likelihood of naturalizing than immigrants of other racial/ethnic backgrounds. Indeed, there is large variation among other racial/ethnic categories. For example, nearly three in four adults in the low probability cohort are Latino. The share of Latinos decreases in the medium and even more in the high probability cohort, which suggests that if organizations or policymakers focus on the easiest to naturalize (i.e., the high probability group) to maximize naturalization numbers, those who are overlooked will be disproportionately Latino. Alternatively, Black and AAPI representation increases from the low, to medium, to high probability groups. The diversity of the high probability cohort suggests the need to provide services in multiple languages.

We are also able to compare the human capital and economic situations of these cohorts. While each cohort has a large share of people living below 200 percent of the federal poverty level, poverty does increase from the high, to medium, to low probability cohorts. Income may be connected to education which follows a similar pattern: the more likely the cohort is to naturalize, the higher their educational attainment. Fifty-four percent of the low probability group have less than a high school degree, while the levels of educational attainment among the high probability cohort are quite diverse: 21 percent only have a high school degree or equivalent, 29 percent have some college, and 23 percent have a bachelor's degree only.[20] English language attainment is similar: with more English speaking ability, eligible immigrants are more likely to naturalize. Well over half of the high probability cohort report speaking English "very well" or "only," compared with 26 percent of the low probability cohort. But it is critical to note that across all three groups, there are significant shares of eligible adults who report speaking English "not well" or "not at all."

What are we to make of these cohorts? Those in the high probability cohort are the most diverse, youngest, most skilled and educated, and most wealthy. Those in the lowest probability cohort are the opposite in that they are the oldest, least proficient in English, have the lowest rates of educational attainment, and have lower levels of income. However, it is critical to note the diversity that exists in each cohort. Because of this, necessary interventions to remove barriers to those in the low probability cohort will *also* benefit some of those in the medium and high probability cohorts. However, it does not necessarily work the other way around: if stakeholders only focus on those who are easiest to naturalize—the high and medium groups—those in the lowest probability cohort may not get the sort of assistance they need. The outcome would be racialized in that eligible Latino adults would largely be overlooked.

State-by-State Analysis

As an example of how probabilities of naturalization differ geographically, we also look at the distribution of the low, medium, and high probability groups state-by-state. Table 5 shows the top 10

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[20] In the medium probability group, 57 percent of those who are considered middle-aged (i.e., 35 to 64) have a high school degree or less, which is a higher rate than the 53 percent of those aged 25 to 34, and lower than the 58 percent of those aged 18 to 24 and 68 percent of those aged 65 and older. It is important to note that the middle-aged group is likely to be more educated than the 18 to 24 age group, which includes individuals who may still be in high school or recent graduates. It can be assumed that this younger age group will continue their education with time.

states by share of eligible adults falling in each group by probability of naturalization. Among the top 10 states with the largest shares of their eligible adult population in the high probability group, the shares range from 37 to 41 percent. However, the actual number of eligible adults varies widely, from 4,000 in North Dakota to approximately 792,000 in Florida. Further studying these states can offer a deeper look into how specific state-level characteristics and policies either attract or contribute to the number of eligible adults with high probabilities of naturalization. For example, are there industries within these states that primarily hire high-skill and educated immigrants? Or are there state policies that have worked to help develop immigrants' access to human capital? These results are also likely to be influenced by the nuanced differences in each state's political climate and the extent of their services, which cannot be directly measured at this time.

Table 5: Top 10 states ranked by percentage of eligible-to-naturalize adults in each probability group

Low probability of naturalization		Medium probability of naturalization		High probability of naturalization	
Montana	74%	Maine	44%	Minnesota	41%
New Mexico	62%	Wyoming	43%	Florida	40%
Texas	57%	New Hampshire	41%	Maryland	40%
Hawaii	54%	West Virginia	40%	North Dakota	39%
Arkansas	54%	New York	40%	Rhode Island	38%
Oklahoma	54%	Massachusetts	39%	Pennsylvania	38%
Oregon	53%	Alaska	39%	Virginia	38%
Idaho	52%	Florida	39%	Kentucky	37%
Arizona	51%	Wisconsin	39%	New Jersey	37%
Mississippi	50%	South Dakota	39%	Massachusetts	37%
All U.S.	**40%**	**All U.S.**	**35%**	**All U.S.**	**25%**

Similarly, states vary in the size of their eligible adult populations with medium probability. For example, in Wyoming, there are approximately 4,000 eligible adults and 43 percent of them have a medium probability of naturalization, while in New York, there are approximately 883,000 eligible adults, 40 percent of whom have a medium probability of naturalization. Massachusetts and Florida are listed on both the medium and high probability list, indicating that these states have relatively smaller proportions of eligible adults with low probability of naturalization. Looking at states with a high share of eligible adults with low probability of naturalization, Montana tops the list at 74 percent. This is more than 10 percentage points higher than the second state, New Mexico, where the share is 62 percent. Table A2 in the appendix provides the same information for all states, as well as the size of the eligible-to-naturalize adult population.

Our state-by-state analysis offers insight on how the distribution of eligible adults who are more or less likely to naturalize are distributed across the country. To gain a better understanding of how local policies and services interact with specific state policies to impact the share of eligible adults with different probabilities of naturalization, other geographical analyses can be done (e.g., comparing different metropolitan areas in California).
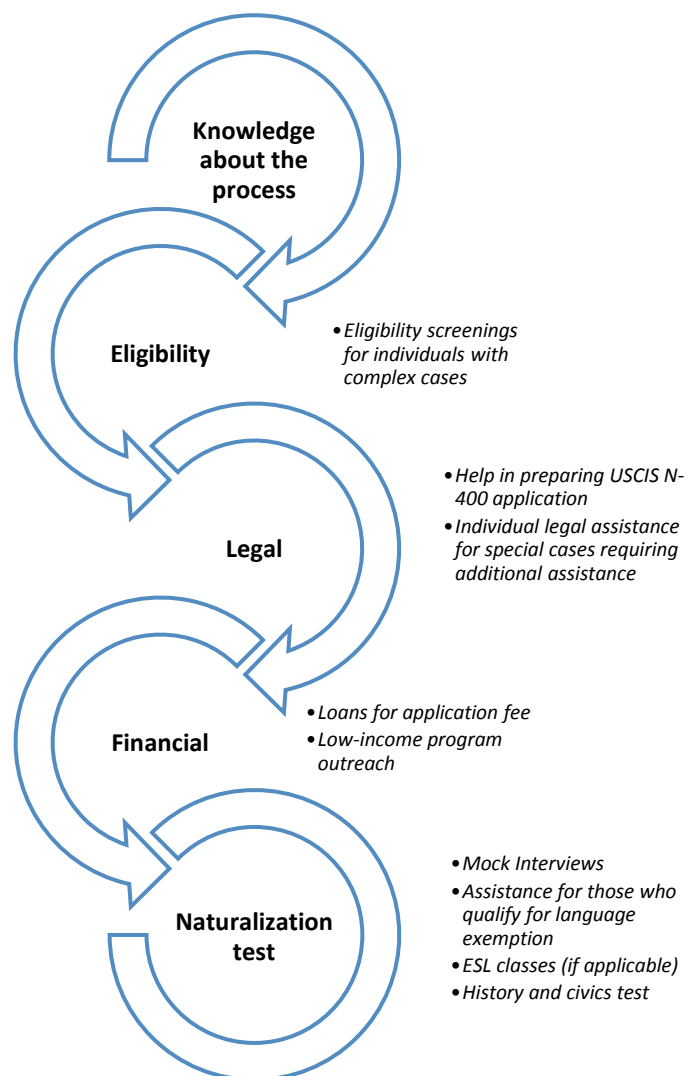
Naturalization in Action

To better understand how to integrate our research with work on the ground, we spoke with service providers about what they offer to clients. Figure 3 represents the various barriers to naturalization that different organizational programs are addressing, including knowledge about the process, eligibility screenings, legal support, financial support, and naturalization test support.

To help illustrate the possibilities for the application of our research, we offer a snapshot of different organizations and services that are specifically helpful for eligible adults with either low, medium, or high probability of naturalization, which are shown in Table 6 below. We chose these three organizations because they are among the most salient and representative organizations currently working with the eligible adult population and with The New Americans Campaign.[21] The table includes a summary of the services offered by each organization, which we discuss further below.

Figure 3: Various barriers to naturalization that different organizational programs are addressing

Knowledge about the process

Eligibility
- *Eligibility screenings for individuals with complex cases*

Legal
- *Help in preparing USCIS N-400 application*
- *Individual legal assistance for special cases requiring additional assistance*

Financial
- *Loans for application fee*
- *Low-income program outreach*

Naturalization test
- *Mock Interviews*
- *Assistance for those who qualify for language exemption*
- *ESL classes (if applicable)*
- *History and civics test*

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[21] The New Americans Campaign is a nonpartisan national network of more than 200 organizations led by the Immigrant Legal Resource Center (ILRC). The campaign aims to connect eligible adults with the necessary tools to improve the number of those applying for citizenship. See more at: https://newamericanscampaign.org/.

Table 6: Summary of case studies and their services related to naturalization

High probability of naturalization	Medium probability of naturalization	Low probability of naturalization
Citizenshipworks	CASA	Advancing Justice - LA
- Eligibility screenings - Do-it-yourself application - Online legal help - Connection to other organizations	$35 membership fee - Bilingual application assistance - Micro-loan programs - Referrals to attorneys - Post-naturalization support	- Free services - Legal help hotline - Multilingual application assistance - Legal representation - Text messaging platform

High Probability of Naturalizing: Citizenshipworks[22]

Citizenshipworks is a tool that provides online guidance for the naturalization process and is a project of the Immigration Advocates Network and Pro Bono Net. Citizenshipworks' free online service guides immigrants through the citizenship eligibility requirements and the naturalization application itself. If individuals need further assistance, they are connected with nonprofit legal service partner organizations. Citizenshipworks is likely most helpful to eligible adults with a *high probability of naturalization*—a group that tends to have higher income, higher educational attainment, higher proficiency in English, and that is younger and less likely to be part of a mixed-status family. High probability adults are more likely to have the skillsets to navigate the naturalization process and only require a nudge towards naturalization—perhaps in the form of a simple online guide.

Medium Probability of Naturalizing: CASA[23]

Resources like micro-loans, budget preparation assistance, and interview preparation are particularly helpful for eligible adults with a *medium probability of naturalization.* Compared to the high probability cohort, the medium probability cohort is somewhat older and is more likely to come from a mixed-status family. They are also less likely to be proficient in English, have higher educational attainment, and have high income—although they are more likely to have these characteristics than the low probability cohort.

CASA is a membership-based organization that, among other services, provides naturalization support primarily to communities in Maryland, Virginia, and Pennsylvania. Rooted in building power and

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[22] Information collected by Dalia Gonzalez through an interview with Connie Cheng and Sandra Sandoval from Citizenshipworks on September 5, 2018. Information also collected from their website, see https://www.citizenshipworks.org/.

[23] Information collected by Dalia Gonzalez through an interview with Pablo Blank from CASA on October 15, 2018. Information also collected from their website, see https://wearecasa.org/.

improving the quality of life of immigrant communities, immigrants can access a range of naturalization services, including eligibility screenings, citizenship education, application assistance, mentoring and interview preparation, and referral to attorneys, as well as post-naturalization support through walk-ins, weekly clinics, or monthly workshops. If members need help with the application fee, they are offered assistance filing for a USCIS fee waiver or reduced fee request (when eligible), household budget assistance to save money for the fee, micro-loans options (in partnership with a federal credit union), or a secured credit card (as part of a pilot program in partnership with Capital One). A 10-class workshop teaches applicants about civics and U.S. history, reviews basic English, and includes a mock citizenship interview. For those who qualify for the language exception, CASA also offers these classes in Spanish. CASA's annual membership cost is $35.

Low Probability of Naturalizing: Asian Americans Advancing Justice – LA[24]

Compared to the eligible adults in the other two cohorts, those with a *low probability of naturalization* are typically older, less proficient in English, have lower educational attainment, and have lower income. This population would benefit from a range of comprehensive and free or subsidized services that address multiple barriers to naturalization.

Asian Americans Advancing Justice – LA (Advancing Justice - LA) is an organization that has provided free citizenship assistance in Southern California for over 30 years. It offers free and multilingual citizenship services, including legal helplines available in eight AAPI languages, application assistance (including for the application for naturalization, fee waiver, reduced fee waiver, and disability waiver), legal representation, and follow up via text message for questions after the application has been submitted to USCIS. Their comprehensive support is delivered through workshops, clinics, and one-on-one office visits. Advancing Justice - LA also partners with national networks like the New Americans Campaign and organizations across the nation to provide comprehensive training and guidance for citizenship application services catered to, but not exclusively to, the historically underserved AAPI community.

Overall, these case studies serve as examples of how to support LPRs in the different categories of probability to naturalize. Although the categories of eligible adults are made up of unique individuals, understanding the general characteristics of these groups can help to mobilize resources where they may be needed most. Moreover, these organizations are only examples of how their services can function for each of the three categories; each organization provides services for immigrants across all three categories of probability.

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[24] Information collected by Dalia Gonzalez and Joanna Lee through an interview with Angelica Peña, Christine Chen, and Nasim Khansari from Asian Americans Advancing Justice – LA on September 5, 2018. Information also collected from their website, see https://www.advancingjustice-la.org/.

Conclusion

Clearing a path to naturalization is critical since citizenship ensures eligible adults have more job opportunities, wage increases, security from deportation, voting power, and more. Efforts by service providers and policymakers to increase naturalization rates should be informed by data on the eligible adult population. Through research, we can help better leverage limited resources, support public policies, and provide appropriate services to those with certain barriers to naturalization.

Overall, our findings show that eligible adults differ in terms of their probabilities of naturalizing. Our report explored the determinants associated with an increased propensity to naturalize and found that barriers to naturalization are multifaceted and complex. This suggests that multiple mechanisms and tools for addressing different barriers are needed to improve the overall rates of naturalization. Our results indicate that the strongest predictors of naturalization are English speaking fluency, educational attainment, and mixed-family status. Eligible adults with higher English fluency and higher educational attainment have, on average, higher probabilities of naturalization. However, if they are in a mixed-status family unit in which a family member is an undocumented immigrant, they are significantly less likely to naturalize. So in addition to providing free or low-cost English language instruction and educating eligible adults on the naturalization process and civic test, service providers and policymakers should also consider how to engage this population in a way that ensures them of their security and safety. By creating a more favorable social and political climate for immigrant integration, and reducing the risk of immigrant deportation, access to naturalization is likely to improve.

The variation in the probability of naturalization is additionally affected by space and place. Within the United States, different states are experiencing different rates of naturalization. This could be because the shares of eligible adults with low, medium, and high probabilities of naturalization are unevenly distributed. Contributing to this, place-based characteristics play a significant role in attracting immigrants with a certain propensity to naturalize and also affect residing eligible adults' probabilities of naturalization. For example, we found that variations in policy and the political climate across states and localities contribute to an individual's probability of naturalization: a more favorable social and political climate for immigrant integration is likely to encourage naturalization. Such heterogeneity and variation are also true when examining lower levels of geography (e.g., counties and congressional districts).

Service providers and policymakers working to improve the livelihood of immigrants through naturalization need to maximize the effectiveness and efficiency of their resources. If the objective is to maximize numbers and increase voting power among immigrant groups, focusing on areas with higher shares of eligible adults with a high probability of naturalization is one potential strategy. If the objective is to foster equity in the distribution of naturalization opportunities, then targeting those who are hardest to reach may be a priority. If the objective is to focus efforts on those who need more than a nudge, perhaps the middle probability group is of most concern. Whatever the objective, better understanding the needs of immigrants can better match services and policies to yield effective results.

Part of this work involves better spatial targeting, as well. Knowing where eligible adults live and how they rank in the probability distribution can be crucial, whether an organization is focused on harder-to-reach eligible adults or those on the other end of the spectrum. We have created such a spatial tool and it is available on our website at http://dornsife.usc.edu/csii. Service providers and policymakers can use this tool to determine which areas are in more need of comprehensive services or mere nudges. The map also provides detailed demographic and socioeconomic characteristics that are associated with the eligible adult population in that particular area to help better develop services tailored to the population's needs and characteristics.

Encouraging naturalization has long been a point of unity among those on all sides of the immigration debate. Of course, we are at a time in the history of our nation when many values of inclusion, equity, and diversity are being challenged. Even on a point of previous consensus such as the importance of naturalizing all who are able, we find structural elements working against success. For example, it is particularly unhelpful to naturalization efforts that the backlog of citizenship applications has nearly doubled since the start of 2016 and that wait times for interviews have stretched well beyond the usual six months; this is something that should be addressed with an increase in staffing that could be paid for with the citizenship fees themselves (Pastor and Jayapal 2018).

In considering how to make progress on naturalization and other forms of immigrant integration, data and research can play a role. Researchers can stress the importance of immigrants to our national economy and use work like we offer here to help streamline and boost the effectiveness of immigrant services. Immigrants can also, regardless of status, work with others to make the case for the positive impact of immigrants on our economy and our polity. But those who are LPRs will be even more effective at shifting public policy and public attitudes through naturalization and the new forms of civic engagement that naturalization facilitates. We hope that the analysis and tools we offer here help encourage citizenship, better support immigrants, and move us towards a more inclusive nation.

Photo credit:

Citizenship Photos,
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Appendix

Table A1: Comparison of different models predicting the probability of naturalization

	Model 1	Model 2	Model 3	Model 4
Purpose	Base model predicting the overall probability of naturalization	Model disaggregating the impact of race on the probability of naturalization	Model focusing on the impact of household income on the probability of naturalization	Model focusing on specific place-level variables' impacts on the probability of naturalization
Individual-level variables	*Demographic variables* • Gender • Age at entry • Age at entry (squared) • Years of eligibility (log) • Marital status • Number of own children in household • Race/ethnicity *Human capital variables* • Household income • Educational attainment • Employment status • Occupational rank • English speaking fluency *Mixed-status variable* • Mixed-status family unit	*Demographic variables* • Gender • Age at entry • Age at entry (squared) • Years of eligibility (log) • Marital status • Number of own children in household • Race/ethnicity *Human capital variables* • Household income • Educational attainment • Employment status • Occupational rank • English speaking fluency *Mixed-status variable* • Mixed-status family unit	*Demographic variables* • Gender • Age at entry • Age at entry (squared) • Years of eligibility (log) • Marital status • Number of own children in household • Race/ethnicity *Human capital variables* • Household income *Mixed-status variable* • Mixed-status family unit	*Demographic variables* • Gender • Age at entry • Age at entry (squared) • Years of eligibility (log) • Marital status • Number of own children in household • Race/ethnicity *Human capital variables* • Household income • Educational attainment • Employment status • Occupational rank • English speaking fluency *Mixed-status variable* • Mixed-status family unit
Place-level variables				• If dual citizenship is allowed • Distance of origin country to host state (kilometers) • If country has TPS status • If country is refugee-sending

			• Country-of-origin GDP PPP (log) • Immigrant concentration in PUMA • Unemployment rate in MSA • If liberal-leaning host state
Fixed effects	• Year of survey • Host state • Country of origin	• Year of survey • Host state	• Year of survey • Host state • Country of origin	• Year of survey

Table A2: Eligible-to-naturalize adults by probability and state

State	All eligible-to-naturalize adults	Low probability of naturalization	Medium probability of naturalization	High probability of naturalization
Alabama	31,745	43.6%	35.3%	21.1%
Alaska	10,239	42.7%	39.3%	18.0%
Arizona	203,180	50.8%	34.2%	15.0%
Arkansas	30,450	53.7%	33.4%	13.0%
California	2,239,327	47.8%	33.2%	19.0%
Colorado	112,073	50.1%	33.9%	16.1%
Connecticut	107,458	33.7%	38.6%	27.7%
Delaware	13,671	37.4%	35.2%	27.4%
Florida	792,074	20.5%	39.1%	40.4%
Georgia	190,202	36.0%	36.3%	27.7%
Hawaii	54,294	54.2%	28.5%	17.4%
Idaho	21,111	52.3%	34.7%	13.0%
Illinois	353,885	44.4%	34.4%	21.2%
Indiana	61,335	41.9%	37.1%	21.1%
Iowa	30,175	39.2%	36.4%	24.4%
Kansas	39,448	36.3%	37.6%	26.1%
Kentucky	29,110	25.9%	37.0%	37.1%
Louisiana	31,475	43.9%	36.7%	19.4%
Maine	9,634	34.4%	44.1%	21.5%
Maryland	142,995	24.0%	36.4%	39.7%
Massachusetts	200,375	23.7%	39.5%	36.8%
Michigan	110,293	33.3%	36.2%	30.4%
Minnesota	66,408	25.8%	33.7%	40.5%
Mississippi	14,282	50.4%	32.8%	16.8%
Missouri	44,186	33.9%	34.0%	32.1%

Montana	4,695	73.8%	20.0%	6.2%
Nebraska	22,738	43.3%	36.7%	20.0%
Nevada	114,602	38.4%	37.4%	24.2%
New Hampshire	14,049	35.8%	41.1%	23.2%
New Jersey	333,658	24.5%	38.6%	36.9%
New Mexico	52,742	62.0%	29.6%	8.4%
New York	883,273	27.8%	40.2%	32.0%
North Carolina	147,541	37.2%	37.3%	25.5%
North Dakota	4,069	30.0%	31.4%	38.6%
Ohio	78,410	29.9%	34.8%	35.3%
Oklahoma	44,819	53.5%	33.1%	13.4%
Oregon	86,185	52.9%	31.8%	15.3%
Pennsylvania	139,968	24.5%	37.7%	37.8%
Rhode Island	29,359	26.6%	35.1%	38.3%
South Carolina	44,769	44.5%	33.0%	22.5%
South Dakota	4,612	31.9%	38.7%	29.4%
Tennessee	59,232	40.3%	34.7%	25.0%
Texas	1,037,178	56.9%	30.7%	12.4%
Utah	48,090	41.2%	36.4%	22.3%
Vermont	4,479	48.8%	32.5%	18.8%
Virginia	160,000	25.6%	36.7%	37.7%
Washington	180,944	37.9%	36.1%	26.1%
West Virginia	4,892	47.4%	40.5%	12.1%
Wisconsin	51,055	40.9%	39.1%	20.0%
Wyoming	4,044	34.5%	42.6%	22.9%
District of Columbia	17,704	30.3%	37.0%	32.6%
United States	**8,512,532**	**39.7%**	**35.4%**	**25.0%**

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