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A low-cost information nudge increases citizenship application rates among low-income immigrants

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We show that an information nudge increased the rate of American citizenship applications among low-income immigrants eligible for a federal fee waiver. Approximately half of the 9 million naturalization-eligible immigrants qualify for a federal programme that waives the cost of the citizenship application for low-income individuals. However, take-up of this fee waiver programme remains low[1–3]. Here we use a randomized field experiment to test the effectiveness of a low-cost intervention (a 'nudge') that informed low-income immigrants about their eligibility for the fee waiver. We find that the information nudge increased the rate of citizenship applications by about 8.6 percentage points from 24.5% in the control group to 33.1% in the treatment group (ordinary least squares regression with robust standard errors (d.f. = 933); $P = 0.015$; 95% confidence interval ranged from 1.7 to 15.4 percentage points). We found no evidence that the nudge was less effective for poorer or less educated immigrants. These findings contribute to the literature that addresses the incomplete take-up of public benefits by low-income populations[4–10] and suggest that lack of information is an important obstacle to citizenship among low-income immigrants who demonstrate an interest in naturalization.

The number of immigrants living in the United States has grown rapidly in recent decades to over 40 million foreign-born individuals today[11]. This rise in immigration has led to heated debates about what policies facilitate the successful integration of immigrants into the US economy, society and polity[11]. One of the major issues in these debates involves naturalization. By acquiring US citizenship through naturalization, immigrants obtain important legal protections and political rights that put them on near-equal footing with US-born citizens[12–14]. In addition, research has shown that citizenship can act as a catalyst for integration, by enabling immigrants to earn higher incomes and improving their social and political integration[15–18].

In light of the importance of naturalization for integration, it is reassuring that the vast majority of immigrants living in the United States say they desire to become US citizens when asked in surveys[11]. However, naturalization remains undersubscribed. There are currently an estimated 9 million immigrants who are eligible for US citizenship who have not applied[19]. In addition, the naturalization rate in the United States is lower than in other immigrant-receiving countries such as the United Kingdom, Australia or Canada[13]. This citizenship puzzle raises two questions regarding what the barriers are that prevent eligible immigrants from accomplishing their goal of becoming US citizens and what the most-effective policies are that will help immigrants overcome these barriers[11,20].

Research on citizenship to date has mainly focused on identifying immigrant characteristics that are associated with naturalization[11,12,14,21–23]. Research has also identified a variety of barriers to naturalization, such as lack of language skills, inability to navigate the application process and limited financial resources to pay the application fees[24–26]. However, few studies have tried to identify the interventions that work best to lower those barriers[20]. In this study, we focus on lack of information, which is a potentially important barrier to citizenship that may be remedied through changes in policies or programmes. We focus on the large group of low-income immigrants who are eligible for the federal fee waiver programme for naturalization. This programme allows these immigrants to apply for naturalization without paying the application fees, which range from US$405 to US$725. Immigrants are eligible for a fee waiver if their household income is below 150% of the Federal Poverty Guidelines (FPG) or if they receive means-tested benefits (such as Supplemental Nutrition Assistance Program (SNAP), public housing, Medicaid and Temporary Assistance to Needy Families). For reference, in 2017, 150% of the FPG was equivalent to an annual household income of US$24,360 for a household of two. To use the fee waiver, immigrants have to file a request for the fee waiver together with their regular naturalization application.

The fee waiver programme has helped many eligible immigrants achieve their citizenship goal. In fiscal years 2013–2016, the United States Citizenship and Immigration Services (USCIS) received between 150,000 and 200,000 fee waiver requests each year, representing approximately 20% of the naturalization applications it receives in a given year[1,2]. But multitudes of eligible immigrants remain without citizenship. Estimates suggest that approximately 47% of immigrants who are eligible to naturalize also qualify for the fee waiver based on their household income or receipt of means-tested benefits (see Supplementary Information for details). This number indicates that take-up of the fee waiver is low. For example, in 2014 an estimated 8.9 million immigrants were eligible to naturalize[3], and among those, roughly 4.2 million were also eligible for the fee waiver. However, of the 773,824 naturalization applications submitted that year, only 152,721 (20%) were accompanied by a fee waiver application[1,2].

We used a randomized controlled trial embedded in a statewide naturalization programme in New York to investigate whether providing information about fee waiver eligibility increases naturalization rates and fee waiver usage among eligible low-income immigrants who are interested in citizenship. Conducting such a test is important for both theory and policy. From a theoretical perspective, the test results indicate whether lack of information is a

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barrier to citizenship and help to explain why naturalization and use of the fee waiver remain undersubscribed. From a policy perspective, the test measures the efficacy of information campaigns by immigrant service providers to encourage naturalization[27].

Our experiment contributes to nudge theory. The nudge, which has become a core concept in the behavioural sciences literature, is a low-cost intervention to alter people's behaviour in a way that does not close off alternative behaviours or change incentives[4–9]. Its attractiveness is in its cost effectiveness and rejection of coercive social engineering. Our experiment adds to one element of this literature by focusing on the effectiveness of nudges to increase the take-up of public benefits among eligible populations. Previous research raises three concerns that guide our investigation. First, there is mixed evidence as to whether information alone can induce eligible recipients to enrol, especially those who are poor and/or relatively less educated, or whether the information needs to be combined with application assistance[4–8]. Second, there is the issue as to whether information campaigns are effective in reaching populations that are less disadvantaged. Those that may need a programme the most are more constrained by what has been called the 'bandwidth tax'[28], which occurs when poverty and scarcity lead to reduced capacities. Third, there is the issue of whether the private benefit is socially cost effective. To give but one example in the case of citizenship applications, suppose motivated low-income immigrants typically apply for citizenship regardless of knowing about the fee waiver. However, once they learn about the fee waiver, they take advantage of it instead of paying the application fees. In this case, our information prompt would have no effect on naturalization rates. Rather, it would merely increase the intensity of usage of the fee waiver, a substitution that would have fiscal costs but no return on increasing the rate of citizenship.

To address these issues, a recent experiment examined enrolment in the SNAP, previously known as food stamps[10]. It provided potential recipients with both information and a combined treatment of information plus enrolment assistance. The pure information treatment increased enrolment and was more cost-effective for society than the combined treatment. However, pure information did favour those eligible who were least in need of the assistance programme. On the basis of this study, we might expect that an information nudge for the federal fee waiver would have a stronger effect compared to the SNAP, since the federal fee waiver is less well-known than the SNAP and carries less of a social stigma (that is, there is no need to show the plastic card on a grocery line to be seen by others). That said, given the bandwidth tax, we might also expect that the information prompt would be less effective assisting registrants with the fewest resources, and if so, this would raise concerns about whether the fee waiver programme was meeting its aims. Similarly, it may also be concerning if the primary effect of the information nudge was to induce immigrants who would otherwise pay the application fee to substitute to using the fee waiver.

To put these issues to test, we used a randomized controlled trial embedded in a programme operated by New York State and supported by private foundations that assists immigrants with naturalization. Because the research involves immigrants who proactively registered for a naturalization programme, our findings apply to immigrants who are motivated to become US citizens. This group is typically also the target population for outreach campaigns by immigrant service providers.

The programme consisted of a statewide lottery for vouchers covering the citizenship application fee. Following an outreach campaign that included public service announcements, newspaper, subway and social media advertisements, eligible immigrants registered for the programme online, by phone or at an immigrant service provider. Registration for the programme ran from September 2016 to July 2017. To qualify for the programme, participants had to be eligible to naturalize, live in New York State, be at least 18 years old and have a household income below 300% of the FPG.

The registration system screened all participants about their eligibility for the fee waiver based on whether their household income was below 150% of the FPG and whether they received means-tested benefits. Registrants who were identified as ineligible for the fee waiver were entered into the fee voucher lottery, whereas registrants who were identified as eligible for the fee waiver were instead included in our experimental sample.

Those registrants who were identified as eligible for the fee waiver were randomly assigned to one of two information prompts at the end of the registration process. The treatment prompt, which was shown to approximately 75% of registrants, stated that they were probably eligible for the federal fee waiver programme. The prompt also provided a link to a resource webpage where they could learn about naturalization and find a nearby immigrant service provider that could assist them with their application. We refer to this prompt as the fee waiver notice. The control prompt, which was shown to approximately 25% of registrants, did not inform registrants of their fee waiver eligibility but provided a link to the same resource webpage where registrants could learn about how to become a US citizen and find a nearby immigrant service provider. We refer to this prompt as the referral-only notice.

The randomization was conducted with the random assignment function of the Qualtrics online survey software that was used for the registration of the naturalization programme. The prespecified 75/25 ratio of treatment to control was chosen to maximize the number of registrants that received early notification of their potential eligibility while retaining a sufficient level of statistical power. Balance checks support the successful randomization (see Supplementary Information for details). To ensure that all participants ultimately received the same information about the fee waiver, registrants assigned to the referral-only group were informed about their probable eligibility for the fee waiver programme after the follow-up survey was completed.

The experimental sample included 1,537 fee-waiver-eligible registrants. Of these registrants, 1,207 were randomly assigned to receive the fee waiver notice; 330 registrants received the referral-only notice. The average annual household income per capita was US$8,107. In terms of education, 20% of the sample had not obtained a degree from secondary education (high school or equivalent degree), 27% had obtained a degree from secondary education (high school or equivalent degree) and 53% had attended at least some college classes. For language, 66% completed the registration in English, 25% completed the registration in Spanish, and the remaining 9% completed the registration in Russian, Chinese or Korean. The nationality most represented was Dominican, making up 27% of the sample. Chinese and Ecuadorian were the next-largest nationalities, with 8% and 6%, respectively (see Supplementary Information for details). Figure 1 shows the locations of the registrants in New York City, who made up 86% of our sample.

To determine whether participants submitted their naturalization applications, a follow-up survey was conducted four to eight months after registration. (The experiment ran from April to July 2017. The survey was conducted in November and December 2017.) The response rate for the survey was 61%. There is no evidence of differential response rates between the treatment and control groups (see Supplementary Information for details).

Figure 2 shows the effects of the fee waiver notice. The main finding is that providing the fee waiver notice increased the application rate by 8.6 percentage points over the referral-only notice (ordinary least squares regression with robust standard errors (d.f. = 933); $P = 0.015$; 95% confidence interval, 1.7 to 15.4 percentage points). Among registrants who received the referral-only notice, only 25% applied for naturalization, whereas in the fee waiver notice group 33% applied for naturalization. This 8.6 percentage point increase

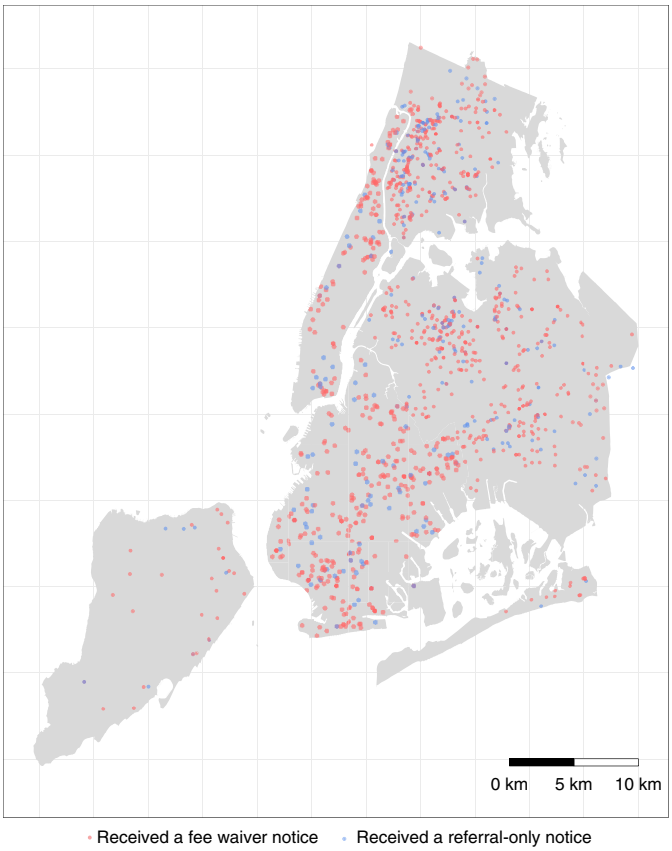

Fig. 1 | Registrants in New York City. The (jittered) locations of registrants in New York City who were screened and eligible for the federal fee waiver programme. Of the 1,537 participants in the sample, 1,319 (86%) lived in New York City. Red dots indicate that a registrant received a fee waiver notice (n = 1,036). Blue dots indicate that the registrant received a referral-only notice (n = 283).

represents a 35% increase in the application rate for the treatment group over the group that received the referral-only notice.

Figure 2b shows the treatment effect estimates for various specifications and subgroups based on ordinary least squares regression with robust standard errors. We find that the estimate remains identical when we control for the prespecified sets of covariates. Adjusting for the limited covariate set, the increase is 8.3 (d.f. = 926; P = 0.015; 95% confidence interval, 1.6 to 15.0) and for the extensive covariate set, the increase is 8.6 percentage points (d.f. = 915; P = 0.012; 95% confidence interval, 1.9 to 15.4). In addition, we find that the effect of the fee waiver notice is fairly stable across prespecified subgroups stratified by gender, income, education and age. In particular, the average increase in the application rate was 20.9 percentage points among registrants who had not completed secondary school (d.f. = 165; P = 0.002; 95% confidence interval, 7.8 to 34.1), compared to 7.4 percentage points for registrants with at least some college education (d.f. = 502; P = 0.132; 95% confidence interval, −2.2 to 17.0). Moreover, we found a 14.5 percentage points (d.f. = 229; P = 0.012; 95% confidence interval, 3.2 to 25.7) increase for those who registered in Spanish, compared to 7 percentage points (d.f. = 630; P = 0.114; 95% confidence interval, −1.7 to 15.7) for those who registered in English. The increase was 10.8 percentage points (d.f. = 454; P = 0.026; 95% confidence interval, 1.3 to 20.2) compared to 6.2 percentage points (d.f. = 477; P = 0.224; 95% confidence interval, −3.8 to 16.3) for registrants below and above the median sample household income, respectively. The differences between the subgroup effects are not statistically significant. These findings do not support the expectation of the bandwidth tax[28], which would suggest that the nudges would be significantly more effective for the less disadvantaged—the better educated and those with higher incomes and who used the English-language facility.

Apart from inducing registrants to apply for citizenship, in a non-prespecified analysis we also examined how much the fee waiver notice increased the use of the fee waiver. This latter effect is important for understanding the fiscal consequences of the nudge, because it provides an estimate of the number of applications the government will have to process without collecting a fee. To estimate this effect, we utilized an additional question on our follow-up survey, which asked registrants who naturalized whether they paid a fee when they submitted their citizenship application. We found that the fee waiver notice increased—on average—the use of the fee waiver by 10.1 percentage points (d.f. = 933; P = 0.001; 95% confidence interval, 4 to 16) from a baseline rate of 15.1% in the referral-only group (see Supplementary Information for details).

This overall effect can be broken down into two distinct component effects. On the one hand, there are registrants who were only able to naturalize because they learned about the fee waiver from the fee waiver notice. On the other hand, there are registrants who would have naturalized anyway who used—after receiving the fee waiver notice—the fee waiver instead of paying the fees. For this latter group, the applicants saved money; however, the government did not receive the processing fees it otherwise would have. We isolate this substitution effect and find that—among registrants who would have naturalized regardless of a fee waiver notice—receiving the notice increased their usage of the fee waiver by about 6.1 percentage points above the baseline usage rate of 61.7% (see Supplementary Information for details on calculating this estimate; 95% confidence interval, −14.3 to 21.5 based on nonparametric bootstrap estimates). In relative terms, this suggests that for each six additional people that the fee waiver notice enabled to naturalize, there would be roughly one existing applicant who substituted paying the fee for naturalization with using the fee waiver. At the upper bound of the 95% confidence interval, this ratio would be approximately as high as six new naturalization applicants to about 3.7 applicants switching to the fee waiver rather than paying the fee themselves (test not preregistered; see Supplementary Information for details).

Our findings have implications for both theory and policy. For theory, the results demonstrate that lack of information is a substantial barrier to citizenship among poor immigrants who are interested in naturalization. The fact that a single, pure information prompt considerably increased application rates suggests that lack of information can be highly consequential, even among immigrants who proactively registered for a naturalization programme and therefore were motivated to become US citizens. The findings add to the growing literature on the use of nudges to increase take-up of public benefits among disadvantaged people. As with the case of the SNAP study[10], our pure information nudge had a powerful effect on take-up, even without the application assistance that is crucial in other domains[6–8]. We found no evidence for the prediction of the bandwidth tax that our nudge would favour the subgroup that is less in need of a fee waiver (those with household incomes that were above the median).

For policy, our findings suggest that using information campaigns to increase awareness of the fee waiver programme can provide an effective intervention to increase naturalization rates among poor immigrants who are interested in naturalization. This is particularly important in light of the fact that roughly half of all naturalization-eligible immigrants are also eligible for the fee waiver and that information campaigns are relatively cheap compared to other potential interventions to assist immigrants in need. The findings in this study suggest that merely informing registrants of the fee waiver

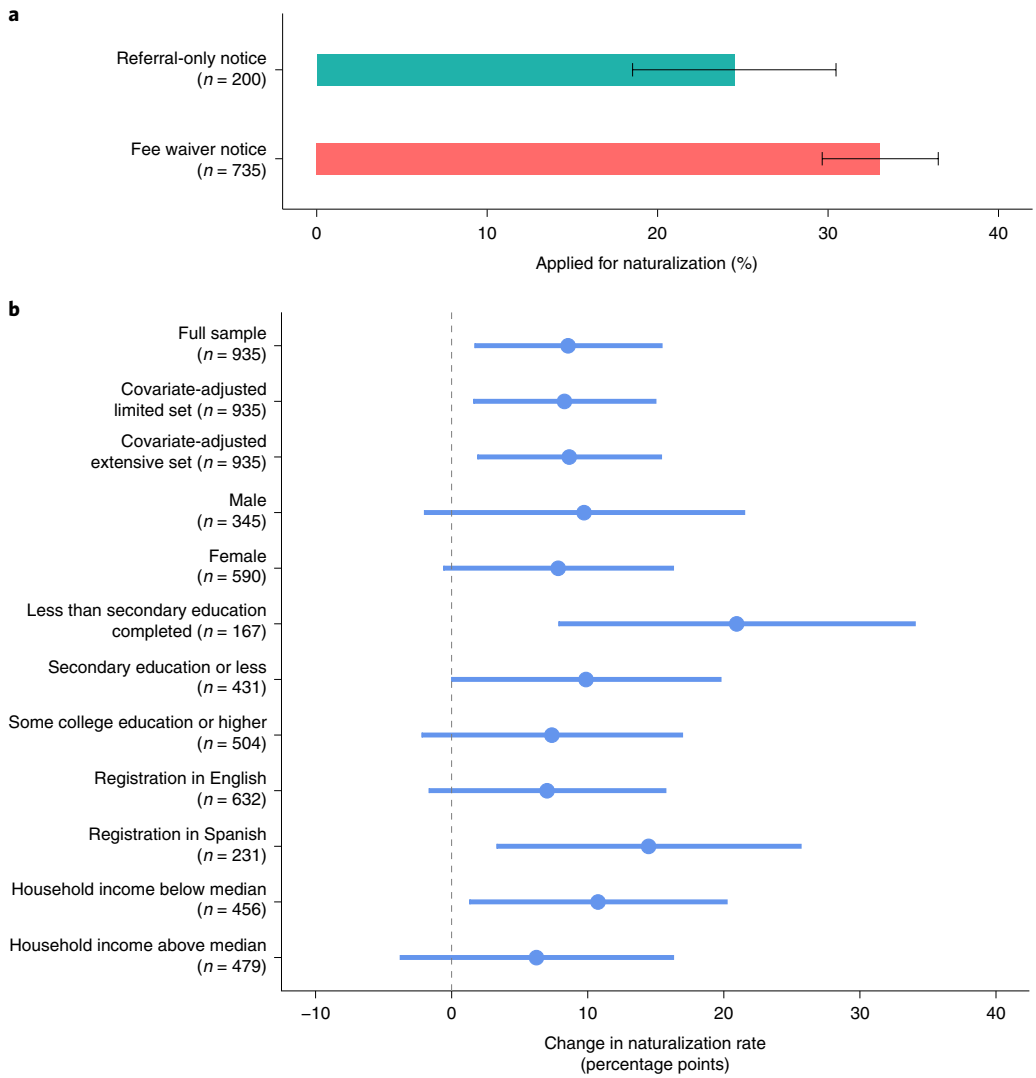

Fig. 2 | Effects of fee waiver notice on naturalization application rates among low-income immigrants. a, The bars indicate the average naturalization application rates in the treatment and control groups; the error bars are the 95% confidence intervals. **b**, The middle dots represent the point estimates of the average treatment effects for the study sample and subgroups; the error bars represent the 95% confidence intervals.

programme acts as a powerful treatment despite its simplicity. Local governments in the United States typically have contact information for immigrants who receive means-tested benefits and this could be leveraged for outreach campaigns to inform immigrants of their fee waiver eligibility.

Our findings also contribute to a better understanding of low naturalization rates[11]. Our results suggest that removing informational barriers can make an important contribution to increasing naturalization rates among poor immigrants who want to become US citizens. That said, the results also suggest that informational barriers cannot fully account for the fact that citizenship is undersubscribed. Among the registrants who were provided with the fee waiver notice, only about 35% applied for naturalization even though they were motivated enough to register for a naturalization programme. This finding speaks to the importance of other barriers beyond lack of information, motivation and financial resources to pay the fees. Determining what these barriers exactly are, be it lack of time, legal resources or information to navigate the application system is an important next step for future research.

Another task for future research is to replicate similar tests with different immigrant populations. Our test focused on low-income immigrants who proactively registered for a naturalization programme. We chose this group because immigrant service providers often aim to assist immigrants who have expressed an interest in becoming citizens. In future studies, it would be useful to replicate the tests with other groups of immigrants who might be less motivated or informed to examine whether the effects of information might be smaller or larger.

A final task for future research is to examine the entire USCIS fee structure for naturalization. Given that USCIS is primarily funded by fees charged to applicants and petitioners, one key question is whether creating a sliding scale, where immigrants with lower incomes pay lower or no fees, would permit the process to remain revenue-neutral. (In 2017, USCIS moved in this direction by offering a two-tiered pricing structure for naturalization applications, but a more flexible pricing scale may be even more effective.) To the extent that information campaigns would increase applications that utilize the fee waiver—either by increasing applications from low-income immigrants or activating a substitution effect by alerting those who would have paid the application fee that they are eligible for the waiver—the administrative costs to the USCIS would increase. This suggests the necessity for raising the fees for the higher-income applicants, a move that could reduce their application rates. Research could estimate the price elasticity of demand for

citizenship at different levels of income to better understand how prices could be structured to maximize the returns to both society and the immigrants who are eligible and desirous of citizenship.

Methods

Sample. The study included 1,537 participants who registered for a naturalization programme in New York State in 2017 and were screened as likely to be eligible for the federal fee waiver. The registration system for the programme collected the demographic and contact information of the participants. Although registration for the programme ran from September 2016 to July 2017, participants in this study were drawn from the online registration system during the period of 30 April 2017 to 30 July 2017.

The outcome data for this study were collected during a follow-up survey conducted in November–December 2017, approximately 4–8 months after the treatment assignment. The survey was administered via SMS, email and phone calls. The survey asked respondents to self-report if they had submitted an application for citizenship. The response rate for the survey was 61%. Data collection and analysis were not performed blind to the conditions of the experiment.

Experimental design. In 2017, a New York State government office administered a programme to assist immigrants with the cost of naturalization. The programme offered eligible immigrants a chance to win a voucher to pay their naturalization fee and also provided information on how an immigrant could receive help through a state-sponsored non-profit organization. The online registration was available in English, Spanish, Russian, Chinese, Korean, Italian and Haitian Creole. Registrants who did not meet the eligibility requirements for the programme because their household income was too low or they received means-tested benefits were identified in the system as being potentially eligible for the federal fee waiver.

During part of the time that the registration for the programme was open, the online registration system would randomize the final screen for registrants who were identified as being eligible for the fee waiver programme. The registration system randomly assigned approximately 75% to the treatment group. For the registrants assigned to the treatment group, it displayed a final message that included information about the fee waiver programme and how someone could access help at an immigrant-focused non-profit organization. We refer to the group that received this message as the fee waiver notice group. The system randomly assigned approximately 25% to the control group. This group received a final screen that contained similar information about where a registrant could access help with his or her naturalization application, but it did not mention the availability of a fee waiver. We refer to this group as the referral-only group.

Duplicates were removed from the registration data using a combination of name, date of birth, green card date, home address, email address and phone number. The final dataset included 1,537 registrants who were potentially eligible for the fee waiver. During their first registration, 1,167 received, and 370 did not receive, a notice of the federal fee waiver. Some registrants completed the registration system multiple times. When these repeated registrations are taken into account, 1,207 registrants received a notice about the fee waiver during at least one registration and 330 did not receive a notice of the fee waiver during any registration.

Statistical analysis. To analyse the effects of the information treatment, the following prespecified regression models were used:

$$y_i = \beta_0 + \beta_1 \text{ Information provided}_i + \delta \mathbf{X_i} + \epsilon_i$$

where y_i is the outcome of whether or not participant i reported having submitted the US citizenship application; 'Information provided' is a dummy variable for whether or not the participant was ever provided information about the fee waiver programme through the registration system; $\mathbf{X}$ is a vector of control variables; and ϵ is the error term.

As an alternative specification, we also prespecified a standard local-average treatment-effect framework to which we fitted the following model:

$$y_i = \beta_0 + \beta_{1a} \text{ Information provided}_i + \delta \mathbf{X_i} + \epsilon_i$$

where the 'Information provided' is instrumented by a binary variable that is coded as 1 for participants who received information about the fee waiver the first time that they registered for the programme and 0 for participants who did not receive information the first time that they registered. A few participants registered for the programme more than once and received different final messages at the end of their various registrations. This additional model explicitly takes this non-compliance into account by only using the variation that is induced into the 'Information provided' treatment by the randomized assignment to the fee waiver message from the first registration that the registrant completed.

We estimate the regression without covariates, as well as with a limited and an extensive covariate set. The limited covariate set includes: educational attainment (dummies for secondary education, some college, or undergraduate (such as BA) or higher), gender, preferred language (dummies for English and Spanish) and years holding a green card. The extensive covariate set adds age, household size, household income, marital status (dummies for married and single), years required on the green card (dummy for 5 versus 3 years), language of registration (dummies for English and Spanish) and country of origin (dummies for the three largest origins: Dominican Republic, China and Ecuador). We also repeated the analysis using multiple imputations to account for participants who did not respond to the follow-up survey. None of the statistical tests used in the analysis assume that the variables are normally distributed.

All analyses, unless otherwise noted, were preregistered in an analysis plan at Evidence in Governance and Politics (ID 20171228AA). The study was approved by the Institutional Review Board at Stanford University (protocol 34554). Information on the wording of the treatments, definitions of measures, question wording, sample, design and statistical analysis are available in the Supplementary Information.

Reporting Summary. Further information on research design is available in the Nature Research Reporting Summary linked to this article.

Data availability

Preanalysis plans are at EGAP (http://egap.org/registration/3020). Replication data are available at the Harvard Dataverse with the identifier https://doi.org/10.7910/DVN/Z1REHB.

Code availability

Replication code is available at the Harvard Dataverse with the identifier https://doi.org/10.7910/DVN/Z1REHB.

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Author contributions

M.H., D.L., D.D.L. and J.H. conceived the research, M.H., D.L. and J.H. designed the analyses, M.H., D.L., J.H. and D.D.L. helped with data collection, M.H., D.L. and J.H. conducted the analyses, and M.H., D.L., D.D.L. and J.H. wrote the manuscript.

Competing interests

The authors declare no competing interests.

Additional information

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Reporting Summary

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Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a	Confirmed	
☐	☒	The exact sample size (*n*) for each experimental group/condition, given as a discrete number and unit of measurement
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☒	☐	For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☒	☐	For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☒	☐	Estimates of effect sizes (e.g. Cohen's *d*, Pearson's *r*), indicating how they were calculated

Our web collection on statistics for biologists contains articles on many of the points above.

Software and code

Policy information about availability of computer code

Data collection	The data were collected using the Qualtrics survey platform.
Data analysis	The data were analyzed using Stata (StataCorp. 2017. Stata Statistical Software: Release 15. College Station, TX: StataCorp LLC). The figures were created using R (Version 3.3.2) and the ggplots library.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors/reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research guidelines for submitting code & software for further information.

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All manuscripts must include a data availability statement. This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

Replication data is available at the Harvard Dataverse with the identifier doi:10.7910/DVN/Z1REHB.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description	The study is a quantitative study of a randomized field experiment.
Research sample	The sample is comprised of immigrants in New York City that were over 18 years old registered online for the a state-sponsored program to receive assistance with their naturalization application. All participants were screened as being eligible to naturalize, live in New York State, and were screened as being eligible for the federal fee waiver. To qualify for the federal fee waiver, a person must have a household income below 150% of the Federal Poverty Guidelines or receive means-tested benefits. The sample of New Yorkers was chosen because the experiment was embedded in a New York State immigration program. Although New York's immigration population is larger than many other states, the immigrant population is not so unique that it is not a representative sample.
Sampling strategy	The state-sponsored program was open to any eligible immigrant that was interested in receiving assistance in naturalization that met certain income requirements, but the sample for this study was restricted to those who completed the online registration system for the state program and were deemed likely eligible for the fee waiver. All online registrants that consented to participating in the study and were deemed likely eligible for the fee waiver were entered into the study if they registered between April 30, 2017 and July 30, 2017.
Data collection	The data collection for registering participants and collecting their demographic information was done via the survey platform Qualtrics. The information was self-reported through an online registration system or collected through phone calls or in-person visits to non-profits. The results of the study were also collected via Qualtrics via a survey. The survey was done via SMS, online through email solicitation, or through a CATI with trained survey enumerators. The researcher was not blind to the experimental condition or hypothesis, but all of the outreach for the survey were standardized between the experimental arms.
Timing	The participants were enrolled in the study between April 30, 2017 and July 30, 2017. The survey gathering the study's results was conducted from 11/27/17 to 12/30/17.
Data exclusions	1,537 participants were included in the study. 946 participate in the follow-up survey. The survey was offered through email and phone and some respondents took it via multiple mediums. 11 participants who took the survey twice and provided conflicting answers were dropped from the study. This exclusion criteria was not pre-established.
Non-participation	1,537 participants were included in the study. 946 participate in the follow-up survey. 11 participants were excluded.
Randomization	The registration system was set up to randomly assign 25% of the sample to the control group and 75% to the treatment group. The randomization scheme was chosen to minimize the number of people who would not immediately be informed about the fee waiver while still allowing a sufficient sample size for a reasonable effect size.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology
☒	☐ Animals and other organisms
☐	☒ Human research participants
☒	☐ Clinical data

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Human research participants

Policy information about studies involving human research participants

Population characteristics	See above.
Recruitment	Participants were recruited into the study via the marketing campaign for the New York State naturalization assistance program. This recruitment was done via digital advertising, paid television ads in New York, public service announcements on Spanish-language media, and word-of-mouth from non-profits. The study included on the registrants that registered online. For the survey that collected the results, participants were offered a $5 incentive to complete the survey. Because of the online registration requirement, the sample in our study may be more technologically savvy than the average naturalization-eligible immigrant that is eligible for the fee waiver.

Ethics oversight	Stanford Institutional Review Board

Note that full information on the approval of the study protocol must also be provided in the manuscript.