Countering Public Opposition to Immigration: The Impact of Information Campaigns*

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October 25, 2021

Abstract

Is opposition to immigration deeply entrenched or is it open to updating in the face of new information? We explore this question by examining how attitudes of native citizens shift following exposure to information that points to potential upsides of immigration. We do so using a large-scale randomized experiment embedded in a text-comprehension study administered in Japan. As part of the study, participants were subtly presented with information on social and economic problems that immigration could help address (e.g., growing elderly population that requires care, labor shortage in certain sectors). Depending on the treatment, information exposure increased support for a more open immigration policy and motivated pro-immigration political action. Notably, effects persisted 10-12 days after the intervention. The results suggest that information campaigns can lessen public opposition to immigration.

Keywords: Immigration, information campaigns, experiment, public opinion, Japan
JEL classification numbers: F22, J68.

*Declarations of interest: none.

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1 Introduction

Immigration has long been the most politically controversial aspect of globalization. As the number of people moving to advanced economies has swollen in recent years, far right parties in countries such as Austria, France, the Netherlands and Switzerland have seen large increases in support by staking out strong positions against immigration (Rydgren, 2008; Edo, Giesing, Öztunc et al., 2019). Furthermore, acts of hostility toward foreigners, expressions of racism and bigotry have become more prevalent.[1] Indeed, many public opinion surveys reveal high levels of opposition to immigration. How can this type of antagonism be countered? Is opposition to immigration entrenched in a way that is largely immutable to new information, or does it also stem from an assessment of immigration's costs and benefits, in which case new information could potentially lead to a change in people's stance?

In recent years, a large body of research has investigated the determinants of individual attitudes on immigration. Most of this work utilizes survey data to assess the main drivers of people's views on immigration, focusing primarily on two main strands of explanations. The first is rooted in economic considerations, and focuses on individuals' concerns about the distributional effects of immigration (Facchini and Mayda, 2009; Dancygier and Donnelly, 2013). The second emphasizes the role of socio-cultural factors (Citrin, Green, Muste et al., 1997; Sides and Citrin, 2007). Notably, studies of both economic and cultural drivers of immigration attitudes have focused on explaining differences at a given point in time among a cross-section of people.[2] In contrast, less attention has been given to whether and how attitudes on immigration *change* over time. This is obviously an important question if one seeks to develop informed policies to counter some of the social problems associated with

[1] For example, see the Home Office's report on UK statistics of anti-immigrant hate crimes "Hate Crime, England and Wales, 2015/16"; see also the "2015 Annual Report on the Protection of the Constitution" by the Federal Ministry of the Interior for the corresponding statistics on Germany

[2] This is true also with respect to the literature on immigration attitudes in Japan, the country of focus in this study (e.g. see Tanabe (2013)).

hostility to immigration, such as poor social integration of migrants, discrimination and rising support for xenophobic political forces.

Earlier attempts to study how attitudes on immigration change focused on how situational factors and the triggering of certain emotions (e.g. anxiety, fear) can lead to greater *exclusionary* attitudes toward immigrant minorities (Sniderman, Hagendoorn, and Prior, 2004; Schmuck and Matthes, 2015; Lahav and Courtemanche, 2012).[3] More recently, a set of studies shifted focus to the question of how correcting biased beliefs or misconceptions about immigration changes attitudes toward a more open border policy. These include studies that assess the effect of adjusting natives' misperceptions about the share of the foreign born population in the country (Alesina, Miano, and Stantcheva, 2018; Grigorieff, Roth, and Ubfal, 2020; Hopkins, Sides, and Citrin, 2019); the rate of immigration inflow (Blinder and Schaffner, 2020); the labor market impact of immigration (Haaland and Roth, 2019), or the countries of origin from which the immigrants arrive (Alesina, Miano, and Stantcheva, 2018).

Our study builds on and extends these analyses by proposing a related, yet different approach to countering exclusionary attitudes toward immigrants. We do so by making use of two key insights from the literature. The first is that opposition to immigration often stems from individuals' sociotropic concerns about its broader social and economic impacts, rather than from worries that reflect narrow self-interest (Citrin, Green, Muste et al., 1997; Hainmueller and Hopkins, 2014). Second, that the general public is often woefully informed about, and has little grasp of many social and economic issues (e.g., Caplan 2011; Curran, Iyengar, Brink Lund et al. 2009). It is therefore likely that native citizens in advanced economies have little understanding of the potential benefits that immigration can

[3]For example, Lahav and Courtemanche (2012) find that presenting subjects with tests framing immigration as a national security threat, as opposed to a cultural threat, triggers liberals' support for restrictive immigration policies. Among conservatives, the effect was similar in both frames. Schmuck and Matthes (2015) find that exposure to advertisements of anti-immigrant parties—highlighting both economic and cultural threats—triggered native hostility to immigrants, independent of subjects' prior ideological leanings.

provide the host country in dealing with complex challenges, such as an aging population or under-funded social welfare and pension systems. With this conjecture in mind, we examine whether informational treatments that speak to such sociotropic concerns and that highlight potential *benefits* from immigration in dealing with key social and economic problems, can sway people's attitudes on the issue of immigration. We explore experimentally not only the efficacy of such treatments, but also the endurance of their impact over time.

Our study focuses on Japan, the world's third largest economy and a country characterized by a relatively low share of immigrants estimated at about 1.8 percent of the population.[4] Despite the country's acute demographic and attendant economic problems — low birth rates, a rapidly aging society, a shrinking population and growing labor shortages — proposals to ease the entry of foreigners have traditionally not been popular among the broad public and confronted strong political opposition (Kingston, 2012). We study whether this opposition is lessened when native citizens are exposed to information that points to social and economic issues that immigration can help address. To reduce concerns of experimenter demand effects (Mummolo and Peterson, 2019; De Quidt, Haushofer, and Roth, 2018), we communicated this information indirectly, as part of an assessment exercise of teaching curricula, in which subjects were asked to evaluate the suitability of different texts for high school students. By randomly assigning participants to different texts, some of which highlighted the potential impact of immigration in alleviating problems such as a growing elderly population that requires care or an underfunded pension system, we are able to assess the effect of such exposure on immigration-related attitudes. Furthermore, by eliciting some of the participants' views on immigration up to 12 days after the text-assessment study, we can examine the persistence of the treatment effects beyond their immediate impact.

The results reveal a large and significant effect of exposure to the treatments on citizens' support for a more open immigration policy. The magnitude of the effects differs across

[4]The information was retrieved from $https://www.e-stat.go.jp/$.

treatments, but is systematically positive and often substantively large. For example, exposure to information about immigrants' potential role in addressing Japan's pensions crisis is associated with a 21 percentage point increase in support of allowing more immigrants into the country. Exposure to information about the impact of immigration on dealing with the country's shrinking population or its shortage of caregivers for the elderly produce somewhat smaller shifts (15 and 19 percentage points, respectively), albeit still highly significant. Given the baseline rate of 29% support among the broad population, these shifts represent an increase of between 43 and 72 percent, without doubt sizable effects.

We observe comparable effects also with respect to support for increasing the number of visas for temporary workers. Furthermore, exposure to some of the treatments also elicited a significant increase in subjects' willingness to mobilize politically and sign a pro–immigration petition. We find that the treatment effects decrease a week and a half after exposure, yet remain consistently positive and in some cases also substantively large. This pattern is especially true with regard to the attitudinal questions, while the effect is less enduring in the context of mobilizing subjects to political action.

What explains the shift in views that we observe? Specifically, an open question is whether the treatments bring about an opinion change as a result of priming certain issues—making certain pre-existing information more accessible— or whether instead the effect is driven by exposing people to new information. Our experiment provides some suggestive evidence on this question, using proxies for respondents' prior level of familiarity with the information embedded in the treatment. Across two different comparison sets, our evidence suggests that the latter mechanism, namely exposure to new information, is probably the more prominent of the two. If this indeed is the case, this implies that similar interventions are likely to have a stronger impact in lower-information environments.

Our results contribute to the growing literature on mass attitudes toward immigration, which offers insights on the factors that account for cross-sectional variation in attitudes and

shows that sociotropic considerations about the broader impact of immigration on society are a prominent factor (Hainmueller and Hopkins, 2014). Our analysis extends this insight by assessing whether exposing individuals to information that pertains to those sociotropic considerations can bring about change in their stance on the immigration issue. The study's results provide clear evidence that such information treatments can have a considerable effect, one that also persists beyond the immediate term.

The findings also add to research on prejudice reduction, which studies ways for easing negative attitudes, discrimination and even violence toward outgroups and their members. As reviews of this literature indicate, practical insights on the effectiveness of remedial strategies is limited (Paluck and Green, 2009; Paluck, 2016). This is due to insufficient use of experimental designs that include a credible control group, and that in the cases where randomized interventions are used, they are often done in lab settings, with children as subjects, or rely on close interaction with individuals or groups. These aspects render many of these proposed methods difficult and costly to scale up to large populations. In contrast, the approach we study highlights the potential usefulness of information campaigns that can reach, and possibly affect, the attitudes of a far broader audience. In the concluding section we discuss the conditions under which such campaigns are likely to be more effective.

To conclude, this study advances the literature in several ways. First, contrary to related work that centers on natives citizens' factual errors as a source of opposition to immigration (Alesina, Miano, and Stantcheva, 2018; Grigorieff, Roth, and Ubfal, 2020; Hopkins, Sides, and Citrin, 2019), we focus on a different cause, namely that the benefits from immigration are often not readily apparent to many in the public. We conjecture that by making these benefits more accessible through exposure to new information, some native citizens will grow more amenable to immigration. Second, we assess the effectiveness of a broad array of information treatments, taking advantage of the much larger sample we use in the experiment, as compared to what is common in the literature. This is pertinent, given that very little

is known to date regarding the type of benefits from immigration that natives value most. Indeed, we uncover a substantial degree of variation in the public's responsiveness to the specific information received, thereby underlining the value of assessing different types of information treatments. Third, we study the effects of information on immigration attitudes in Japan, one of the world's largest economies and yet a comparatively understudied context. These advances are aided by our experimental design in which we administer the treatment as part of a seemingly unrelated task (assessment of reading comprehension texts). This obfuscated design goes some way toward reducing experimenter demand effects, thus helping increase the external validity of the findings.

2 Theoretical Expectations

Views on some social issues, — e.g., abortion, capital punishment — tend to reflect deep moral convictions and as such tend not to shift much over time.[5] Yet views on other issues reflect something more akin to a cost-benefit assessment, and as such are more open to change when new information arises that alters the relative weights of the pros and cons. Research shows that immigration is an issue that for some represents the former kind, i.e., it produces reactions that reflect strong ethnocentric dispositions (Pérez, 2010; Sniderman and Hagendoorn, 2007). In this paper, we conjecture that this may not be the case among some segments of the population. Rather, our contention is that views on immigration, even among those who strongly oppose it, are sometimes driven by a more considered assessment that immigration poses an overall burden on society that exceeds the gains it provides. In such cases, a change in people's attitude on immigration could take place if they received information that caused them to revise their assessment.

We therefore posit that exposing people to information about the benefits of immigration

[5]The emphasis here is on attitude change within subjects; attitudes across cohorts can of course change (Cook, Jelen, and Wilcox, 1992; Jelen and Wilcox, 2003).

can bring about a non-trivial degree of attitude change. This expectation builds on two consistent findings in the empirical literature. First, much of the evidence pertaining to the role of economic considerations indicates that it is mostly sociotropic concerns about the broader economic impact of immigration on the country that underlie opposition to immigration (Citrin, Green, Muste et al., 1997; Hainmueller and Hopkins, 2014). In contrast, empirical studies provide only limited support for explanations centered on self-interest (Hainmueller, Hiscox, and Margalit, 2015). The second finding is that higher levels of education are consistently associated with more positive views of immigration. There is an ongoing debate revolving the factors that underlie this "education effect", with one possibility being that the education gap reflects a difference in the level of information that people possess about immigration. Indeed, studies in both Europe and the U.S. reveal that people tend to systematically overestimate the number of immigrants in the country, but that more educated respondents are less likely to do so (Citrin and Sides, 2008; McLaren and Johnson, 2007).

We hypothesize that the two findings are partly related. Our conjecture is that the more educated tend also to be better informed about the sociotropic benefits of immigration, leading them to hold relatively less restrictive views on immigration. Whereas the potential costs of immigration to the native society are more apparent and intuitive—e.g., competition for scarce resources with natives, a growing presence of foreign-looking people—the potential benefits are sometimes quite complex and difficult to grasp. For instance, the role that immigration can play in increasing the sustainability of pay–as–you–go pensions systems, or in dealing with the implications of an aging society, are examples of sociotropic benefits that most people do not understand or think about. Our expectation is therefore that providing individuals with easy to grasp information about such type of benefits could lead to attitude change even among some immigration skeptics.

Considering the conditions under which the effect of an informational treatment is likely to be stronger, it is worth differentiating among three types of interventions. The first

makes preexisting knowledge more accessible, thereby increasing the weight the individual exposed to the treatment assigns to a particular consideration. The second makes preexisting knowledge more applicable, for example by linking considerations from two different domains. And yet a third type provides information that is entirely new, one that people were not aware of, prior to exposure. Earlier research indicates that the effect of treatments that make considerations more accessible tend to have a fleeting effect, whereas the latter two types tend to have a more enduring impact (Baden and Lecheler, 2012; Coppock, 2016).

Building on this evidence, we expect the effect of treatments highlighting the positive impacts of immigration to be stronger among natives who are less informed on the topic and for whom the information is more likely to be new. Conversely, we expect their effect to be weaker among the highly educated, who (presumably) are more exposed to the public discussion on economic and political matters. Similarly, individuals employed in sectors in which foreign labor is a more salient issue are likely to find the content of the treatments less novel and are therefore less likely to be affected by it. Next, we turn to describe the context in which we investigate these conjectures empirically.

3 Economic and Demographic Context

Our study was carried out in Japan. The country's population is in the midst of a rapid aging process and, in fact, it has already started shrinking: after reaching a peak of 128.1 million in 2008, it has been steadily declining, and is projected to drop below 100 million by 2050. By that year, the share of over 65 is expected to reach 38.8%, up from 26.7% in 2015.[6] As a result, fewer working age people will support a large population of elderly — from 2.3 working age individuals for each pension-aged person in 2015, by mid-century this figure is projected to decline to only 1.3.

[6]The population statistics are from the Ministry of Internal Affairs and Communications. See appendix for full details. We focus on statistics from 2015, the time the experiment was fielded.

The implications of this change are substantial. Japan's aging population is becoming an increasingly heavy burden on the country's public finances. In 2015, expenditures on social security for the elderly (the sum of all pensions, medical and welfare related expenditures) represented almost 70% of total social security expenditures, or almost 21% of national income (Statistics Bureau MIC, 2018). Also, according to the OECD, Japan's public expenditure on old-age and survivor cash benefits was 9.4% of GDP, compared to the OECD average of 8% in 2015. Total outlays on the elderly continue to increase, even if a substantial proportion of Japan's pension age population remains in the labor market.

Yet the elderly's high labor market participation is not sufficient to address growing labor shortages in key industries. For example, in March 2016 the active job opening ratio, that is the ratio between the number of active job openings and the number of applicants, was 3.64 for food and drink preparatory (catering and hospitality) workers, 3.62 for domestic support service workers, and 2.25 for motor vehicle drivers.[7]

Despite the worrying trends of societal aging, population shrinkage and worsening labor shortages, Japan traditionally resisted turning to immigration as a possible solution, and in fact as recently as November 2015, when questioned on the issue, Prime Minister Abe said "there are many things that we should do before accepting immigrants".[8] Instead, the government advocated the entry of women into the labor force as well as delaying the retirement age.

Yet, succumbing to strong economic pressures, in 2018 the government announced a new immigration policy that includes the dispensation of five-year visas for low-skilled workers in 14 sectors that suffer from labor shortages. These workers will generally not be allowed to bring their families with them. The policy also includes a separate visa category for higher-skilled workers, who will be allowed to stay for 10 years and bring their families, with the

[7]Data is taken from "Employment Referrals for General Workers", published by the Ministry of Health, Labour and Welfare.

[8]See The Guardian, 26.11.2015 "Japan under Pressure to accept more immigrants as workforce shrinks".

possibility of becoming permanent residents thereafter. In force since April 2019, the new policy has been criticized by the opposition. Liberal parties in the opposition were concerned about a lack of preparation to protect foreign workers' rights and provide for their welfare, whereas the more traditionalist opposition was worried about the provision that allowed guest workers to become permanent residents and to bring their families.[9] Interestingly though, the new policy, and immigration more broadly, did not become a major issue during the July 2019 elections. None of the major parties explicitly discussed immigration (or immigration policy) in their manifesto, even if practically all parties discussed at length issues related to an aging society such as social security funding and labor shortages.

In terms of public opinion on immigration, the evidence on Japan is somewhat mixed. Using survey data from the ISSP, administered three years before our study, we can compare immigration attitudes among the Japanese public to that in other OECD countries.[10] As Appendix Table SI-1 shows, the Japanese public holds a relatively benign view of the economic effects of immigration, but is much more apprehensive about its potential impact on society as a whole. (See Simon and Lynch (1999); Simon and Sikich (2007) for earlier comparisons of Japanese public opinion on immigration in a cross-national context).

4 Experiment and Empirical Approach

The experiment we administered in Japan was embedded in a study carried out between October and December 2015. Subjects took part in a survey that consisted of three parts: (i) background questions, including socio-economic characteristics such as education, occupation, prefecture and municipality of residence; (ii) a reading comprehension study: participants were randomly assigned to a treatment that provided information on a certain

[9] See The Diplomat January 22, 2020 "Is Japan Ready to Welcome Immigrants?".

[10] We use the National Identity module of the ISSP from 2013, since it included a battery of items asking respondents for their views on different aspects of immigration.

economic effect of immigration; the control group was exposed to a treatment of similar length about recent discoveries regarding the planet Pluto; and (iii) a series of policy questions, concerning individual views on immigrants, on the economic effects of migration, and on immigration policy (e.g. views on temporary migration).

4.1 Data collection and Experiment Design

The experiment was carried out by Cross Marketing Inc., a leading marketing research company.[11] The company has access to a sample of 1.8 million online panelists based in Japan, which has been used for a variety of previous studies, and for which the company maintains information on basic socio-economic characteristics.

The sample used in our study consisted of 10,000 individuals, who have been surveyed in three rounds.[12] The first round took place in October 2015 and was used to pilot all the treatments on 1,000 respondents. Based on the feedback received, we adjusted some of the texts. The second round was carried out during the week starting November 27, 2015. All individuals contacted in this round received part one of the survey (i.e. the socio demographic questions) as well as the randomized treatment (part ii). Upon completion, a randomly selected group of 6,000 individuals were also asked the set of policy questions (part iii). To assess whether the effects resulting from information provision persist beyond the immediate term, a randomly selected group of 3,000 individuals were instead shown part (iii) of the questionnaire only 10-12 days later. Cross Marketing Inc. did not provide direct monetary payments to participants, who instead were incentivized through the allocation of

[11] The experiment, "A Web Survey on Attitudes towards Immigration Policy" was commissioned to Cross Marketing Inc. by RIETI as part of the project "Attitudes toward immigration in an aging society: Evidence from Japan".

[12] The sample size was large in order to provide sufficient power for a design that included seven different sub-treatments spread over several waves. We also conducted post-hoc calculation of achieved power for two alternative values of the effect (d=0.2 and d=0.5 i.e. small and medium in the literature). The tests show that in all cases, the achieved power was above 95%.

"points", which can be exchanged with airline miles or other goods.

Balance tests from the randomization across treatments in the short run are presented in Appendix Table SI-2. In this sample, we detect very few instances of significant differences across groups, as only 5 of 88 categories are above statistical significance, close to what we would expect to occur by mere chance. [13] Appendix Table SI-3 reports the balance tests with respect to the second wave and shows statistically significant differences across 11 out of 88 categories. To help address this issue, we pursue two strategies: (a) we replicate our analysis controlling for the observed differences, and the results are virtually unaffected (see Appendix Tables SI-4 and SI-5); (b) we compare the averages of the outcome variables in the short run and longer-run control groups. As Appendix Table SI-6 shows, these averages are not statistically different from each other, suggesting that non-response is unlikely a major explanation for the differences in effect sizes we observe across treatments in the long run.

The survey involved approximately 45 questions, and to insure that respondents carefully read the informational treatments, they were told in advance that they will be asked a set of factual questions regarding the text. Indeed, examination of the responses reveals that, on average, 69% correctly answered the substantive questions about the topic of discussion and about 82% of the respondents correctly answered questions about the figures cited in the text.

To reduce the possibility of eliciting social desirability bias, respondents were not informed about the study's focus on immigration attitudes. This was done to alleviate the concern that "experimenter demand" effects — arising when subjects perceive the treatment as a cue about what constitutes appropriate behavior — are driving the results (for a more comprehensive treatment of this issue, see Mummolo and Peterson 2019; De Quidt, Haushofer, and Roth 2018).[14] In particular, participants were informed that their task was to determine the

[13] Cross Marketing Inc. included a larger sample in the initial wave and then collected second wave interviews until it reached the required quota.

[14] While we cannot completely eliminate the possibility of experimenter demand effects, we believe that

suitability of two short texts in Japanese for reading comprehension at the high school entry level.[15] The writing samples took the form of two newspaper articles of approximately 200 words each.[16]

The control group were asked to read a piece about recent discoveries regarding the planet Pluto. The treated group was instead prompted with a text that pertained to a benefit that immigration offers to Japan. The second piece, to be read by all participants, described instead the life experiences of a Japanese artist. After completion of the reading assignment, participants were asked to answer a number of factual questions about the text as well as some filler items. The factual questions were included to increase engagement with the text, as well as to serve as a manipulation check. The filler questions were common to all respondents and were used to further muddle their sense of what the study what about.

The outcome measures were asked in random order and collected in two waves. Two thirds of the sample were asked a set of policy questions, including items pertaining to Japan's immigration policy, at the end of the same study. The final third did not answer those questions at the end of the survey. Instead, they were interviewed a week and a half after the original study and asked to take a short survey on social and policy issues. As part of this study, participants were prompted with the same set of outcome measures we collected from the first group of respondents. Figure 1 summarizes the structure of the experiment.

[FIGURE 1 HERE]

the masking of the project's goals goes some way in alleviating the problem.

[15]The original text was drafted in English and translated into Japanese by a native speaker and was also reverse-translated to test for accuracy. See Appendix A and Appendix Figures SI-1-SI-10 for more details.

[16]To increase the attention paid to each text, the online system required participants to spend at least 30 seconds on each of the texts before being able to proceed to the next screen.

4.2 Treatments and Key Outcomes

The goal of the treatments was to provide individuals with information regarding a specific positive impact that immigration could have on Japan's economy and society. Great effort was made to ensure that the message conveyed in the text was simple and understandable to a non–specialized audience. Because this is a first attempt at administering this type of intervention, we had no clear priors about which specific benefits of immigration are likely to resonate most. We therefore experimented with a range of different information treatments, guided by consultation with local experts.

We organized the interventions in four groups. The first intervention focused on the role that immigration can play in tackling *population aging* and its consequences. Given the prominence of the issue for Japan, we devised three sub–treatments to highlight different aspects of the phenomenon. In the first, basic information was provided on the forecast for the old-age dependency ratio in 2050 and on the consequences this will have for the sustainability of the existing pension system. In the second, the emphasis was on the effect of population aging on the growing need for long-term care providers, while in the third it was on the challenges brought about by aging on the healthcare system. In all these cases, migration was described as a factor could help mitigate the problem. The second was exposed to the *demographic* treatment, which sought to highlight the significant population shrinkage that has begun in Japan and is expected to worsen over the next few decades. The objective of this intervention was to make respondents think of immigration's potential to mitigate the problem of a dwindling population.[17] The third set of treatments focused on *labor market shortages*, emphasizing the adverse effect of having too few workers in key sectors of the economy, and how migration can help address this situation. The fourth group

[17]Note, this issue is related, yet differs, from the one highlighted in the population aging treatment. Whereas the latter focuses on the implications of the fact that among the living population, the share of elderly is very high this treatment speaks to the fact that the population is declining.

was exposed to the *comparative facts* treatment, providing information on the relative size of migration into Japan as compared to other OECD countries. This treatment sought to emphasize the low level of immigration in Japan and to examine whether eliciting conformity with the norm in other rich countries might affect the views of Japanese respondents.

The information provided was new to many participants. This can be evinced from a set of factual knowledge questions we addressed to members of the control group at the end of the survey:[18] 46% of the participants did not know about the labor shortage problems and 29% were unaware of the population aging over the past two decades. Moreover, even among those who answered the factual questions correctly, it is unclear whether many of them thought of immigration as a potential antidote to such problems.

In addition to the four groups described above, which differed in terms of the treatment's content, we also sought to test the effect of the way the information was conveyed. Specifically, we created an additional set of treatments that focused on the same substantive issue as described earlier, but rather than providing the information as a summary of statistical data, they conveyed it instead as part of a personal story about a specific individual. For example, to communicate the idea that immigration can help alleviate Japan's dire need for nurses and longterm caregivers, we included a newspaper story about the struggles of a middle aged woman who had to take care full time of her aging mother. We refer to the former type of treatment as providing statistical information ("stats"), whereas the latter are identified as providing personal information ("personal"). In sum, the experimental manipulations varied along three dimensions: (1) the content of the treatment; (2) how the information was conveyed (statistic vs exemplar); and (3) the length of time for which the effect was examined.

To assess the impact of the treatments on respondents' views, our study included a number of survey items aimed at gauging different, albeit related aspects of immigration.

[18] See Appendix B.2 for more details.

Those items were preceded with the note emphasizing that there was "no right or wrong answer". One elicited general preferences on immigration policy, asking whether "the number of immigrants allowed into Japan should be increased, decreased, or kept at the current level?". Answers on a five-point scale ranged from "decrease greatly" to "increase greatly". A second question was similar, but focused specifically on the number of temporary immigrants. In addition to the attitudinal items, we also sought to assess respondents' willingness to actively engage in lobbying their elected officials in support of their preferred immigration policy. To this end, we included an item offering the option of signing a petition to the government on this matter, expressing either support or opposition for increasing the number of immigrants allowed in the country. Finally, as a placebo test, we also elicited participants' views on Japan's commitment to reduce global warming.[19]

The first dependent variable in our empirical analysis, *More Immigrants* is dichotomous and equals one if the respondent has chosen one of the two answers indicating support for either 'increased' or 'greatly increased' immigration, and zero otherwise. The variables *More Temp Visas* and *Sign Pro Petition* are also binary and coded in a similar way, indicating the respondent selected one of the two answers supportive of more immigration. The same applies for our placebo variable *Emissions*, which was coded as one if the individual was in favor of Japan reducing emissions unconditionally and zero otherwise.

[TABLE 1 HERE]

Table 1 reports basic summary statistics for the key outcomes in the two samples, and some basic socio–demographic characteristics. Both the short– and the "longer–run" samples are representative with respect to age, gender and employment status, though the survey participants were somewhat more educated than the Japanese population. Each information treatment (and control) was received by 11% of the sample in the first wave. As for our dependent variables, on average 45% of the respondents supported increasing immigration,

[19] See Appendix B for full text of the survey questions described above.

whereas 46% supported increasing temporary migration.[20] Participants were far less willing to actively engage in the political process by signing a pro-immigration petition – only 17% were interested in doing so. Finally, respondents appear to be fairly committed to tackling global warming, with 74% supporting taking action to reduce emissions.

Due to budget constraints, in the longer run sample only the four age-related treatments were studied. The share of individuals in favor of increasing immigration and temporary visas in Wave II were respectively 30% and 35%. The share of individuals willing to sign a pro-migration petition in the second wave was instead 14%. We discuss these differences in detail in the subsequent sections, where we compare the short and longer-run effects of the treatments.

5 Results

We begin by presenting the results of our baseline specifications, focusing on the short run sample, i.e. the group of individuals who received the informational treatment and was asked the policy questions in the same study. Figure 2 presents our main results graphically (see Appendix Table SI-7 for the full regression results, including estimates of the baseline effects). Note that examining a shift in attitudes in a binary indicator is a more demanding measure of the effectiveness of the treatments, and thus our results are unaffected (and in some cases, stronger) if we use instead the continuous measure (see Appendix Table SI-8).[21] Given the randomization across treatment groups (see Appendix Table SI-2), all the results we report below are unaffected by the inclusion of individual level controls (such as age, gender, education).

The upper left hand panel of Figure 2 presents the effect of the information treatment on

[20] Note that this includes respondents exposed to the treatments.

[21] For ease of interpretation, we present estimates of linear probability models, but probit specifications produce similar findings (see Appendix Table SI-9).

respondents' attitudes on the generic *More Immigrants* item. The baseline rate in the non–treated sample indicates that only 29% of the population support an increase in the level of immigration, a finding that is consistent with other survey evidence (see Appendix Table SI-1). Yet providing information on some of the economic benefits of immigration has a large, positive and significant effect on opinions, a finding that holds for all treatments. The effect ranges between 12.5 and 21 percentage points, indicating that an individual exposed to the information treatments was between 43% and 72% more likely to support immigration than an individual in the broader population. The most effective treatments were those in which information was provided on the benefits of immigration for the sustainability of the pension system and for the provision of longterm care services. The least effective, though still significant and substantively large, involved instead the benefits of immigration in addressing labor market shortages.

Does the mode of information provision matter? A large body of work on persuasion debates whether arguments are more effective in bringing about attitude change when evidence is presented as statistical as opposed to exemplars (or 'story based') (Perloff, 2010; Allen and Preiss, 1997).[22] We study this question focusing on two treatments: Elderly care and Labor shortages. As the figure makes clear, the mode of information transmission did not exert a clear or systematic effect as the impact of the treatments did not differ when the information was communicated through an exemplar or a nondescript factual account.[23] This comparison, by itself, cannot rule out the possibility that the way the evidence is presented can matter. Yet the analysis does suggest that the mere intervention of exposing citizens to the big economic and social problems that immigration can help address is, by itself, an

[22] As the literature notes, there are ex ante reasons why each of the two types might be more effective than the other. While exemplars may allow recipients of the information to connect more easily to the argument, statistical evidence may lend the argument a greater aura of credibility (Allen and Preiss, 1997).

[23] We cannot reject the hypothesis that the two effects are identical at conventional levels – the p values are respectively 0.44 and 0.11.

effective tool for bringing about attitudinal change.

[FIGURE 2 HERE]

In the upper right panel of Figure 2 we examine the effects of information on attitudes towards increasing the number of temporary migrants. The baseline attitude is more favorable toward temporary migration, with 37% of the population supporting its expansion, compared to only 29% in favor of an increase in the overall number of immigrants. At the same time, the effect of exposure to the informational treatments, while still positive and significant in all cases, is quantitatively smaller, ranging between 7 and 15 percentage points or, in terms of our baseline, increasing pro immigration attitudes by between 18 and 42 percent.

Interestingly, some new patterns emerge. While information emphasizing the benefits of immigration for providing longterm care services appears to have a large effect on attitudes toward temporary migration, the second most effective treatment is now the one emphasizing how migration can reduce labor market shortages. This may be explained by the fact that temporary workers are highly relevant for jobs in sectors suffering key shortages – construction, hospitality – while long-term care workers are expected and required to commit to extended stays, including participation in language classes and later language proficiency tests.

The bottom left panel illustrates the effectiveness of information on the individual willingness to sign a petition to increase the number of immigrants coming to Japan. Since respondents were told that joining the petition required providing personal details, it is probably not surprising that this costlier measure elicited lower levels of responses than strictly attitudinal questions.[24] Indeed, in the baseline (i.e. control group), only 13 percent of the respondents agreed to sign a pro-migration petition. Still, receiving information

[24]Other studies using this petition approach reveal a similar pattern (Bechtel, Hainmueller, and Margalit, 2014; Levine and Kline, 2017).

on the potential benefits of immigration had an impact also on the willingness to actively engage in the political process. In particular, individuals exposed to three out of the four treatments related to the aging problem, as well as to the population shrinkage issue, were significantly more likely to sign the petition. The effects are again quite large: as compared to the baseline rate (13%), information exposure increased the likelihood of signing the pro–immigration petition by between 39 and 53 percent.[25] In Appendix Figure SI-11 we report the result for a fourth outcome variable, namely an index we constructed that combines the three previous items. As we can see, all treatments are highly significant, with a larger effect uncovered for the pension treatment and those focusing on elderly care.

Finally, in the bottom right panel we observe the results of a placebo treatment, in which we confirm that providing information on the benefits of immigration does not affect individual views on whether Japan should reduce greenhouse emissions.

Taken together, Figure 2 highlights that the information treatments exert a positive and significant effect on all three immigration outcomes, but not with regard to environmental policy. It also shows that the information treatments exert a larger effect on attitudinal questions than on a quasi-behavioral outcome.

Given the sizable number of treatments we administered and the fact that the analysis examined their effect on several outcomes, we re-ran all estimations using two techniques to adjust the p-values for multiple hypothesis testing (List, Shaikh, and Xu, 2016). The results, reported in Appendix Table SI-10, reveal that on the general immigration question, all the initial results are robust to this adjustment and remain significant at the one percent

[25]Note that we recorded information on the participants' willingness to sign a petition, but did not require them to actually go through the full process of signing it. As Grigorieff, Roth, and Ubfal (2020); Haaland and Roth (2017) point out, the two are not equivalent (even if both studies do find similar average treatment effects for willingness to sign and actual signatures). We should therefore be careful not to overstate the behavioral implications of this finding. Whether information changes natives' political behavior will probably depend on the relevance of the information and the persistence of the communication. Single-shot exposure to information is likely to have only a limited impact on galvanizing action.

level. On the temporary visa outcome, two treatments – "population shrinking" and "labor shortages" – drop just below the conventional level of statistical significance. The same is true with the estimate of the effect of the elderly care treatment on the petition outcome. Perhaps more notably, two treatment effects that were marginally significant in the original specification (elderly care personal and healthcare) lose statistical significance when the p-value adjustment is applied. Taken together, the p-value adjustment to multiple hypothesis testing changes little in terms of substantive conclusions, but helps underline the finding that most treatments had a limited impact on participants' willingness to sign the petition.

5.1 Do the Effects Persist?

One key question arising from these findings is the extent to which the interventions are effective beyond the very short run. As discussed before, prior research finds that treatments providing entirely new information or making preexisting knowledge more applicable tend to have the most lasting effect. In contrast, informational treatments that "just" make preexisting knowledge more accessible have a more fleeting effect (Baden and Lecheler, 2012; Coppock, 2016).

Although Japan's aging problem is a fairly well known issue, it is likely that some of the specific implications — on sustainability of the pension system, healthcare costs, need for longterm caregivers — are less well understood by the general public. Furthermore, the idea that immigration could be a relevant factor in addressing these problems is even less obvious. Indeed, as noted in the previous section, our evidence indicates widespread lack of knowledge on matters discussed in the treatment. We therefore expect that the treatments will not simply provide increased accessibility to information; for some, they may represent new information altogether.

[FIGURE 3 HERE]

To assess whether the impact of information persists over a longer stretch of time, a randomly chosen subgroup of 3,000 individuals was asked the preference questions only ten to twelve days after having been exposed to the treatments. The time period between intervention and re-contact is surely not long enough to be considered a measure of a treatment's "long run" effect. Nonetheless, it provides some sense of the decay over time.[26] Moreover, as suggested by Coppock's analysis of 60 dependent variables in 18 survey experiments, the decay rate of survey experimental effects appears to follow a hockey-stick like pattern: it tends to be highly significant in the first 10 days or so, but after that it tends to plateau, leaving treatment effects more or less steady in subsequent measurements (Coppock, 2016).

The results concerning general attitudes (i.e. the *More Immigrants* variable) are reported in the left panel of Figure 3, where we compare short and longer run effects. As the figure indicates, the longer-run effect is consistently smaller than the short run effect, representing a drop of between 45% and 71%.[27] Even so, it continues to be sizable ten to twelve days after the treatment. For example, exposure to information about the pension crisis and the potential of immigration to alleviate the problem is associated with a 6 percentage point increase in support for more immigration, and the effect of information about immigration's impact on sustaining the health-care system is even greater (10 percentage points), representing a 24% and 41% increase above the baseline rate, respectively.

A similar pattern can be observed also with respect to support for expanding visas for temporary immigrants. In contrast, the effect of time on the decline in the willingness to join the petition is sharper than the shift on the attitudinal measure. In fact, the effect of all four treatments on the behavioral outcome, while still positive, loses statistical significance.[28]

[26] We therefore use the term 'longer run', to separate it from both the immediate term and the long run.

[27] In Coppock's analysis described earlier, the mean decay rate after 10 days was 56%, placing the findings from our experiment in the "moderate" decay rate category.

[28] In Appendix Figure SI-12 we report the result for a fourth outcome variable, namely an index constructed combining the previous three responses. As we can see, in the longer run the treatment effects on this aggregate outcome persist, but are significant only for healthcare and elderly care.

In sum, the treatment effects appear to persist with respect to changing people's policy positions, but diminish quite rapidly in terms of their impact on mobilizing citizens to political action.

5.2 Mechanism and Effect Heterogeneity

The results reported so far indicate that exposing individuals to information about the positive impact that immigration could have on addressing various social and economic challenges significantly reduces opposition to immigration. In this section we explore two potential mechanisms that could be behind this finding: the treatments may alter individuals' attitudes primarily by making preexisting information more accessible, or alternatively by providing information that creates new knowledge and leads to a shift in views. The findings in Figure 3 have indicated that the effects tend to persist over time, a result that is more compatible with the idea that new knowledge is made available to the respondents.[29] In this section, we further explore this issue by examining effect heterogeneity across groups that are expected to differ in their level of pre-treatment knowledge about the relevant issues.

We begin by comparing the effects of the different treatments on individuals employed in sectors with severe labor shortages (henceforth "high vacancy" sectors) as opposed to those working in sectors with few shortages ("low vacancy" sectors).[30] The assumption is that respondents in the high vacancy group are more aware of the labor shortage issue, and the potential impact that immigration could have on alleviating this problem. Hence, if the information treatments shift attitudes primarily by providing new information, we should observe the labor shortage treatments to have a stronger impact on the attitudes of workers in low vacancy sectors as compared to those in the high vacancy sectors. Alternatively, if the treatments shift attitudes primarily by making pre-existing information more accessible,

[29] These results are consistent with this explanation but of course do not prove its veracity.

[30] Individuals were asked to identify their sector of employment from a list of 20 possible alternatives. See Appendix B.3 for details.

we should expect the opposite pattern of a greater shift in attitudes among workers in the high-vacancy sectors. In both cases, there is no reason to expect a differential response to the other information treatments that do not deal with labor shortages, among both the low and high vacancy groups.

To explore this conjecture we collected information on the ratio between the number of successful job recruitments carried out in a given period, and the number of new openings posted during the same period.[31] We measure the pervasiveness of labor shortages as: (1-recruitments/new openings), and define a sector as a high shortage sector if its labor shortage is in the top quartile of the sector distribution. The results of the analysis are reported in Figure 4 (see also Appendix Table SI-11).[32]

[FIGURE 4 HERE]

The top panel presents the effect of the treatments on the baseline group, i.e. individuals working in sectors characterized by low labor vacancy. These effects are consistently positive and highly significant. The bottom panel reports the coefficient estimates of the interaction effects, illustrating the differential effect of information on workers employed in high vacancy sectors. Here, a noteworthy pattern emerges: in all but two cases, the interactions are substantively and statistically indistinguishable from zero. The only clear distinctions are the two labor shortage treatments, which are *negatively* signed: the first is significant at the 5% level, whereas the second is borderline significant (p=0.12), respectively. Taken together with the baseline effect, these results indicate that among workers in the high vacancy sectors, no attitudinal shift occurs. In contrast, among the low vacancy workers — who presumably had less prior knowledge about the labor shortage issue — the two treatments dealing directly with this issue produced a sizable change in attitudes by reducing opposition

[31] See footnote 7 for the source of this information.

[32] Appendix Figures SI-13-SI-15 report the results for all the other outcomes we have considered in the analysis.

to immigration. This evidence is merely suggestive, but nonetheless consistent with the idea that the treatments bring about a larger attitudinal shift when providing new information rather than by making pre-existing information more accessible.[33]

A second, somewhat less direct test compares the effects of the information treatments across groups with different levels of education, a conventionally used proxy for level of preexisting knowledge. Indeed, using a range of six factual questions that we asked the control group at the end of the survey, we confirm that the more educated respondents in the sample possess greater knowledge about factual issues relating to immigration and the economy.[34] Similar to the previous analysis, we now estimate a specification in which we interact the treatment indicators with a dummy capturing whether the respondent had completed tertiary education.[35]

[FIGURE 5 HERE]

The results are reported in Figure 5. As before, the top panel presents the effect of the treatment on the baseline group, i.e. on individuals with no college degree. The effect of the treatments on pro–immigration attitudes is always positive, and statistically significant at the 1% level (see also Appendix Table SI-11). The bottom panel reports the parameter estimates for the interaction effects, which capture the differential effect of the treatments across education groups. As the figure indicates, the effects are below statistical significance, yet notably the point-estimates on the interactions are all negative. While not conclusive,

[33]Given that this is correlational evidence, other explanations may of course account for this finding. For example, it is possible that individuals in high vacancy industries have stronger self-interested reasons to resist updating their views in response to this treatment. If their wages are high due to unmet labor demand, new immigrants may pose a stronger threat to those respondents than to workers employed in low vacancy sectors. We therefore cannot conclude that the level of prior knowledge is the only explanation for the differential impact of the treatments.

[34]See Appendix B.2 for the wording of the questions, and Appendix Table SI-12 for the results.

[35]Appendix Figures SI-16-SI-18 report the results for the other outcomes we have considered in the analysis.

these results are consistent with those obtained in the comparison of the high vs. low vacancy sectors, suggesting that the information treatments tend to have a stronger impact on individuals with less pre-existing knowledge about the issue at hand. [36]

6 Discussion

We began the study by asking whether attitudes on immigration are movable, and specifically, whether information can lead people to update their views on immigration policy. Our results indicate that the attitudes of a sizable share of the Japanese population can shift in reponse to learning about some of immigration's potential benefits. These findings are directly relevant for understanding the case of Japan, but they may also speak to role of information in shaping immigration attitudes in a broader context. Yet in assessing the generalizability of the findings, several factors need to be considered.

On the one hand, Japan is more ethnically homogenous and its citizens are more apprehensive about immigration's potential social implications as compared to other OECD countries.[37] As such, they are perhaps less likely to shift their views in response to treatments such as the ones we administered. On the other hand, the presence of a relatively small number of foreigners in the country may mean that Japan represents a relatively low-information environment with respect to immigration. If so, our treatments are more likely to provide the participants in the study newer information than if the treatments were administered in other countries. Which of these accounts is correct is an empirical question, which we hope additional research will help resolve.

[36] Of course, education may be capturing other relevant factors. For example, if more educated individuals are better at finding reasons to reject information that challenges their priors, the different treatment effects could be due to differences in respondents' capacity to engage in motivated reasoning.

[37] See column 3 in Appendix Table SI-1, where Japan ranked 4th from the bottom of 26 countries in terms of respondents' views on the question whether "immigrants improve [country's] society by bringing new ideas and cultures".

As noted, several recent papers have considered the impact of correcting public misperceptions concerning immigration (in particular, about the size, countries of origin and rate of inflow of the foreign population). In contrast, our approach is to highlight key socio-economic challenges the country faces that immigration can help address. We conjecture that making the potential benefits of immigration more lucid to the public is key to explaining the relative strength of our treatments as compared to the effects of correcting factual misperceptions regarding immigrants. In the case of Japan, issues such as labor shortages, an underfunded pension system and a vast elderly population are particularly pressing social problems, possibly more so than in other contexts. Thus our work indicates that information provision can have a non-trivial impact when it draws public attention to prominent policy concerns that immigration can help tackle.

The findings also speak to the research on prejudice reduction, which has made substantial progress in recent decades, yet still offers limited practical guidance about ways in which exclusionary attitudes can be decreased on a broad scale. Our study makes headway by providing evidence from an experiment administered to a sizable national sample of adults, using an intervention that is relatively easy to scale up to large populations. The impact of the intervention on increasing support for openness toward immigration most likely reflects also some degree of change in attitudes toward the immigrants themselves.[38] One can therefore imagine how a government interested in fostering better native-immigrant coexistence can adapt this approach and fund media campaigns disseminating the type of information

[38]Data from the Japanese General Social Survey offers insight on the link between prejudiced views toward foreigners and policy preferences with respect to immigration. Of those that supported decreasing (the already very low) levels of immigration, 83% also reported that they will not accept a foreigner as their co-worker, neighbor or relative. Moreover, support for decreasing levels of immigration was almost four times higher among those who expressed such views than among those who did not (41% vs. 11%). These figures are consistent with the notion that prejudiced views toward foreigners are a prominent channel shaping attitudes toward immigration in Japan.

used in this experiment.[39]

In terms of implementation, our results show substantial variation in the effectiveness of the treatments as well as in their durability. Moreover, we find evidence of heterogeneity across the population in receptiveness to the different treatments. While large-scale media campaigns aimed at reducing exclusionary attitudes toward immigrants and refugees have become a feature in a range of countries (e.g., Australia, Belgium, France, Scotland), whether and when they are effective remains an open question. Uncovering the specific immigration-related benefits to which native citizens will most relate, as well as targeting different audiences with group-specific information, is a task that requires more theorizing and further experimentation. As the results of this study indicate, this is an endeavor worth pursuing.

Acknowledgments

For helpful feedback we thank Dan Hopkins, Jens Hainmueller, Alex Kuo, David McKenzie and audiences at Erasmus University Rotterdam, the Migration and Development Conference in Clermont–Ferrand, Nottingham University, RIETI, Stanford, Tel Aviv University and Yale. We are also grateful to the editor and two referees of this journal, who helped us improve significantly the paper. Omer Solodoch provided excellent research assistance. The authors gratefully acknowledge financial assistance from the Research Institute of Economy, Trade and Industry (RIETI) under the project "Attitudes toward immigration in an aging society: Evidence from Japan". Margalit also thanks the Marie Curie Career Integration Grant (no. 631323) and the Israel Science Foundation (grant no. 3131433) for financial support for this research. Neither of the funding source had any role in the design, collection, analysis and interpretation of the data used in this paper, or in the drafting/submission of

[39]Of course, one would need to adapt the messages in different countries to reflect the specific preoccupations of locals and to ensure that the messages convey valid information in the context of the local economy.

the article.

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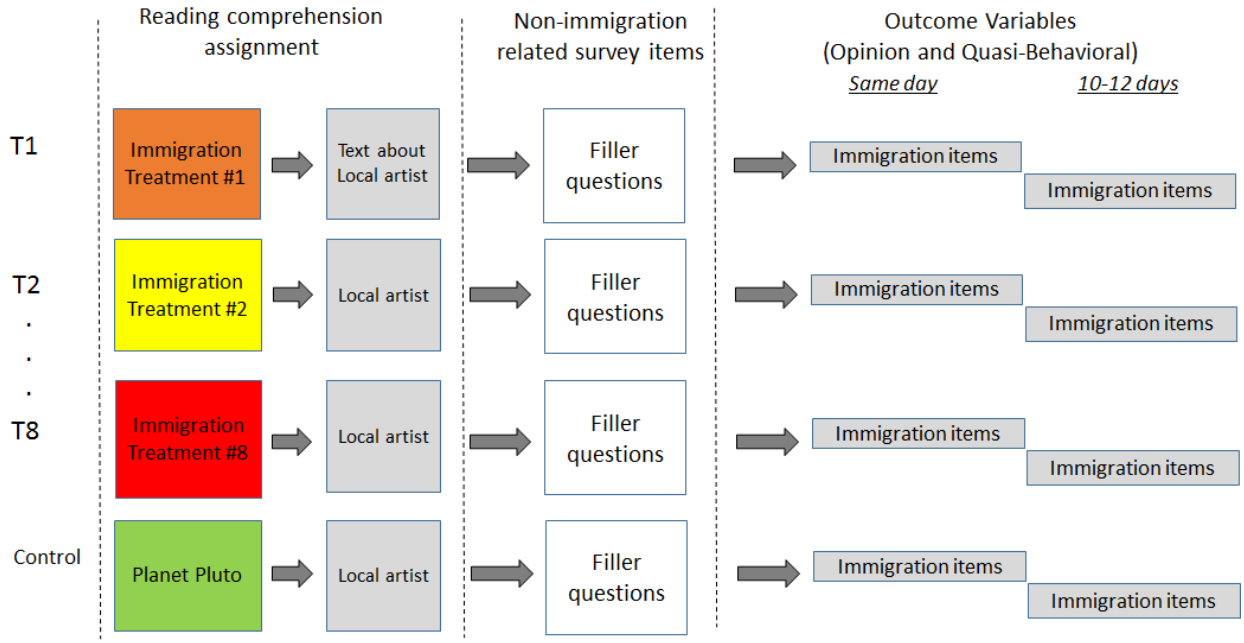
Tables and Figures

Table 1: Summary statistics

	Short Run n= 6,000		*Longer Run* n=3,000		Population
	Mean	St. Dev.	Mean	St. Dev.	
More Immigrants	0.45	0.50	0.30	0.46	
More Temp Visas	0.46	0.50	0.35	0.48	
Sign Pro Petition	0.17	0.38	0.14	0.35	
Emissions	0.74	0.44	0.71	0.45	
Average Age	48.3		48.8		48
Share of Over 65	0.20		0.21		0.26
Percent Females	0.51		0.51		0.51
Unemployment Rate	0.03		0.03		0.03
Percent Primary Educated	0.02		0.03		0.00
Percent Secondary Educated	0.31		0.33		0.49
Percent Tertiary Educated	0.67		0.64		0.51

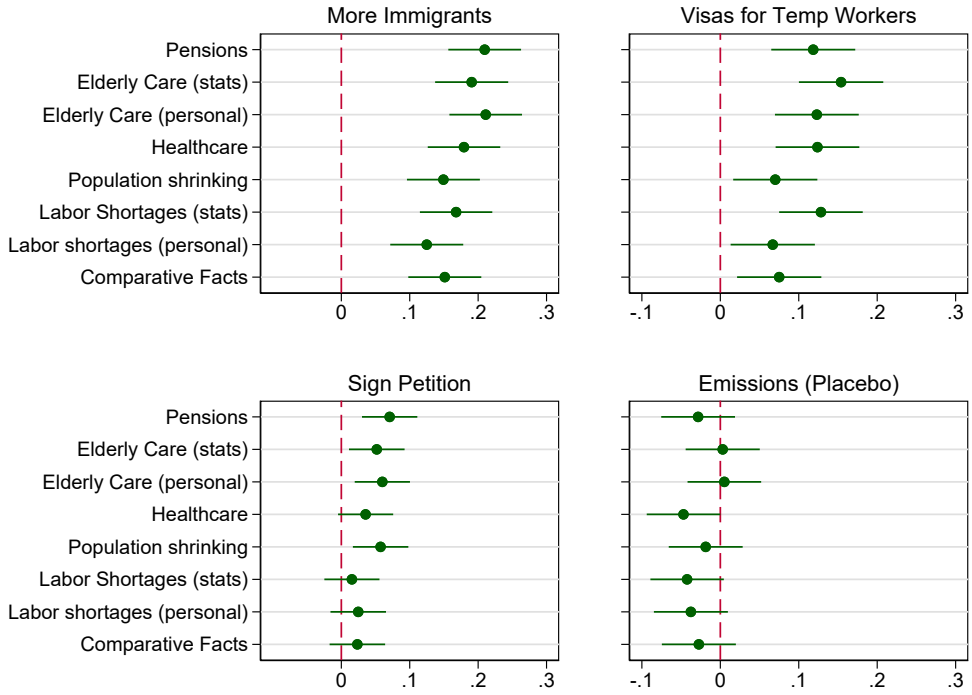
Source of Population Statistics: Median Age, Share of Over 65, Percent Females, Unemployment Rate: CIA World Factbook; Percent Primary, Secondary and Tertiary Educated: OECD Educational Attainment in the Adult Population (25-64).

Figure 1: Experiment Design



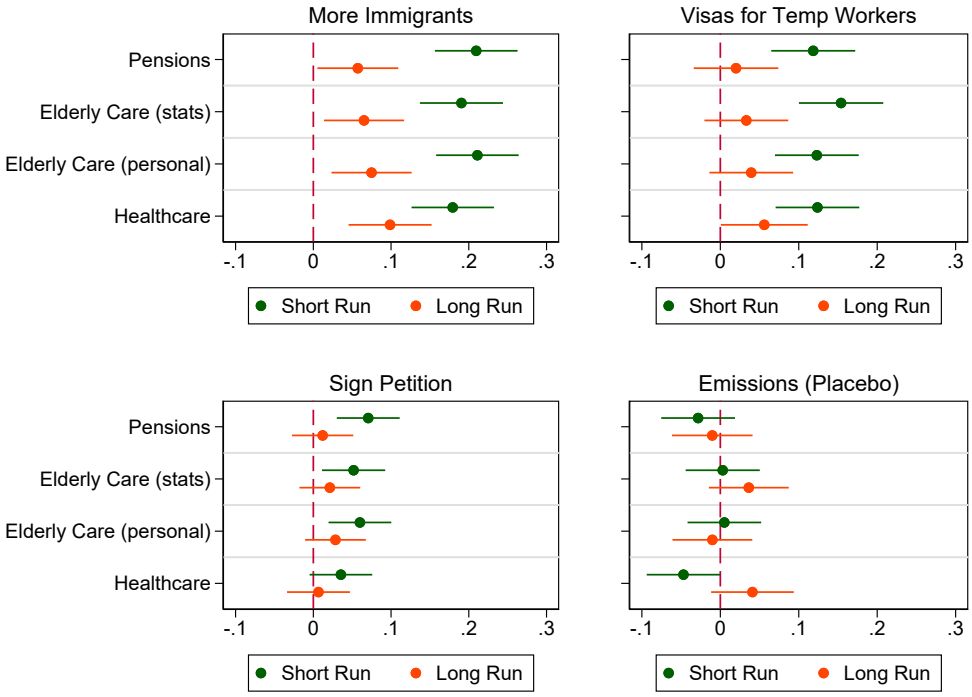
Note: The figure represents the flow of the experimental design. Note that it shows only three treatments, however the actual experiment including eight treatments (as well as control group). Outcome variables were measured in two waves: either as part of the same study in which the interventions were administered, or with a 10-12 day delay.

Figure 2: The Effects of Information Treatments on Policy Stance



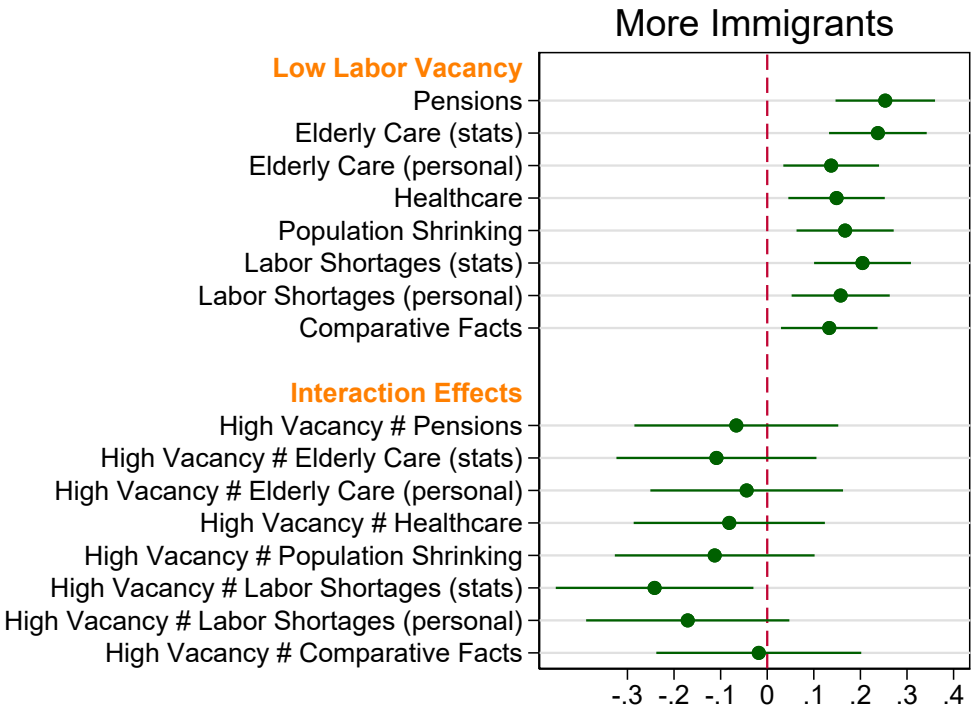
Note: Bars represent 95% confidence intervals. Reported effect pertain to a binary outcome representing support for the policy option. The bottom left panel reports willingness to sign on to a petition to parliament expressing support for a more open immigration policy. Bottom right panel is the effect of the treatment on respondents' support for Japan changing its greenhouse emissions policy. See Appendix for the definition of the various treatments.

Figure 3: Short vs. Longer-Run Effect



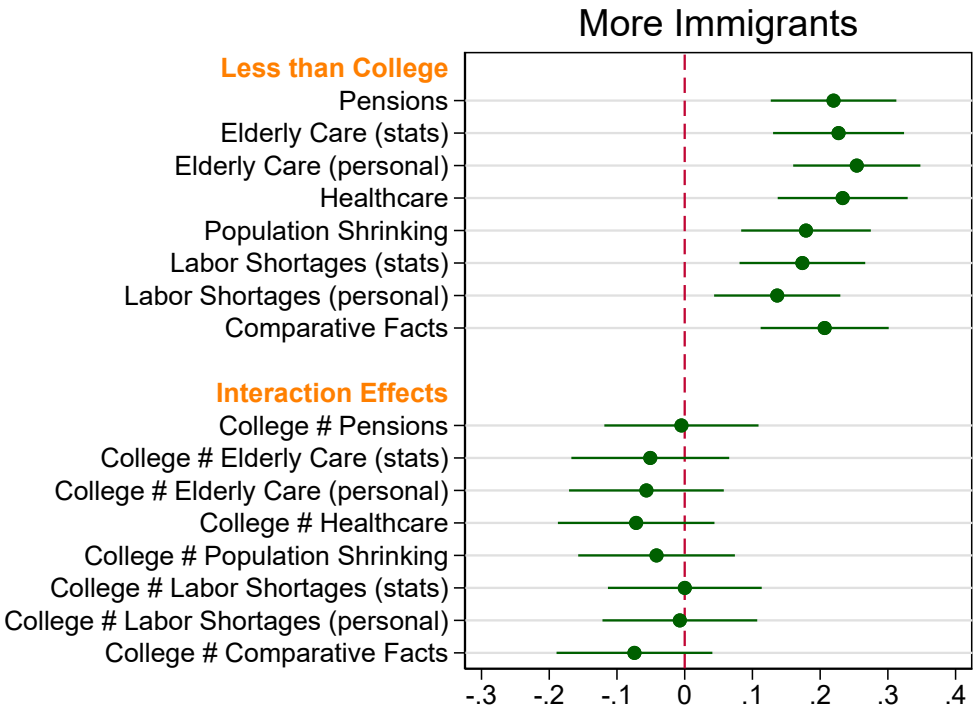
Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro-immigration stance. Short run (green bar) pertains to the effect of treatment on responses provided within the same day of the intervention; Longer-run effects (red bars) pertain to the impact of the treatment as assessed 10-12 days after the treatment. See Appendix for the definition of the various treatments.

Figure 4: Treatment Effect by Exposure to Labor Shortage Problem



Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro-immigration stance. See Appendix for the definition of the various treatments.

Figure 5: Treatment Effect by Education Level



Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro-immigration stance. See Appendix for the definition of the various treatments.

SUPPLEMENTARY INFORMATION
— For Online Publication —

A Experimental Treatments

Individuals were asked to read two 200 words texts. All participants were shown the text reported in Figure SI-1. Individuals in the control group were shown a text on a recent discovery on planet Pluto (see Figure SI-2). Other individuals were exposed to one of eight different treatments:

1. ***Pensions.*** The text is reported in Figure SI-3 and highlights the benefits of immigration for Japan's pension system;

2. ***Elderly care (stats).*** The text is reported in Figure SI-4 and uses simple statistics to highlight how migration can alleviate challenges in providing long term elderly care.

3. ***Elderly Care (personal).*** The text is reported in Figure SI-5 and uses a personal story to highlight how migration can alleviate challenges in providing long term elderly care.

4. ***Healthcare.*** The text is reported in Figure SI-6 and highlights how migration can help address the cost of healthcare provision for an aging population.

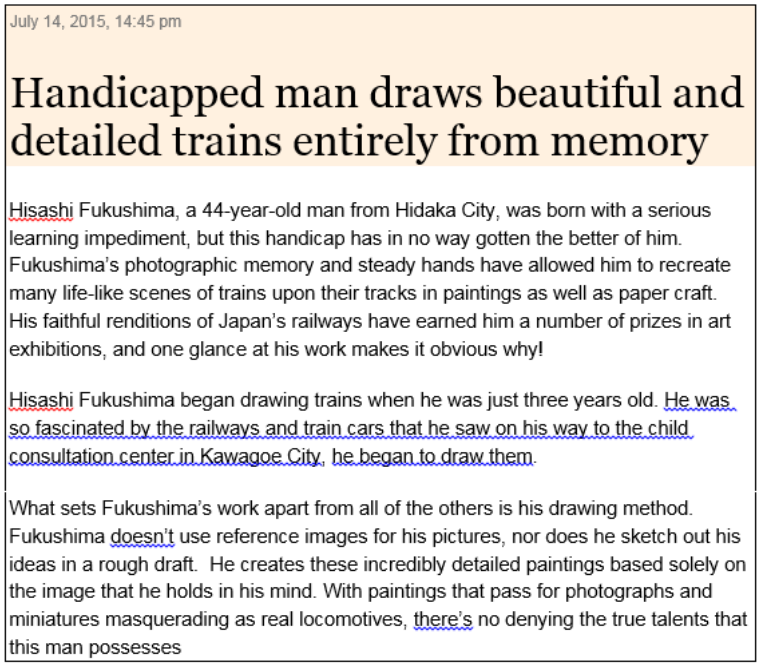
5. ***Population shrinking.*** The text is reported in Figure SI-7 and points out how migration can help address the severe population decline forecast for Japan.

6. ***Labor shortages (stats).*** The text is reported in Figure SI-8 and illustrates how migration can address reported labor shortages.

7. ***Labor shortages (personal).*** The text is reported in Figure SI-9 and illustrates the experience of an IT entrepreneur facing severe labor shortages, pointing out how migration can help address them.

8. ***Comparative facts.*** The text is reported in Figure SI-10 and highlights how Japan is an outlier among advanced economies when it comes to the share of foreign born living in the country.

Figure SI-1: Text for All Participants



July 14, 2015, 14:45 pm

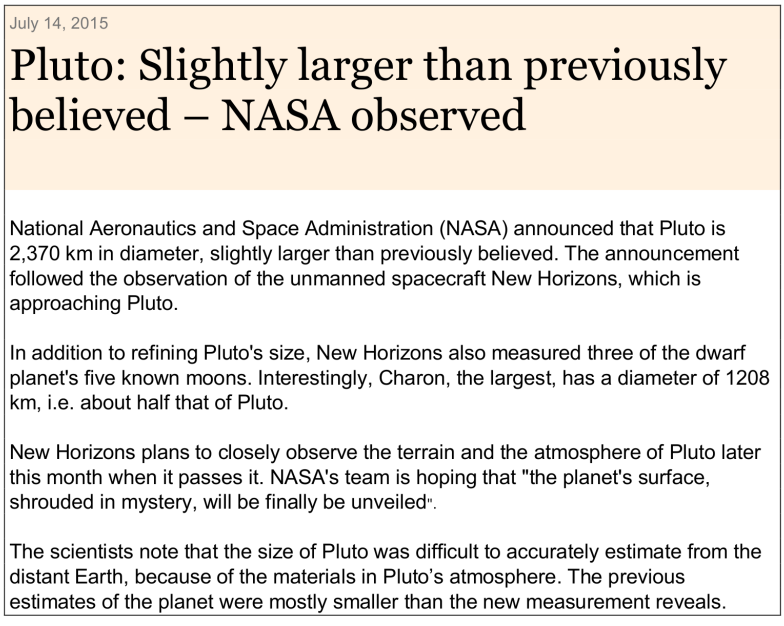
Handicapped man draws beautiful and detailed trains entirely from memory

Hisashi Fukushima, a 44-year-old man from Hidaka City, was born with a serious learning impediment, but this handicap has in no way gotten the better of him. Fukushima's photographic memory and steady hands have allowed him to recreate many life-like scenes of trains upon their tracks in paintings as well as paper craft. His faithful renditions of Japan's railways have earned him a number of prizes in art exhibitions, and one glance at his work makes it obvious why!

Hisashi Fukushima began drawing trains when he was just three years old. He was so fascinated by the railways and train cars that he saw on his way to the child consultation center in Kawagoe City, he began to draw them.

What sets Fukushima's work apart from all of the others is his drawing method. Fukushima doesn't use reference images for his pictures, nor does he sketch out his ideas in a rough draft. He creates these incredibly detailed paintings based solely on the image that he holds in his mind. With paintings that pass for photographs and miniatures masquerading as real locomotives, there's no denying the true talents that this man possesses

Figure SI-2: Control



July 14, 2015

Pluto: Slightly larger than previously believed – NASA observed

National Aeronautics and Space Administration (NASA) announced that Pluto is 2,370 km in diameter, slightly larger than previously believed. The announcement followed the observation of the unmanned spacecraft New Horizons, which is approaching Pluto.

In addition to refining Pluto's size, New Horizons also measured three of the dwarf planet's five known moons. Interestingly, Charon, the largest, has a diameter of 1208 km, i.e. about half that of Pluto.

New Horizons plans to closely observe the terrain and the atmosphere of Pluto later this month when it passes it. NASA's team is hoping that "the planet's surface, shrouded in mystery, will be finally be unveiled".

The scientists note that the size of Pluto was difficult to accurately estimate from the distant Earth, because of the materials in Pluto's atmosphere. The previous estimates of the planet were mostly smaller than the new measurement reveals.

Figure SI-3: Aging: The Pensions Treatment

July 14, 2015

Debate in Japan over immigration controls grows louder

In a recent television program, senior government officials were asked about the issue of immigration: was it time for the country to open its doors to more migrants?

According to current trends, the future Japanese population will become much older on average (due to longer lives, fewer babies). Today there are three people of working age for each retiree, but by 2050, because of population's aging, there will only be one person of working age for each retiree. This means that there will be too few people to fund the pension system. This is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help address the aging of the population and the challenge of funding the pension system.

"The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?" says Ryusei Sasaki, a researcher from a policy think-tank. "We are at a crossroads."

Figure SI-4: Aging: Longterm Care Stats Treatment

July 14, 2015

Debate in Japan over immigration controls grows louder

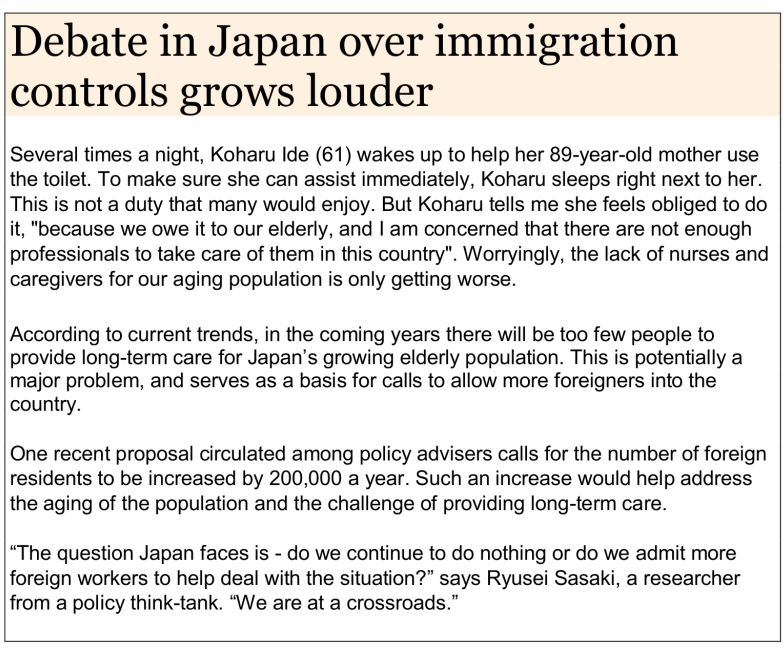
In a recent television program, senior government officials were asked about the issue of immigration: was it time for the country to open its doors to more migrants?

According to current trends, the future Japanese population will become much older on average (due to longer lives, fewer babies). Today there are three people of working age for each retiree, but by 2050, because of population's aging, there will only be one person of working age for each retiree. This means that there will be too few people to provide long-term care for the elderly. This is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help address the aging of the population and the challenge of providing long-term care.

"The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?" says Ryusei Sasaki, a researcher from a policy think-tank. "We are at a crossroads."

Figure SI-5: Aging: The Longterm Care Personal Treatment



Debate in Japan over immigration controls grows louder

Several times a night, Koharu Ide (61) wakes up to help her 89-year-old mother use the toilet. To make sure she can assist immediately, Koharu sleeps right next to her. This is not a duty that many would enjoy. But Koharu tells me she feels obliged to do it, "because we owe it to our elderly, and I am concerned that there are not enough professionals to take care of them in this country". Worryingly, the lack of nurses and caregivers for our aging population is only getting worse.

According to current trends, in the coming years there will be too few people to provide long-term care for Japan's growing elderly population. This is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help address the aging of the population and the challenge of providing long-term care.

"The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?" says Ryusei Sasaki, a researcher from a policy think-tank. "We are at a crossroads."

Figure SI-6: Aging: Healthcare Spending Treatment

July 14, 2015

Debate in Japan over immigration controls grows louder

In a recent television program, senior government officials were asked about the issue of immigration: was it time for the country to open its doors to more migrants?

According to current trends, the future Japanese population will become much older on average (due to longer lives, fewer babies). Today there are three people of working age for each retiree, but by 2050, because of its population's aging, there will only be one person of working age for each retiree. This means that there will be too few people to fund the health care system. This is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help address the aging of the population and the challenge of funding the health care system.

"The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?" says Ryusei Sasaki, a researcher from a policy think-tank. "We are at a crossroads."

Figure SI-7: Population Shrinkage Treatment

July 14, 2015

Debate in Japan over immigration controls grows louder

In a recent television program, senior government officials were asked about the issue of immigration: was it time for the country to open its doors to more migrants?

According to current trends, the future Japanese population will become much smaller (due to fewer babies). Since its recent peak of 128 million, the country's population began to shrink. If nothing changes, there will be 30 million fewer Japanese by 2050. This is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help the country address the issue of population shrinkage.

“The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?” says Ryusei Sasaki, a researcher from a policy think-tank. “We are at a crossroads.”

Figure SI-8: Labor Shortages Treatment (stats)

July 14, 2015

Debate in Japan over immigration controls grows louder

In a recent television program, senior government officials were asked about the issue of immigration: was it time for the country to open its doors to more migrants?

According to current trends, some professions in Japan will be in short supply, making it difficult for firms to find workers. Already today this is true for some jobs. For instance, half of the truck driver openings advertised cannot be filled, and this is true also for IT engineers. This is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help the country address labor shortages in different professions.

“The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?” says Ryusei Sasaki, a researcher from a policy think-tank. “We are at a crossroads.”

Figure SI-9: Labor Shortages Treatment (personal)

July 14, 2015

Debate in Japan over immigration controls grows louder

The exasperation on the face of Akio Nakamura, a manager at Taiho Transportation, was evident. "April should have been a great month for our business as the new orders kept on arriving". But instead of filling those orders, Taiho saw how 10% of their 400 truck fleet stood idle. "The problem is that we don't have enough drivers. However hard we try, we can't find enough new workers to recruit".

Labor shortages are not unique to drivers. "The shortage of IT engineers is so deep that we simply cannot put up with the demand and projects are continuously delayed", said Katashi Tanaka, the director of an IT consulting firm in Tokyo. "I see the frustration among potential customers and I feel helpless. We clearly need more engineers here".

The deepening shortage in labor supply is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country. One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would help the country address labor shortages in different professions.

“The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?” says Ryusei Sasaki, a researcher from a policy think-tank. “We are at a crossroads.”

Figure SI-10: Comparative Stats Treatment

July 14, 2015

Debate in Japan over immigration controls grows louder

In a recent television program, senior government officials were asked about the issue of immigration: was it time for the country to open its doors to more migrants?

According to current trends, Japan will have far fewer immigrants than any of the other advanced economies. The average rate of immigration among advanced economies is currently 10%, yet in Japan immigrants represent only 1.6% of the total population. Given the similarity between the socio-economic challenges that Japan and other advanced countries face, this is potentially a major problem, and serves as a basis for calls to allow more foreigners into the country.

One recent proposal circulated among policy advisers calls for the number of foreign residents to be increased by 200,000 a year. Such an increase would put the share of foreigners in Japan much closer to that of other advanced economies.

“The question Japan faces is - do we continue to do nothing or do we admit more foreign workers to help deal with the situation?” says Ryusei Sasaki, a researcher from a policy think-tank. “We are at a crossroads.”

B Question Wording

Items gauging respondents' views on immigration were preceded with a note emphasizing that there was "no right or wrong answer".

B.1 Primary Outcome Variables

- The first was the standard survey question used to elicit general preferences on immigration policy, and read as follows "Overall, do you think that the number of immigrants allowed into Japan should be increased, decreased, or kept at the current level?". Answers on a five-point scale ranged from "Decrease greatly" to "Increase greatly".

- The second question focused instead on temporary immigration, and was phrased as "Some have proposed increasing the number of visas for temporary workers (including ginou jisshuusei). Overall, do you think that the number of immigrants allowed to Japan temporarily should be increased, decreased, or kept at the current level?"[40] The possible answers were the same as in the previous question.

- In addition to the attitudinal items, we also sought to assess respondents' willingness to actively engage in lobbying their elected officials in support of their preferred immigration policy. To this end, we included an item offering the respondent the option of signing a petition to the government on this matter. The question read "Finally, please select one of the three options below concerning a petition to the government stating your position on immigration (The petition will contain your name, city and opinion on the issue)". The three possible options were: "I would like to join a petition to the government stating MY SUPPORT for increasing the number of immigrants allowed in Japan", "I would like to join a petition to the government stating MY OPPOSITION to increasing the number of immigrants allowed in Japan" or "No, I do not wish to sign up a petition" emphasis in the original text).

- Finally, as placebo test, we also elicited participants' views on Japan's commitment to reduce global warming.

- The first dependent variable in our empirical analysis, *More Immigrants* is dichotomous and equals one if the respondent has chosen one of the two answers indicating support for either 'increased' or 'greatly increased' immigration into the country, and zero otherwise.

- The variables *More Temp Visas* and *Sign Pro Petition* are also binary measures and coded in a similar way, indicating the respondent selected one of the two answers supportive of more immigration.

- The same applies for our placebo variable "emissions", which was coded as one if the individual was in favor of Japan reducing emissions unconditionally and zero otherwise.

[40] The Japanese term ginou jisshuusei refers to a visa status known as "practical trainees".

B.2 Items on Factual Knowledge

Individuals in the control group were asked a series of factual knowledge questions, aimed at eliciting pre–existing information on some important socio–economic features. The exact wording is as follows:

- *Average Immigrant Share* "The share of immigrants in the population is slightly higher in Japan than the average in other advanced economies."
- *Economic Growth* "Japan's economic growth rate has been negative for the past five years."
- *Immigration Rate Comparative* "Japan's immigration rate is the lowest among the advanced economies."
- *Labor Shortages* "Japan has a shortage of workers in certain sectors, such as IT engineers and truck drivers."
- *Population Aging* "The average age of Japan's population has risen in the past two decades."
- *Unemployment Rate* "The official rate of unemployment in Japan is 20% higher than the average in other advanced economies."

Each question had five possible answers: (1) Certainly True (2) Probably True (3) Have no idea (4) Probably False (5) Certainly False. Individuals were coded as being correctly informed about:

- *Average Immigrant Share* if they chose answers (4) or (5);
- *Economic Growth* if they chose answers (1) or (2);
- *Immigration Rate Comparative* if they chose answers (1) or (2);
- *Labor Shortages* if they chose answers (1) or (2);
- *Population Aging* if they chose answers (1) or (2);
- *Unemployment Rate* if they chose answers (4) or (5).

B.3 Sector of Employment

Employed individuals were asked to report their sector of employment from the following list:

High vacancy sectors	
1	Construction
2	Information and communications
3	Finance and insurance
4	Accommodations, easting and drinking services
5	Living-related and personal services and amusement services
Low vacancy sectors	
6	Agriculture and forestry
7	Fishery
8	Mining and quarrying of stone and gravel
9	Manufacturing
10	Utility (electricity, gas, heat supply and water)
11	Transportation and postal activities
12	Wholesale and retail trade
13	Real estate and goods rental and leasing
14	Scientific research, professional and technical services
15	Education, learning support
16	Medical healthcare and welfare
17	Compound services
18	Services, N.E.C.
19	Public services, N.E.C.
20	Others

C Sources for Statistics on Japan

The population statistics on Japan cited in the paper are from "Results of Population Estimates" published by the Ministry of Internal Affairs and Communications and available online www.stat.go.jp/english/data/jinsui/2.htm, and future projections are based on the figures under the scenarios of Medium-Fertility and Medium-Mortality in "Population Projections for Japan (January 2012): 2011 to 2060" by the National Institute of Population and Social Security Research.

D Additional Tables

D.1 Immigration Attitudes: Cross National Comparison

Table SI-1: Opinion toward economic and cultural implications of immigration (ISSP, 2013)

	Good for Econ	Steal Jobs	Improve Society	Undermine Culture
Belgium	0.24	0.40	0.35	0.42
Taiwan	0.42	0.52	0.51	0.19
Croatia	0.14	0.50	0.25	0.19
Czech Republic	0.17	0.69	0.22	0.37
Denmark	0.39	0.25	0.62	0.31
Finland	0.29	0.29	0.45	0.21
France	0.31	0.32	0.38	0.38
Germany	0.52	0.22	0.67	0.29
Hungary	0.18	0.52	0.34	0.30
Iceland	0.52	0.14	0.74	0.07
Ireland	0.49	0.36	0.68	0.19
Israel	0.28	0.50	0.26	0.37
Japan	0.39	0.15	0.27	0.17
South Korea	0.51	0.27	0.29	0.17
Mexico	0.27	0.33	0.30	0.32
Norway	0.54	0.12	0.51	0.25
Portugal	0.58	0.55	0.59	0.20
Slovak Republic	0.15	0.62	0.26	0.31
Slovenia	0.39	0.40	0.38	0.29
Spain	0.45	0.43	0.51	0.23
Sweden	0.50	0.12	0.63	0.25
Switzerland	0.60	0.27	0.72	0.21
Turkey	0.23	0.63	0.22	0.49
UK	0.33	0.50	0.41	0.42
USA	0.55	0.35	0.66	0.18
Japan's Ranking	14/26	23/26	6/26	24/26

Note: This table summarizes the responses of respondents as recorded in the ISSP 2013 survey. The bottom row lists the relative ranking of Japan among the 26 OECD countries that were included in the survey, whereby the top ranking (i.e. 26/26) implies the most favorable view of immigration. The survey items read as follows and required respondents to describe their agreements-disagreement on a five point scale: *Good for Econ*: "Immigrants are generally good for [COUNTRY's] economy"; *Steal Jobs*: "Immigrants take jobs away from people who were born in [COUNTRY]"; *Improve Society*:"Immigrants improve [COUNTRY'S NATIONALITY] society by bringing new ideas and cultures"; *Undermine Culture*: "[COUNTRY's] culture is generally undermined by immigrants."

D.2 Balance Tests

Table SI-2: Balance Tests: Short-Term Sample

Treatment	(1) Age 18-34	(2) Age 35-50	(3) Age 51-65	(4) Age 66+	(5) University	(6) Female	(7) Foreign Born	(8) Dependency Ratio	(9) Unemployment Rate	(10) Labor Force Participation	(11) Observations
Pensions	-0.012	-0.006	0.016	0.002	-0.030	-0.004	0.000	-0.001	0.000	-0.001	669
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.027)	(0.001)	(0.003)	(0.000)	(0.001)	
Elderly Care (stats)	0.005	0.011	-0.011	-0.005	0.023	0.003	0.000	-0.001	0.000	-0.000	656
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.028)	(0.001)	(0.003)	(0.000)	(0.001)	
Elderly Care (exemplar)	-0.051*	0.013	0.054*	-0.016	-0.003	-0.001	0.001	-0.004	0.000	-0.000	675
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.027)	(0.001)	(0.003)	(0.000)	(0.001)	
Healthcare	-0.000	0.038	-0.048*	0.010	0.036	-0.057*	0.001	-0.003	0.000	-0.000	678
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.027)	(0.001)	(0.003)	(0.000)	(0.001)	
Population shrinking	0.029	-0.000	-0.001	-0.028	0.039	-0.033	0.000	0.001	0.000	0.001	663
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.028)	(0.001)	(0.003)	(0.000)	(0.001)	
Labor shortages (stats)	-0.005	0.010	-0.004	-0.001	-0.010	0.002	0.001	-0.000	-0.000	0.000	682
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.027)	(0.001)	(0.003)	(0.000)	(0.001)	
Labor shortages (personal)	0.009	0.034	-0.005	-0.038	-0.033	0.016	0.001	-0.001	0.000	-0.000	661
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.028)	(0.001)	(0.003)	(0.000)	(0.001)	
Comparative	0.008	0.001	-0.011	0.002	0.026	-0.056*	-0.000	-0.002	0.000	-0.001	660
	(0.023)	(0.026)	(0.024)	(0.021)	(0.048)	(0.028)	(0.001)	(0.003)	(0.000)	(0.001)	
Constant	0.236*	0.323*	0.256*	0.184*	2.155*	0.521*	0.017*	0.364*	0.032*	0.496*	
	(0.017)	(0.018)	(0.017)	(0.015)	(0.034)	(0.020)	(0.000)	(0.002)	(0.000)	(0.001)	

Standard errors in parentheses. In all columns N=6,000. * $p < 0.05$.

Entries denote coefficients from regressing the experimental treatments on the covariates listed in the column headers.

Table SI-3: Balance Tests: Longer-Term Sample

Treatment	(1) Age 18-34	(2) Age 35-50	(3) Age 51-65	(4) Age 66+	(5) University	(6) Female	(7) Foreign Born	(8) Dependency Ratio	(9) Unemployment Rate	(10) Labor Force Participation	(11) Observations
Pensions	-0.043	-0.023	0.061*	0.005	-0.134*	0.075*	0.000	0.002	0.000	0.000	603
	(0.024)	(0.027)	(0.025)	(0.023)	(0.051)	(0.029)	(0.001)	(0.003)	(0.000)	(0.001)	
Elderly Care (stats)	-0.056*	-0.014	0.068*	0.003	-0.123*	0.031	0.000	0.003	-0.000	0.001	626
	(0.024)	(0.027)	(0.025)	(0.022)	(0.051)	(0.029)	(0.001)	(0.003)	(0.000)	(0.001)	
Elderly Care (exemplar)	-0.048*	-0.028	0.082*	-0.006	-0.095	0.048	-0.000	0.004	0.000	0.001	629
	(0.024)	(0.027)	(0.025)	(0.022)	(0.051)	(0.029)	(0.001)	(0.003)	(0.000)	(0.001)	
Healthcare	-0.073*	-0.014	0.079*	0.007	-0.027	0.079*	-0.000	-0.001	0.000	0.000	545
	(0.025)	(0.028)	(0.026)	(0.023)	(0.052)	(0.030)	(0.001)	(0.003)	(0.000)	(0.001)	
Constant	0.278*	0.338*	0.198*	0.186*	2.178*	0.466*	0.018*	0.361*	0.032*	0.496*	
	(0.017)	(0.019)	(0.018)	(0.016)	(0.036)	(0.020)	(0.000)	(0.002)	(0.000)	(0.001)	

Standard errors in parentheses. In all columns N=3,000. * $p < 0.05$.

Entries denote coefficients from regressing the experimental treatments on the covariates listed in the column headers.

D.3 Additional Analyses

D.3.1 Immediate vs Longer Run Effects

Table SI-4: Short vs Long Run Effects

	Short Run				Long Run			
	More Immig.	Temp. Workers	Petition	Emissions	More Immig.	Temp. Workers	Petition	Emissions
Pensions	0.210**	0.118**	0.071**	-0.028	0.057*	0.020	0.012	-0.010
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Elderly Care (stats)	0.191**	0.154**	0.052*	0.003	0.065*	0.033	0.021	0.036
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Elderly Care (personal)	0.211**	0.123**	0.060**	0.005	0.075**	0.039	0.028	-0.010
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Healthcare	0.179**	0.124**	0.036	-0.047*	0.099**	0.056*	0.007	0.041
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Constant	0.291**	0.366**	0.133**	0.765**	0.246**	0.318**	0.127**	0.698**
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
R-squared	0.015	0.008	0.004	0.002	0.005	0.002	0.001	0.002
No. obs	6000	6000	6000	6000	3000	3000	3000	3000

OLS models. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table SI-5: Short vs Long Run Effects, with Controls

	Short Run				Long Run			
	More Immig.	Temp. Workers	Petition	Emissions	More Immig.	Temp. Workers	Petition	Emissions
Pensions	0.215**	0.120**	0.072**	-0.020	0.068*	0.023	0.016	-0.006
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Elderly Care (stats)	0.194**	0.157**	0.055**	0.009	0.065*	0.027	0.019	0.038
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Elderly Care (personal)	0.213**	0.122**	0.063**	0.006	0.079**	0.038	0.030	-0.005
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Healthcare	0.184**	0.130**	0.034	-0.039	0.100**	0.050	0.007	0.032
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
Constant	0.394**	0.440**	0.196**	0.781**	0.307**	0.388**	0.156**	0.723**
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
R-squared	0.015	0.012	0.005	0.010	0.019	0.016	0.005	0.024
No. obs	5882	5882	5882	5882	2946	2946	2946	2946

All OLS models control for age group, gender and university attainment. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table SI-6: Outcome Variables in the short and longer run Control Groups

	μ_{SR}	μ_{LR}	$\mu_{SR} - \mu_{LR}$	t–stat	p–value
More Immigrants	0.29	0.25	0.045	1.79	0.074
Visas for Temp Workers	0.37	0.32	0.048	1.77	0.076
Sign Petition	0.13	0.13	0.0053	0.28	0.78
Observations	656	597			

* $p < 0.05$.

D.3.2 Robustness: Alternative Specifications

Table SI-7: Treatment Effects on Binary Outcomes

	(1) More Immigrants	(2) Temp Visas	(3) Petition	(4) Emissions
Pensions	0.210**	0.118**	0.071**	-0.028
	(0.03)	(0.03)	(0.02)	(0.02)
Elderly Care (stats)	0.191**	0.154**	0.052*	0.003
	(0.03)	(0.03)	(0.02)	(0.02)
Elderly Care (personal)	0.211**	0.123**	0.060**	0.005
	(0.03)	(0.03)	(0.02)	(0.02)
Healthcare	0.179**	0.124**	0.036	-0.047*
	(0.03)	(0.03)	(0.02)	(0.02)
Population Shrinking	0.149**	0.070*	0.057**	-0.019
	(0.03)	(0.03)	(0.02)	(0.02)
Labor Shortages (stats)	0.168**	0.128**	0.015	-0.042
	(0.03)	(0.03)	(0.02)	(0.02)
Labor Shortages (personal)	0.125**	0.067*	0.025	-0.038
	(0.03)	(0.03)	(0.02)	(0.02)
Comparative Facts	0.151**	0.075**	0.023	-0.027
	(0.03)	(0.03)	(0.02)	(0.02)
Constant	0.291**	0.366**	0.133**	0.765**
	(0.02)	(0.02)	(0.01)	(0.02)

N=6,000 observations. Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$

Table SI-8: Treatment Effects on a Continuous Measure

	More Immigrants	Temp Visas	Petition	Emissions
Pensions	0.350**	0.208**	0.071**	-0.054
	(0.06)	(0.06)	(0.02)	(0.08)
Longterm care (stats)	0.346**	0.250**	0.052*	0.041
	(0.06)	(0.06)	(0.02)	(0.08)
Longterm care (personal)	0.385**	0.223**	0.060**	0.060
	(0.06)	(0.06)	(0.02)	(0.08)
Healthcare	0.333**	0.178**	0.036	-0.149
	(0.06)	(0.06)	(0.02)	(0.08)
Population Shrinking	0.287**	0.134*	0.057**	-0.039
	(0.06)	(0.06)	(0.02)	(0.08)
Labor Shortages (stats)	0.306**	0.197**	0.015	-0.090
	(0.06)	(0.06)	(0.02)	(0.08)
Labor shortages (personal)	0.216**	0.124*	0.025	-0.110
	(0.06)	(0.06)	(0.02)	(0.08)
Comparative Facts	0.318**	0.119*	0.023	-0.072
	(0.06)	(0.06)	(0.02)	(0.08)
Constant	2.003**	2.148**	0.133**	3.096**
	(0.04)	(0.04)	(0.01)	(0.06)
R-squared	0.011	0.005	0.004	0.002
No. obs	6000	6000	6000	6000

Coefficient estimates from probit models. Standard errors in parentheses. * $p < 0.05$.

Table SI-9: Treatment Effects on Binary Outcomes: Probit Models

	(1) More Immigrants	(2) Temp Visas	(3) Petition	(4) Emissions
Pensions	0.552**	0.304**	0.284**	-0.089
	(0.07)	(0.07)	(0.08)	(0.07)
Elderly Care (stats)	0.504**	0.393**	0.216*	0.010
	(0.07)	(0.07)	(0.08)	(0.08)
Elderly Care (personal)	0.556**	0.315**	0.246**	0.017
	(0.07)	(0.07)	(0.08)	(0.08)
Healthcare	0.476**	0.317**	0.153	-0.146
	(0.07)	(0.07)	(0.08)	(0.07)
Population shrinking	0.400**	0.181**	0.236**	-0.059
	(0.07)	(0.07)	(0.08)	(0.08)
Labor Shortages (stats)	0.447**	0.328**	0.069	-0.132
	(0.07)	(0.07)	(0.09)	(0.07)
Labor Shortages (personal)	0.338**	0.173*	0.109	-0.117
	(0.07)	(0.07)	(0.09)	(0.07)
Comparative Facts	0.405**	0.194**	0.103	-0.086
	(0.07)	(0.07)	(0.09)	(0.08)
Constant	-0.550**	-0.343**	-1.114**	0.723**
	(0.05)	(0.05)	(0.06)	(0.05)
Pseudo R-squared	0.011	0.006	0.004	0.002
No. obs	6000	6000	6000	6000

Coefficient estimates from probit models. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table SI-10: Treatment Effects, Adjusting P-Values for Multiple Hypothesis Testing

	(1) More Immigrants	(2) Temp Visas	(3) Petition	(4) Emissions
Pensions	0.210	0.118	0.071	0.028
Baseline	(0.0003)***	(0.0003)***	(0.001)***	(0.233)
List et al. (2016)	(0.0003)***	(0.0003)***	(0.0113)**	(0.7787)
Elderly Care (stats)	0.191	0.154	0.052	0.003
Baseline	(0.0003)***	(0.0003)***	(0.01)**	(0.8903)
List	(0.0003)***	(0.0003)***	(0.107)	(0.8903)
Elderly Care (personal)	0.211	0.123	0.060	0.005
Baseline	(0.0003)***	(0.0003)***	(0.007)***	(0.822)
List	(0.0003)***	(0.0003) ***	(0.01)**	(0.967)
Healthcare	0.179	0.124	0.036	0.047
Baseline	(0.0003)***	(0.0003)***	(0.0663)*	(0.0513)*
List	(0.0003)***	(0.0003)***	(0.4427)	(0.3807)
Population Shrinking	0.149	0.070	0.057	0.019
Baseline	(0.0003)***	(0.009)***	(0.0023)***	(0.4117)
List	(0.0003)***	(0.105)	(0.03)**	(0.7493)
Labor Shortages (stats)	0.168	0.128	0.015	0.042
Baseline	(0.0003)***	(0.0003)***	(0.4083)	(0.0736)*
List	(0.0003)***	(0.0003)***	(0.8503)	(0.4473)
Labor Shortages (personal)	0.125	0.067	0.025	0.038
Baseline	(0.0003)***	(0.0127)**	(0.1903)	(0.11)
List	(0.0003)***	(0.1233)	(0.741)	(0.558)
Comparative Facts	0.151	0.075	0.023	0.027
Baseline	(0.0003)***	(0.0047)***	(0.24)	(0.2463)
List	(0.0003)***	(0.058)*	(0.7487)	(0.6937)

N=6,000 observations. *P-values* in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table SI-11: Heterogeneous Effects

	(1) College and above	(2) High Labor Vacancy
Pensions	0.220**	0.253**
	(0.05)	(0.05)
Elderly Care (stats)	0.227**	0.237**
	(0.05)	(0.05)
Elderly Care (personal)	0.254**	0.137**
	(0.05)	(0.05)
Healthcare	0.233**	0.149**
	(0.05)	(0.05)
Population Shrinking	0.179**	0.167**
	(0.05)	(0.05)
Labor Shortages (stats)	0.174**	0.205**
	(0.05)	(0.05)
Labor Shortages (personal)	0.137**	0.158**
	(0.05)	(0.05)
Comparative Facts	0.207**	0.133*
	(0.05)	(0.05)
College and above	0.079	
	(0.04)	
High Labor Vacancy		0.103
		(0.08)
Interactions		
Inter. × Pensions	-0.005	-0.066
	(0.05)	(0.11)
Inter. × Elderly Care (stats)	-0.051	-0.109
	(0.06)	(0.11)
Inter. × Elderly Care (personal)	-0.057	-0.044
	(0.06)	(0.11)
Inter. × Healthcare	-0.072	-0.081
	(0.06)	(0.10)
Inter. × Population Shrinking	-0.042	-0.113
	(0.06)	(0.11)
Inter. × Labor Shortages (stats)	-0.000	-0.242*
	(0.06)	(0.11)
Inter. × Labor Shortages (exemplar)	-0.007	-0.171
	(0.06)	(0.11)
Inter. × Comparative Facts	-0.074	0.018
	(0.06)	(0.11)
Constant	0.237*	0.236*
	(0.03)	(0.03)
R-squared	0.018	0.020
No. obs	5882	1975

Coefficient estimates from OLS models. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

Table SI-12: Association between education level and factual knowledge

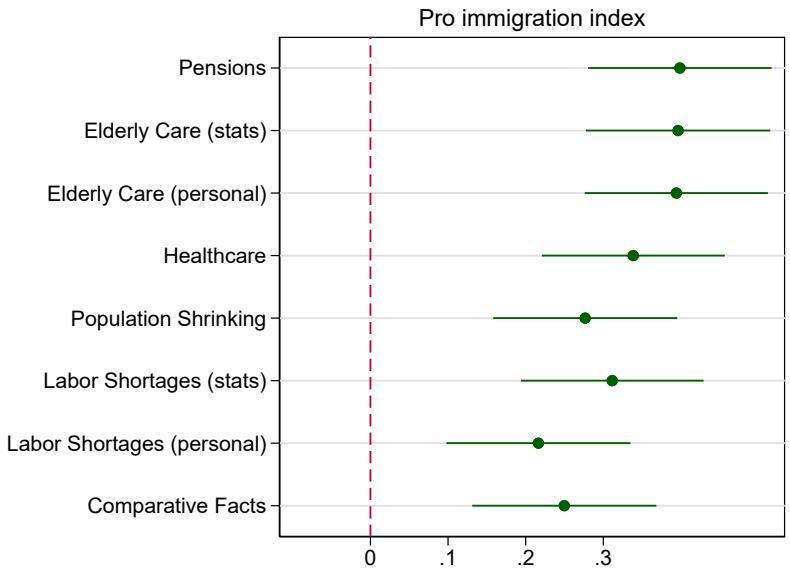
	(1) Average Immigrant Share	(2) Labor Shortages	(3) Unemployment Rate	(4) Economic Growth	(5) Population Aging	(6) Immigration Rate Comparative
College and Above	0.098**	0.043	0.132**	0.115**	0.053*	0.057*
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)
Constant	0.530**	0.523**	0.418**	0.194**	0.688**	0.501**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
R-squared	0.007	0.002	0.017	0.018	0.003	0.003
No. obs	1340	1340	1340	1340	1340	1340

Coefficient estimates from OLS models. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$.

E Additional Figures

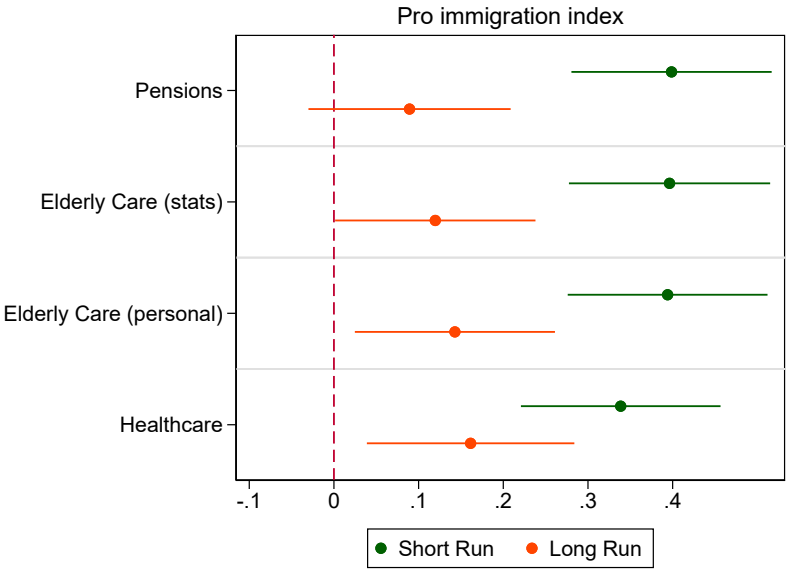
E.1 Alternative Outcome: Pro-Immigration Index

Figure SI-11: The Effects of Information Treatments on Policy Stance



Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

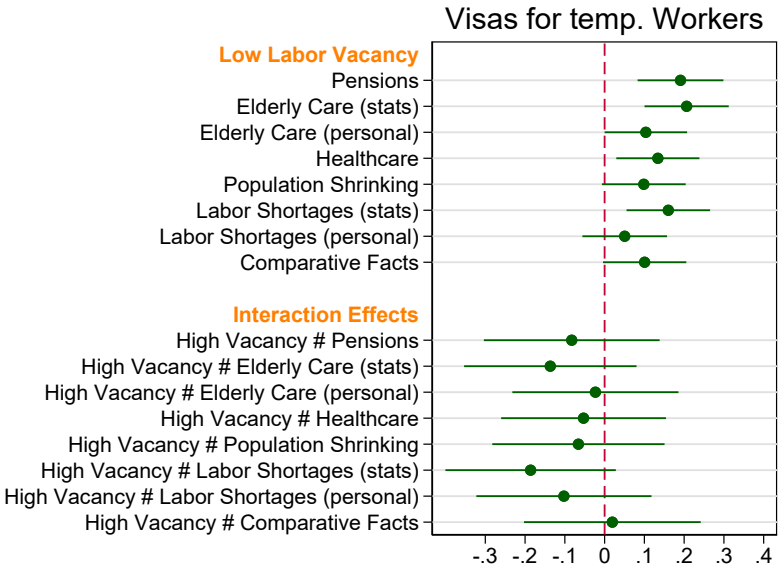
Figure SI-12: Short vs. Longer–Run Effect



Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

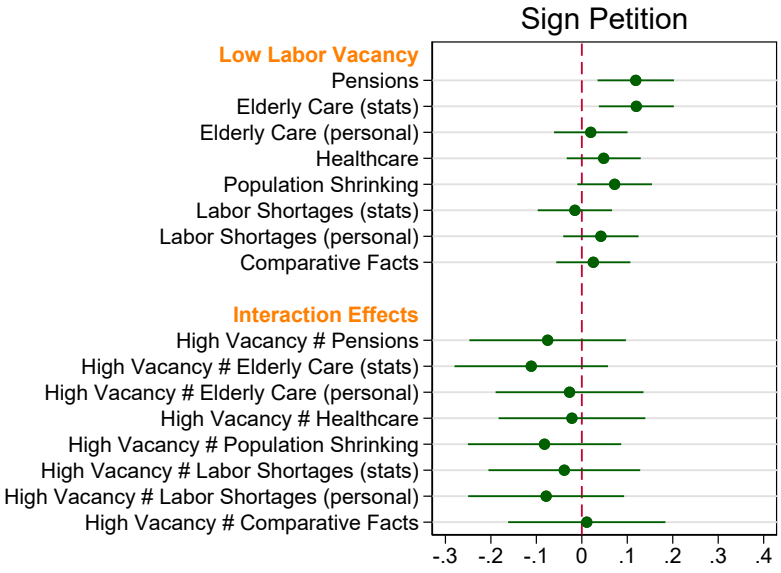
E.2 Effect Heterogeneity: Additional Outcomes

Figure SI-13: Treatment Effect by Exposure to Labor Shortage Problem



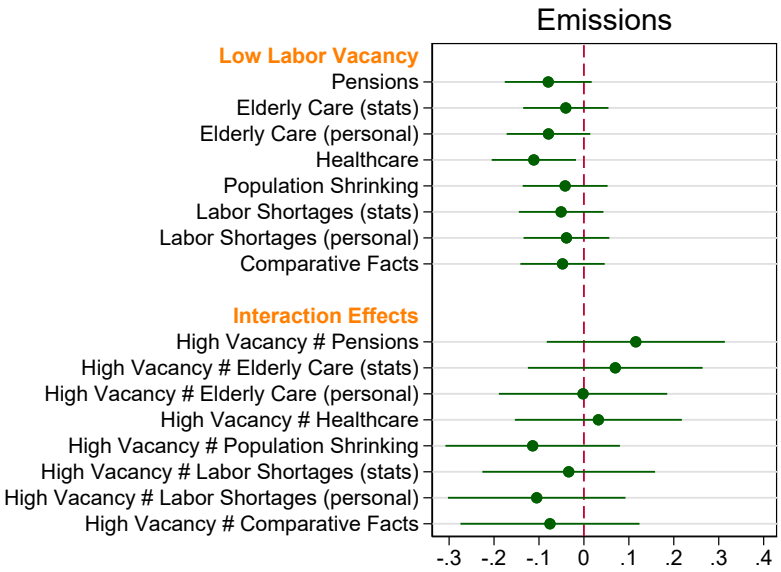
Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

Figure SI-14: Treatment Effect by Exposure to Labor Shortage Problem



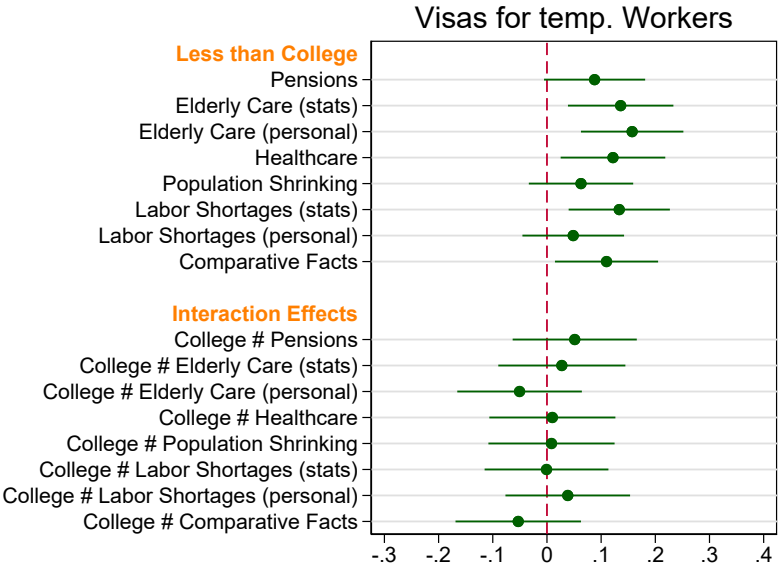
Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

Figure SI-15: Treatment Effect by Exposure to Labor Shortage Problem



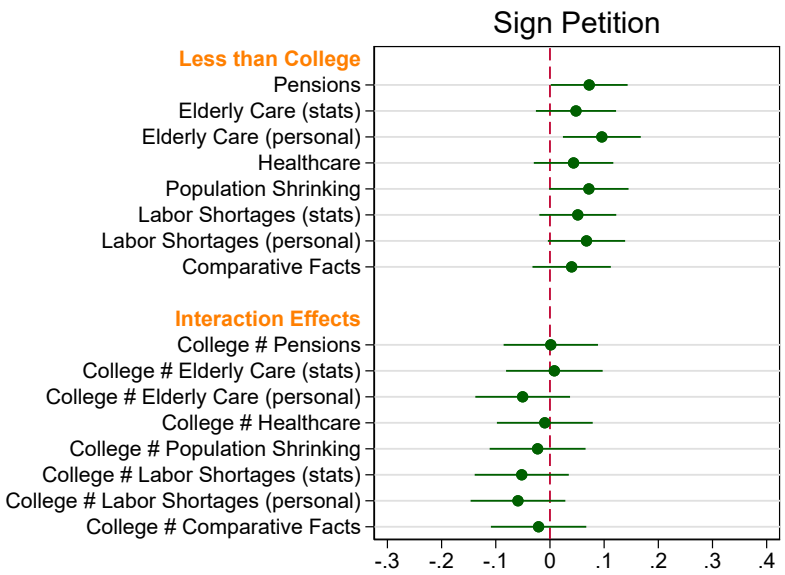
Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

Figure SI-16: Treatment Effect by Education Level



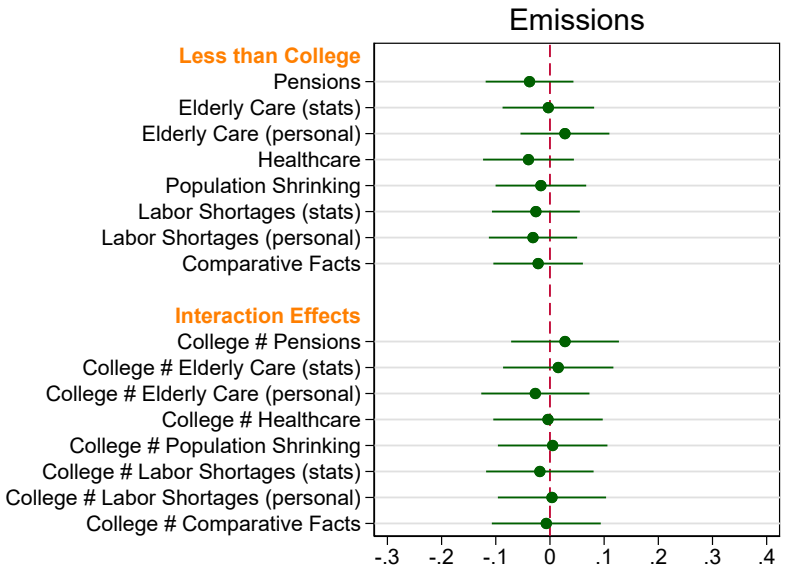
Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

Figure SI-17: Treatment Effect by Education Level



Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.

Figure SI-18: Treatment Effect on Placebo Outcome, by Education Level



Note: Bars represent 95% confidence intervals. Outcomes are binary, where '1' indicates a pro–immigration stance.