RIETI Discussion Paper Series 17-E-033

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RIETI Discussion Paper Series 17-E-033

March 2017

Individual Characteristics, Behavioral Biases, and Attitudes toward Immigration: Evidence from a survey in Japan*

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Abstract

This paper examines individual attitudes toward immigration and compares them with trade policy preferences based on a survey of over 10,000 respondents in Japan. People opposing both immigration and import liberalization are influenced by status-quo bias, while risk averters are more likely to be protectionists. Individuals with anti-immigrant sentiments tend to have pessimistic prospects of the national economy, dislike of changing of residential locations, or have no personal acquaintances with foreigners. These findings suggest that wide-ranging measures are required for expanding support for immigration. We also confirm the effects of such standard variables as education, occupation, unemployment, and gender.

Keywords: Immigration, Policy preference, Behavioral bias, Survey data

JEL classifications: F16, F22, F66, D03

* This study was conducted as part of the "Empirical Studies on Chinese Market and Trade Policy" project undertaken by the Research Institute of Economy, Trade and Industry (RIETI).

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1. Introduction

Economists almost unanimously support free trade in goods and services, but controversies continue on immigration as recently surveyed by Peri (2016). The meta-analyses by Longhi et al. (2005, 2006) of previous estimates show that the impact of immigration on wage or employment of native workers is on average small but varies widely across estimations. In the real world, many countries actually control migrants at national borders. Immigration control is among the hotly debated issues in many developed countries, including U.K. in the referendum on exit from EU and U.S. in the presidential election in 2016. In contrast to these other developed countries, Japan maintains extremely tight regulations on immigration in spite of its rapidly declining working-age population. This paper examines the impacts of orthodox economic factors as well as of behavioral biases on individual attitudes towards immigration based on a survey over 10,000 respondents in Japan.

Workers often oppose inflows of immigrants due to threatened employment opportunities and/or lower wages in the domestic labor market. Empirical analyses confirming these effects include Borjas (2003) on the U.S., and Felbermayr et al. (2010) on Germany, just to name a few. However, Hainmueller et al. (2015) revisit this issue by conducting a survey over U.S. employees in 12 diverse industries and cast a doubt on the effect of labor market competition on attitudes towards immigration.[1] What economic factors instead determine the individual responses to immigrants remains unanswered in economics.[2]

To explore factors outside of labor market, we introduce behavioral biases into our analysis. Behavioral economics has been successful in explaining anomalies in such various

[1] Blonigen (2011) similarly argues, based on U.S. survey data, that labor-market attributes of individuals are insufficient for explaining their opinions on import restrictions.
[2] In other fields of social sciences as surveyed by Hainmueller and Hopkins (2014), social, ethnic and cultural factors have been intensively discussed.

economic fields as finance, consumption and labor, but the application to international economics has so far been limited to the best knowledge of the authors. Tovar (2009) applies loss aversion to explain import protection of declining industries. Tomiura et al. (2016) find that the individual's status-quo bias and risk aversion are significantly related with the opposition against import liberalization based on the Japanese survey data. These analyses are however on trade protection, not on immigration. This paper examines whether the individual's behavioral biases affect her/his opinion about immigration after controlling for standard economic factors such as occupation, skill and industry.

This paper derives data from a survey on 10,816 respondents in Japan. The investigation of Japanese sample is informative in this context. The share of foreigners in total population has persistently been extremely low in Japan, partly as a result of its long history of tight control of foreign workers.[3] However, as working-age population continues to shrink (already decreased by nearly ten million during the last two decades)[4] due to rapid aging and low fertility, Japanese government is discussing the deregulation of foreign workers.[5] Therefore, our research will have deep implications for ongoing discussions of immigration policy reforms in many countries.

To preview the main findings of this paper, individuals opposing both immigration and import tend to be influenced by status-quo bias, but the impact of risk aversion is more evident in trade policy preferences than attitudes towards immigration. We confirm the significance of these effects even after controlling for the standard economic variables such as individual's

3 Foreigners occupy 1.3%, according to Population Census at 2010, the previous year at which our survey was conducted. If we exclude Koreans born in Japan with status of special permanent residents, the percentage becomes even smaller.

4 The number of people in the age 15 to 64 years old has declined from 87.2 million at the peak year 1995 to 77.9 million at 2014, according to Statistics Bureau, Ministry of Internal Affairs.

5 The number of foreign workers has already risen from 686 thousand at 2011, the year our survey was conducted, to 908 thousand at 2015, in spite of stagnant domestic economy, according to the Ministry of Labor. Illegal immigrants are not included in these numbers.

occupation, industry, and education. This suggests that traditional economic measures, such as income compensation, are insufficient for expanding political supports for globalization, especially for resisting anti-immigration movements.

The rest of the paper is organized as follows. Section 2 describes our survey data and summarizes descriptive statistics. Section 3 reports estimation results from various models and discusses their implications. Section 4 concludes.

2. Description of data

This section describes our survey data. We derive micro data from a survey conducted by Japan's Research Institute of Economy, Trade and Industry (RIETI).[6] We design the sample as representative of the entire Japan as possible in the composition across genders, regions, and ages,[7] and collect data from approximately one out of ten thousand in Japan's total population. The sample size of 10,816 individuals is substantially larger than those used in previous studies on trade liberalization or immigration (at most 5,224 by Blonigen 2011).[8] We conducted this survey in October 2011.[9]

To collect data on attitudes towards immigration, we ask the following question.[10]

Answer what you think about foreigners coming to Japan for work. (Choose one

6 The survey "Questionnaire Survey about Japanese Economy and International Trade with Foreign Countries" was undertaken by a commercial research company Intage under the contract with RIETI for our research project.

7 The survey sets the proportions of ten regions and twelve age-groups as approximate as those in the entire Japan reflected in the most recent population census. People between 20 and 79 years old are covered by this survey. Although 97% of the responses were via internet, the same questionnaire was printed on paper and sent by postal mail to people aged over sixty to reach old people without internet access.

8 More than twenty thousand respondents are covered by Mayda (2006, 2008), but they are distributed over 22 countries.

9 The survey also asks the damage by Great East Japan Earthquake occurred seven months prior to the survey, but policy preferences appear not to be correlated with the damage.

10 Questions actually presented to surveyed individuals are expressed in italics in this paper. As questions are originally in Japanese, the authors translate them into English for this paper.

from the below.)

1. *Strongly agree.*
2. *Somewhat agree.*
3. *Somewhat disagree.*
4. *Strongly disagree.*
5. *Cannot choose or Unsure.*

In what follows, we categorize those agreeing strongly or somewhat with the above question as pro-immigration, and others (including the last option) as anti-immigration. The binary dummy variable *MIG* is defined to take the value one for the former and zero for the latter. Previous studies often ask the respondent's reaction to changes in immigration policy, such as increasing or decreasing the number of immigrants, but we ask the above question as foreign workers are extremely limited in Japan.[11]

To compare the opinion about immigration with the same individual's trade policy preference, our survey has the following question: *Answer what you think about the following opinion;"We should further liberalize imports to make wider varieties of goods available at lower prices."* Respondents are required to choose from exactly the same set of five options as in the previous question on immigration. We define the dummy *IMP* to take one for free traders and zero for protectionists. Combining responses to these questions, people are grouped into four patterns. While some oppose globalization through any channel, others may support import liberalization but oppose immigration.

The survey also collects such various data on basic individual characteristics as education, occupation, industry, income, age, and gender. The summary statistics for the variables, which

11 The above question asks about foreign workers, not exactly about immigrants. We should carefully distinguish temporary foreign workers and permanent immigrants. However, we can infer suggestions from this question, as the ongoing policy discussions in Japan concentrate on deregulating restrictions on foreign workers to ease labor supply shortage.

will be included in regressions in the next section, are shown in Table 1. Around forty percent of the surveyed individuals in our sample complete college, university or graduate school, roughly in line with that reported in education statistics.[12] Slightly more than ten percent are in managerial occupations, which are supposed to correspond to skilled labor in the factor proportions trade model.[13] Based on the data on annual income, this paper separates people earning ten million yen or more as *Rich* (two percent in our sample) by setting the threshold at the obvious round-number.[14]

To complement information from these basic variables, we add questions on individual's sentiment or belief related with policy preferences. First, to evaluate the individual's status-quo bias, those surveyed are required to answer the following two questions about a lottery ticket. The first question on the purchase decision is as follows.

> *Would you buy a lottery ticket with a 1/100 chance to win one million yen and a 99/100 chance to get nothing (sold at 2,000 yen)?*

The second question is about the same lottery ticket but under a different situation given below.

> *Suppose you already own a lottery ticket with a 1/100 chance to win one million yen and a 99/100 chance to get nothing. As the winning lottery ticket will be announced one year later, you will receive one million yen one year later even if you own a winning lottery ticket. Are you willing to sell the lottery ticket if somebody asks you to sell it now at 2,000 yen?*

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12 People currently enrolled in these higher-education institutions are included into this category. Although our survey collects more detailed data on educational attainments, no other groups are significantly different in their immigration attitudes and hence be omitted from our regressions. Chandler and Tsai (2001) also report that college education has a stronger effect on immigration attitudes than years of schooling in the U.S. case.

13 Although more detailed data on occupations are available in our survey, other occupational categories turn out to be insignificant in our regressions and thus be omitted from our analyses.

14 This survey chooses to ask income, as the question on total wealth or assets should result in many declines to answer.

In our sample, more than seventy percent of surveyed individuals do not sell this lottery ticket, in answering to the second question. However, the responses to the first question show that more than sixty percent of those surveyed do not *buy* the same lottery ticket at the same price (two thousand yen) if they do not possess it. This result clearly demonstrates the status quo bias. We define the status-quo bias dummy, which takes the value one when an individual does not buy a lottery ticket but does not sell the same lottery ticket at the same price, and zero otherwise.

We also define the dummy *Risk averse* to take the value one if people do not buy a lottery ticket with high probability of winning. The exact text used for the questionnaire is given by the following: *Would you buy a lottery ticket with a 1/2 chance to win 20,000 yen and a 1/2 chance to get nothing (sold at 2,000 yen)?* We set this second lottery ticket to have exactly the same expected value as the previous one, but with a much higher probability of winning than normally sold. In our sample, nearly one-third of respondents are classified as risk-averters in this definition. These extremely risk-averse people may oppose immigration or trade liberalization due to high uncertainty associated with adjustment process after changes in cross-border controls.

Next, we ask the surveyed individual's prospect of the national economy by the following question; *How do you view the future prospect of the Japanese economy?* The respondents are asked to choose from the following five options: *very optimistic*, *somewhat optimistic*, *somewhat pessimistic*, *very pessimistic*, and *cannot choose or unsure*. As in the previous question on immigration, we define *Optimistic* to take the value unity for those strongly or somewhat optimistic about the future prospect of Japanese economy. Merely thirteen percent are optimistic, in line with the general impression of Japanese stagnation. People pessimistic about the national economy are likely to support protection from competition against imports or

foreign workers.

We also consider in Table 1 other aspects of life associated with policy preferences of individuals. The first two of these three are based on the individual's willingness or acceptance of mobility (changing one's job or moving one's residence). For this purpose, we ask the following question:

Would you like to change where you live or your job in the future? Choose one from the below.

1. *I like (I have a plan.)*
2. *I like if I have an opportunity.*
3. *I do not like if possible.*
4. *I do not.*

We transform these four choices into the binary dummy. These variables on mobility are introduced since people are likely to change jobs and/or places of living during process of adjustment after liberalization of labor market. Mobile people are supposed to relatively easily adapt to changes. In our sample, more than sixty percent of people are unwilling to change jobs or to move their residential locations.

We also ask whether a surveyed individual has a child. The motivation for defining the dummy variable *No Children* is that people with children tend to care about future wellbeing of their kids and thus have longer time horizon in their policy preferences compared with people without children, as formalized in dynasty model. Slightly more than one-third of surveyed individuals in our sample have no children.

As the resistance against imports might be rooted in the concern about the safety of imported foods as a consumer, we ask the following question: *When you buy dairy foods or beverages, do you check additives and place of origin?* The respondents choose one from the

following four options.

1. *I check very much.*
2. *I check a little.*
3. *I do not check very much.*
4. *I do not check at all.*

We focus on the extremely sensitive consumers by defining the dummy equal to one for those choosing the first option. The safety concern is important for current Japan, as the import liberalization of agriculture products is the key political issue.

Finally, daily observations suggest that individual's view on immigrants is often influenced by her/his personal attachment to foreigners. To collect information for this purpose, we ask the following question:[15] *Do you have a foreign acquaintance whom you occasionally communicate with through e-mails, social networking services, letters, telephones, or direct meetings, or have you ever had such foreign acquaintances?* In Section 3.3, we also examine the regional effect (living in a neighborhood with more foreigners) in this context.

3. Estimation results

This section reports estimation results from our survey data. We start from the basic model with standard economic variables, and then extend the model by introducing behavioral variables and regional variables. In the final section, we consider the bivariate model by combing respondent's position on immigration and import.

[15] In our survey, we also ask the respondent's experience on traveling abroad or habit of viewing foreign TV programs or Internet sites, but we confirm that the effects of these two channels are weaker than the effect of having foreign acquaintances. As a proxy for frequency of contacts with foreigners in Japan, Yamamura (2012) uses responses to the question "Do you often see foreigners in the area where you live?" in Japanese General Social Survey at 2003 with 3,663 respondents.

3.1. Parsimonious model

To examine the determinants of personal attitudes toward migrants, we start with the underlying continuous latent variable *MIG**. The binary dummy *MIG* (favoring immigrants) equals unity if the latent variable *MIG** is positive and zero otherwise. We formalize *MIG** as a linear function of individual characteristics vector *x* as follows:

$$MIG_j^* = x_j\beta + \varepsilon_j . \quad (1)$$

The individual is indexed by *j*. The continuously distributed error term is denoted by ε. We can express the binary response model as

$$MIG = 1[x\beta + \varepsilon > 0]. \quad (2)$$

with the indicator function 1[.] equal to one if the statement in the bracket is true and zero otherwise. As we impose no structures on the individual's choice, the equation (1) or (2) should not be regarded as an indication of causality. We estimate the vector of parameters β for summarizing the characteristics of individuals. To compare the attitude toward immigration with the same individual's trade policy preference, we also estimate the same model (2) with the dependent variable replaced by *IMP*.[16]

As the vector *x* on the right-hand side, we include basic individual's characteristics, of which the summary statistics are shown in Table 1. The explanatory variables are the individual's educational attainment (with college education or less than college), employment status (currently employed or not), occupation (managerial or not), income (rich or poor), gender, age, as well as industry. All these variables have been repeatedly examined in previous literature on policy preferences. Correlations between variables are generally weak, as the matrix in Table 2 shows.

16 Tomiura et al. (2016) examine the trade policy preference based on the same survey data, but this paper compares it with attitudes toward immigration.

We assume the error term ε to be distributed standard normal, though our principal results are qualitatively unaffected even with logistic distribution. Probit estimation results are shown in Table 3. Marginal effects, not estimated coefficients, are reported with robust standard errors in parentheses. Several findings should be noteworthy as follows.

First, individuals with college education tend to favor immigration. The statistical significance is confirmed at any conventional significance level. This finding on education is consistent with established results from previous literature, including Hainmueller et al. (2015) and Mayda (2006). The marginal effect of college education in our sample (difference in the estimated probability of supporting import/immigration between those with college education and those with less than college education) is larger on immigration (nine percent) than import (six percent). We will further discuss the impact of education later by splitting the sample based on college education.

Second, unemployed individuals are significantly more likely to oppose immigration.[17] Our finding of the unemployment effect confirms previous results from accumulated studies on immigration, including O'Rourke and Sinnott (2006). No significant impact of unemployment, however, is detected on import liberalization. This contrast between immigration versus import is possibly due to the difference that people compete head-on in labor market against foreign workers but only indirectly through derived demand in the case of import competition.

Third, people in managerial occupation tend to welcome the inflows of foreign workers as well as of foreign goods. The marginal effect is estimated to be around the same size for both cases (eight percent). This result implies that skilled workers in Japan, scarce production factor in factor proportion trade theory, support free trade and migration, since Japan is expected to

[17] This significant relation is for people currently unemployed distinguished from those who never worked during one's life or those who are still at school, since our list of variables includes "never worked or at school" among industry dummies.

predominantly import unskilled-labor intensive goods and to attract unskilled foreign workers. The positive association with managerial occupation also indicates that people in charge of hiring employees tend to welcome foreign workers amid substantially declining working-age population in Japan.

Forth, rich people tend to significantly support free trade, but no significant effect of income is found in the case of immigration. Richer people value more on expanded varieties of goods available from import sources. Attitudes of rich people toward immigration, however, may be offset by their concerns of welfare state (heavier tax burden especially on richer residents caused by inflow of relatively poor immigrants), as examined by Hanson et al. (2007).

Fifth, women are significantly more likely to be protectionists and at the same time against immigrants than men are. We also find that the negative marginal effect of gender is larger in absolute value on import (16%) than on immigration (6%), implying that the opposition among women are less serious against immigration compared with import liberalization. This substantial gender gap is consistent with that found in a similar survey covering European countries by Mayda (2008) and O'Rourke and Sinnott (2006). As the gender gap in preferences is a stylized fact in established literature, this paper decides not to investigate it deeper. We must note here, however, that this female negative attitude toward globalization is confirmed even after controlling for one's occupation and education, in which gender gap is clearly persistent.

Finally, the age effect is significant only for import. Older people, especially after retirement, support import liberalization possibly because they form their policy preference more as consumers rather than producers/workers. The opposition against foreign workers is also likely to be weakened among retirees but negative reaction to foreigners among older generations could offset this effect. The age effect has been reported in previous literature

(Calahorrano 2013, Chandler and Tsai 2001, and O'Rourke and Sinnott 2006, for example).[18]

Among industry dummies, the agriculture (including fishery and forestry) is the only sector with significantly negative coefficient in import liberalization. This finding is plausible, since the import liberalization of agricultural products is the most debated issue in Japanese trade policy.[19] In contrast, the industries statistically significant with strict 1% significance level for immigration include such expanding service sectors as telecommunication and FIRE (finance, insurance and real estate), but several other industry dummies are also significant. This suggests that cross-industry contrast is less clear in views on migrants compared with import. As a consistent finding, Mayda (2008) reports that industry effects are strong not in immigration attitudes but in trade policy preferences in 22 countries.

3.2. Model with additional variables

This section reports estimation results from the model with additional variables. The addition is partly motivated by the stylized fact: economic self-interest motivations play a limited role in anti-immigration sentiments, as confirmed by the survey by Hainmueller and Hopkins (2014). Therefore, we add into our analysis various variables not usually examined in the orthodox optimization framework of economics. We will check whether the parameters remain stable even after the addition of these variables, and then examine the statistical significances and economic impacts of these new variables. The added variables can be categorized into the

18 O'Rourke and Sinnott (2006) also report the age effect on anti-immigration sentiments in Europe. Chandler and Tsai (2001) find that older people are more likely to want to decrease the number of legal admissions of immigrants in the U.S. Calahorrano (2013) reports that older birth cohorts concern more about immigration, though the concern decreases over the life cycle from German panel data.

19 Japan's average tariff rate on agricultural products 23.3% is substantially higher than that of European Union (13.9%) or United States (5.0%), but Japan's average tariff rate on non-agricultural products (2.6%) is lower than that of U.S. (3.3%) or E.U. (4.0%). These are MFN applied rates at 2011, when our survey was conducted, according to *World Tariff Profiles 2012* complied by World Trade Organization.

following three groups.

The first group tries to reflect individual's behavioral biases. We introduce the following three variables: risk aversion, status-quo bias and optimism. Risk-averters are supposed to oppose immigration because they fear/dislike risks and uncertainties amid changes associated with inflows of aliens. People influenced by the status-quo bias tend to oppose any drastic change from the current state even with no uncertainty. As Tomiura et al. (2016) find that both risk aversion and status-quo bias have significantly negative impacts on supports for import liberalization based on the same survey data, this paper examine them for immigration.

Optimists (people optimistic about future prospect of Japanese economy) are likely to accept immigration, as they expect that domestic labor demand will become tight. The impact of beliefs about the state of the national economy has been confirmed by previous studies. For example, Citrin et al. (1997) find that a pessimistic view of the national economy, not of own personal financial situation, leads people to anti-immigration sentiments in the U.S. case.[20]

The second group captures individual's immobility with respect to job or to residential location. We add these two variables because people ready to change their jobs or the place they live are supposed to adapt more easily to changes caused by inflows of foreign workers or foreign goods because specific job segments of labor market and specific regions especially with concentrations of import-competing industries tend to be seriously hit.

The three variables in the last group are related with personal aspects. People may show tolerance to foreigners or even appreciate cultural diversity when they have foreign friends. Whether or not having a child may affect the time horizon of individual's policy preference, as formalized in the dynasty model. Parents tend to care about future well-being of their descendants. People sensitive to food safety are likely to resist imported products due to safety

[20] Chandler and Tsai (2001) also report the significant impact of pessimism on anti-immigration opinions in the U.S.

concern.

Table 4 presents the estimation results with these additional individual variables. Before discussing the impacts of behavioral and other individual characteristics, we note that all the orthodox variables already included in the parsimonious model reported in the previous section remain basically unaltered in this extended model. Consequently, we will concentrate on newly added variables.

Among the behavioral variables, the risk aversion is clearly related with the opposition to import liberalization at any conventional significance level, but is only weakly related with the resistance against immigration at the generous 10% significance level. In contrast, the status-quo bias tends to be negatively associated both with supports for import and for immigration. We must note that our survey question is on foreign workers, not immigrant in general. The strongly significant effect of status-quo bias should then be noteworthy, as people are assumed to rationally respond to foreign workers based on economic costs/benefits, compared with general migrants. We will discuss the contrast between these two behavioral biases in detail later with the bivariate model.

The most impressive finding from other individual characteristics is that a respondent having a foreign acquaintance tends to substantially more favorable to immigration. The magnitude of this effect is sizable, and nearly twice as large on immigration as on imports (11%>6%). This finding suggests the important role of personal attachment or human network in the formation of policy preferences. The effect of personal acquaintance with foreigners on his/her attitude toward immigrants should be particularly strong in Japan, where foreign residents are extremely few. This strong effect of personal attachment, in line with the previous report on Japan by Yamamura (2012), is found after controlling for the individual's income and

education.[21]

We also find similarly strong relationship between optimism and the support for immigration and imports. In our sample, the magnitude is estimated twice as large on immigration as on imports (12%>6%). One possible interpretation of this result may be that bright prospect of the future domestic economy leads people to expect tighter labor market. In other words, the pessimism on the future prospect of domestic economy appears to be a strong driving force for anti-immigration.

On other variables, we find that the residential immobility is related with the opposition to migrants rather than to imports, indicating their possible concern about neighborhoods surrounded by migrants. In our sample, job immobility turns out to be significant in neither regression. Having a child is likely to be related with supports for import liberalization, as predicted by the dynasty model. As expected, people checking foods carefully for safety reasons tend to be sensitive to imports, not to immigrants.

3.3. Regional effects

This paper has so far concentrated on the impact of individual characteristics. Policy preference of an individual, however, is not completely determined by her/his own characteristics, but probably influenced by others in social life, especially by people in the same local community. Characteristics of the region she/he lives in should be among the factors we need to take account in discussing policy preferences of people. For this purpose, we introduce the four regional variables as explained below.

The regional share of people working in the protected sector (agriculture) could affect trade policy preference. Even if he/she does not work in the agriculture sector himself/herself,

[21] According to Yamamura (2012), the respondents with low income in his sample express concerns of fewer jobs but those with high income evaluate immigrants as providing needed labor force.

trade policy preference of an individual may lean toward protectionism when he/she lives in a community where most of the residents are farmers due to local economic spillovers (effects on non-tradable service or retail sectors) and/or to caring about the well-being of neighbors.

The regional rate of unemployment could be another important variable in this context. Even if he/she is not unemployed, an individual may oppose imports or immigration when they live in regions with already high unemployment rate due to the social concern on the community crowded with even more unemployed neighbors and the fiscal concern on heavier local tax burdens. Hanson et al. (2007) find that the public finance concern affects support for immigration in the U.S.[22]

The regional share of people with college education is introduced for the possible regional variations in cultural tolerance or diversities. Even if he/she does not finish college education, an individual may not strongly oppose imports or immigration if he/she lives in communities with more educated people. While it is generally difficult to directly observe regional variations in this dimension, this regional share could work as a practical proxy.

The share of foreign residents in the region is likely to affect attitudes toward migration. On one hand, people living neighborhoods surrounded by many foreigners may welcome or tolerate more migrants if they feel benefits from cultural diversities or revitalizing communities. Peri (2012) reports that immigration is positively related with total factor productivity in the U.S. states. On the other hand, the local residents may become anti-immigrants if they are threatened by rising crimes or eroding cultural tradition. Card et al. (2012) find that the compositional amenities (sharing customs, traditions, religions and languages) are twice to five times more important than concerns over wages and taxes in explaining individual views about immigration

[22] Hanson et al. (2007) find no significant effect of fiscal concern on import restrictions, and argue that the fiscal impact of trade policy has been negligible compared with immigration in the U.S.

policy in 21 European countries.[23] In Japan, however, the share of foreigners is extremely low in most of the regions. To focus on the regions with concentrations of foreign residents, we introduce a dichotomous dummy variable for the regions above the median value, instead of estimating the linear relation with the share of foreign residents.

Local share of young population is important especially for aging societies with declining labor-force population like Japan. As a related finding, Ivlevs (2012) finds that people are more favorable to foreign workers in areas with lower birth rates in Latvia.[24]

Table 5 displays the estimation results with these four regional variables. The following observations should be noteworthy. Among them, as expected, the regional share of agriculture workers is significantly related with the respondent's support for protectionism. This suggests the possible spillover or externality effect at the local community level. In line with our prior, no relation with immigration is detected.

On other regional variables, again as expected, the regional unemployment rate is significantly associated with opposition to import liberalization. No discernible relationship is however found with resistance to immigration in our sample. Attitudes toward immigration is neither significantly related with the local presence of foreign residents, in line with the survey of previous studies by Hainmueller and Hopkins (2014)[25]. The regional share of educated residents appears weakly related with support for immigration. We will discuss these issues again later with the bivariate model.

3.4. Sample split by education

[23] As related evidence from the U.S., Chandler and Tsai (2001) find that the perceived threat to English language has a strong impact on anti-immigration sentiment.
[24] Malchow-Moller et al. (2008) reports that the pro-migration probability is higher for those who think immigrants helpful to fill jobs in shortage of workers in Europe.
[25] Their survey concludes that no stable impact of local demography on opinions about immigration has been confirmed in previous literature.

As the educational attainment is among the most important determinants of policy preferences, this section reports estimation results from sub-samples split by college education. As educated people are supposed to be skilled labor in the standard factor proportions trade theory, this sample split will be informative for our discussion of individual views on immigration and imports. As Hainmueller and Hiscox (2007) discuss, people with college education tend to have different views on immigration due not only to their labor-market attributes mentioned above but also to their exposure to ideas or tolerance to diversity.[26] d'Hombres and Nunziata (2016) identify the causal effect of education on attitudes toward immigration in European countries by exploiting exogenous reforms in compulsory education.

Table 6 reports probit estimation results for respondents with and without college education in separate columns. Explanatory variables are kept the same as in the previous section to facilitate comparisons. In what follows, we focus on the variables which have different impacts on attitudes to immigrants depending on education.

Among the orthodox labor-market attributes in the basic model, whether the individual is unemployed or not is significantly related with his/her attitude toward immigration only among those with less than college education. No such relation is observed among respondents with college education. The overall result reported previously is driven by respondents with less than college education. This contrasting finding implies that these less educated labor suppliers directly compete against foreign workers in the labor market for unskilled jobs.

In the behavioral variables, the status-quo bias strongly affects people without college education. Educated people, in contrast, are not influenced by this behavioral bias. However, people with college education oppose immigration if they are risk-averse. We have thus again find the effect of education in policy preference.

[26] Blonigen (2011) detects significant effects of educational attainments on trade policy preferences even among retirees in the U.S. survey data.

The split sample results in more contrasting results in trade policy preference than immigration. Managerial occupations significantly raise the probability of supporting import liberalization only among people without college education, possibly suggesting that people in managerial positions are skilled workers even without college education. Higher income strengthens supports for import liberalization only among educated people. In all other variables, the results are similar between respondents with and without college education.

3.5. Bivariate model

This section reports the estimation results from the bivariate model by combining the individual's attitude toward immigration and import liberalization. Although previous sections have examined immigration and import separately, this investigation of bivariate model is important, since some personal determinants of the attitude toward migrants may have non-negligible influence on trade policy preference of the same individual. We estimate the following bivariate model:

$$\begin{aligned} MIG &= 1[x\gamma + u > 0] \\ IMP &= 1[x\delta + v > 0] \end{aligned} \qquad (3)$$

The vector of error terms (u, v) is assumed to follow a bivariate standard normal distribution with mean zero, unit variance and possibly non-zero covariance. We include the same set of variables as in the previous sections on the right-hand side as x. A joint estimation of the parameters γ and δ in (3) is more efficient than separately estimating them in the two probit models as in (2) if u and v are correlated.[27]

[27] O'Rourke and Sinnott (2006) is an example of the bivariate probit model applied to this issue based on European survey data, but this paper differs from them most critically in our introduction of behavioral variables.

line with the results already been reported in previous sections, we focus on people taking different positions between these two issues in what follows.

As the most notable finding, while our previous results show that risk-averse people tend to resist import liberalization strongly and immigration only weakly, the bivariate result strengthens this observation. Respondents supporting immigration but opposing import (*MIG*=1 and *IMP*=0) are significantly more risk-averse, while those supporting import but opposing immigration (*IMP*=1 and *MIG*=0) are significantly less risk-averse. This result suggests that the resistance against import liberalization is at least partly driven by the fear of risks associated with uncertain adjustments after trade liberalization. In contrast, the risk is *not* the significant factor leading people to anti-immigration.

Even within the category of behavioral variables, the effect of status-quo bias is different from that of risk aversion. People influenced by status-quo bias tend to oppose both import and immigration, but people opposing immigration but supporting import and people supporting immigration but opposing import are not significantly different in their status-quo bias. These findings suggest that the status-quo bias appears to lead people to take the anti-globalization position both in immigration and import.

We confirm previous results on other major variables as well. For example, being optimistic about future prospect of domestic economy or having a foreign acquaintance is significantly related with the support for immigration, not for import liberalization. Young, female or food-safety sensitive individuals tend to be protectionists, but not necessarily anti-immigration.

4. Concluding remarks

Immigration is among the hotly debated issues in many countries around the globe, especially in

developed countries. Anti-immigrant sentiments appear to become intense often side-by-side with protectionist movements, but people are sharply divided on these globalization issues. To respond to such concerns, this paper has examined the relationship between standard economic as well as behavioral variables and the individual's attitudes towards immigration and import liberalization based on a survey in Japan, a country with tight control on immigration but with rapidly declining working-age population.

We have found that the status-quo bias leads people to oppose globalization either through immigration or import. Risk aversion results in protectionism but not necessarily in anti-immigration. These suggest that traditional economic measures, such as insurance scheme or income compensation, are insufficient for expanding political supports for immigration. Our estimation results from the split sample have also shown that people opposing immigration because of status-quo bias are those without college education.

While these findings, especially on behavioral biases, bring new insights to policy discussions, several issues remain for future research. For example, it will be informative to compare impacts of behavioral biases on attitudes towards skilled versus unskilled immigrants. Tracing intertemporal changes in attitudes towards immigration will be another important topic, as foreign workers have increased in many countries.

Acknowledgment

The access to the survey data is arranged by RIETI. We appreciate administrative and financial supports by RIETI. Our research is also partially financed by Grant-in-Aid for Scientific Research C25380284.

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Appendix

Based on the same survey data, we also analyze the individual views on other globalization channels. As we have discussed inflows of goods/services and of workers in the main text, we pick up the inflow of capital/firms and more subtle form of globalization, i.e. international harmonization of institutions/regulations.

For inward foreign direct investment (FDI), we ask as follows.

Answer what you think about foreign firms expanding their business and hiring in Japan.

For institutional harmonization, we use the following question.

Answer what you think about the following opinion: "We should harmonize, and make as common as possible, regulations and institutions across countries."

In both questions, respondents are required to choose from the five options as in the questions on immigration and import liberalization.

The estimation results from the probit model are shown in Appendix Table A1. As expected from our previous results on trade policy preferences in the main text, men or people with college education or in managerial occupations tend to support inward FDI or institutional harmonization. Risk aversion and status-quo bias have similar impacts on both preferences. As in the immigration, we find significant effects of optimism on inward FDI. The impact of foreign acquaintance is more than twice stronger in the support for inward FDI compared with that for institutional harmonization. Immobility in job and residential location also has negative relation with supports for inward FDI. Industry effects are generally insignificant, except the negative bias against inward FDI in the mining sector.

Table 1 Summary statistics

Variables	Mean	Std. Dev.	Min	Max
Support for immigration	0.444	0.497	0	1
Support for import liberalization	0.517	0.500	0	1
College educated	0.406	0.491	0	1
Unemployed	0.390	0.488	0	1
Managerial occupation	0.125	0.330	0	1
Rich	0.023	0.148	0	1
Female	0.485	0.500	0	1
Age	49.154	16.308	20	79
Risk averse	0.304	0.460	0	1
Status-quo bias	0.398	0.489	0	1
Optimistic	0.134	0.341	0	1
Job immobility	0.677	0.468	0	1
Residential immobility	0.634	0.482	0	1
Foreign acquaintance	0.250	0.433	0	1
No child	0.365	0.481	0	1
Sensitive to food safety	0.135	0.342	0	1
Regional Agri. Share	2.777	4.029	0.007	75.145
Regional U. rate	6.422	1.480	0.958	20.286
Regional Edu. Share	31.769	11.880	7.124	75.606
Regional Foreigners DUM	0.506	0.500	0	1
Regional Labor Force	49.626	2.569	37.937	64.885
Regional Fiscal Exposure	27.897	6.164	13.243	98.100
Food manufacturing	0.024	0.154	0	1
Textile and apparel	0.015	0.123	0	1
Paper and printing	0.007	0.083	0	1
Chemical products	0.015	0.123	0	1
Metals and steel	0.013	0.112	0	1
Machine	0.025	0.157	0	1
Misc. manuf.	0.092	0.289	0	1
Mining	0.001	0.031	0	1
Agriculture	0.011	0.105	0	1
Construction	0.055	0.227	0	1
Electricity supply	0.012	0.109	0	1
Transport and distribution	0.041	0.197	0	1
Telecom	0.053	0.224	0	1
Med care	0.075	0.263	0	1
Education	0.071	0.257	0	1
Wholesale and retail	0.108	0.310	0	1
Catering and lodging	0.043	0.203	0	1
FIRE	0.066	0.248	0	1
Misc. services	0.189	0.391	0	1
Never worked	0.027	0.161	0	1

(Notes) All variables, except Age and regional agriculture share,
regional unemployment rate, and regional education share, are binary dummies.

Table 2 Correlations between variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) Immigration	1																					
(2) Import liberalization	0.275	1																				
(3) College educated	0.127	0.088	1																			
(4) Unemployed	-0.062	-0.012	-0.115	1																		
(5) Managerial occupation	0.083	0.135	0.130	0.027	1																	
(6) Rich	0.050	0.069	0.129	-0.104	0.169	1																
(7) Female	-0.114	-0.196	-0.280	0.239	-0.245	-0.115	1															
(8) Age	-0.023	0.158	-0.133	0.325	0.211	0.043	-0.010	1														
(9) Risk averse	-0.050	-0.079	-0.064	0.077	-0.034	-0.021	0.140	0.112	1													
(10) Status-quo bias	-0.072	-0.101	-0.087	0.070	-0.075	-0.043	0.210	-0.014	0.264	1												
(11) Optimistic	0.105	0.069	0.094	-0.027	0.036	0.032	-0.085	0.026	-0.003	-0.038	1											
(12) Job immobility	-0.020	0.037	-0.037	0.178	0.082	0.028	-0.013	0.364	0.075	0.025	0.032	1										
(13) Residential immobility	-0.046	0.034	-0.071	0.106	0.068	0.013	-0.051	0.345	0.059	0.024	0.007	0.379	1									
(14) Foreign acquaintance	0.116	0.057	0.129	-0.041	0.045	0.076	0.010	-0.024	-0.025	-0.043	0.038	-0.088	-0.094	1								
(15) No child	0.023	-0.095	0.123	-0.170	-0.143	-0.054	-0.044	-0.514	-0.012	0.011	-0.009	-0.222	-0.229	0.052	1							
(16) Sensitive to food safety	-0.021	-0.061	-0.011	0.090	-0.015	0.012	0.135	0.133	0.040	0.022	-0.012	0.028	0.002	0.085	-0.045	1						
(17) Regional Agri. Share	-0.028	-0.042	-0.095	-0.031	-0.001	-0.023	-0.016	0.023	0.008	-0.013	-0.033	0.014	0.064	-0.061	-0.072	-0.026	1					
(18) Regional U. rate	-0.022	-0.032	-0.065	0.010	-0.011	-0.022	0.004	0.003	0.007	0.004	0.013	0.001	-0.005	-0.036	0.009	-0.002	-0.040	1				
(19) Regional Edu. Share	0.054	0.044	0.178	0.014	0.026	0.059	0.011	-0.022	-0.001	-0.010	0.030	-0.027	-0.086	0.106	0.079	0.025	-0.551	-0.261	1			
(20) Regional Foreigners DUM	0.011	0.033	0.061	-0.035	-0.004	0.011	-0.002	-0.058	0.001	0.003	0.009	-0.034	-0.061	0.061	0.062	0.000	-0.290	-0.233	0.315	1		
(21) Regional Labor Force	-0.011	-0.008	-0.048	-0.039	-0.016	-0.019	-0.011	-0.015	0.000	0.006	-0.023	-0.002	0.046	-0.016	-0.030	-0.015	0.362	-0.313	-0.369	0.144	1	
(22) Regional Fiscal Exposure	-0.031	-0.039	-0.047	-0.029	-0.001	0.020	0.003	-0.004	-0.003	0.004	0.001	-0.014	-0.008	-0.015	0.014	-0.002	0.175	0.333	-0.278	-0.128	-0.187	1

Table 3 Parsimonious model

	(1) MIGRATION		(2) IMPORT	
	ME	SE	ME	SE
College educated	0.0915***	[0.00980]	0.0595***	[0.0110]
Unemployed	-0.0414***	[0.0111]	-0.0125	[0.00896]
Managerial occupation	0.0779***	[0.0186]	0.0763***	[0.0177]
Rich	0.0487	[0.0337]	0.0968**	[0.0391]
Female	-0.0621***	[0.00970]	-0.156***	[0.0101]
Age	-0.00018	[0.000450]	0.00481***	[0.000337]
Industry:				
Food, beverage, and tobacco manufacturing	-0.0208	[0.0374]	0.0744**	[0.0358]
Textile and apparel	0.0894**	[0.0429]	0.085	[0.0522]
Paper, pulp, lumber products, and printing	0.0842	[0.0549]	0.0897	[0.0740]
Chemical products	0.156***	[0.0534]	0.115**	[0.0579]
Metals and steel	0.0859**	[0.0403]	0.120***	[0.0442]
Machine	0.0746**	[0.0344]	0.123***	[0.0367]
Miscellaneous manufacturing	0.0467*	[0.0244]	0.0985***	[0.0270]
Mining	-0.115	[0.220]	0.00356	[0.120]
Agriculture, fishery, and forestry	-0.0452	[0.0513]	-0.178***	[0.0599]
Construction	0.0431*	[0.0256]	0.100***	[0.0328]
Electricity, gas, and water supply	0.0474	[0.0442]	0.0965*	[0.0558]
Transportation and distribution	0.0538*	[0.0299]	0.0804***	[0.0310]
Telecommunication	0.0764***	[0.0286]	0.0545*	[0.0315]
Medical, welfare, and health care	0.0505*	[0.0275]	0.0761**	[0.0348]
Education	0.0497*	[0.0267]	0.0507*	[0.0280]
Wholesale and retail trade	0.0313	[0.0247]	0.0604**	[0.0271]
Catering, restaurants and lodging	0.0556*	[0.0327]	0.0888***	[0.0277]
Finance, insurance, and real estate	0.0861***	[0.0254]	0.104***	[0.0344]
Miscellaneous services	0.0466**	[0.0237]	0.102***	[0.0285]
Never worked or at school	0.0960**	[0.0377]	0.0434	[0.0369]
Pseudo R^2	0.0223		0.0569	

(Notes) Marginal effects, not estimated probit coefficients, are reported.

Robust standard errors are in parentheses. The dependent variable is shown in the top row of each column.

The industry dummy for government services is merged with the constant term.

The statistical significance is shown by asterisk: *** at 1%, ** at 5%, and * at 10%.

Table 4 Model with additional variables

	(1) MIGRATION		(2) IMPORT	
	ME	SE	ME	SE
College educated	0.0718***	[0.00959]	0.0514***	[0.0107]
Unemployed	-0.0338***	[0.0113]	-0.00653	[0.00901]
Managerial occupation	0.0680***	[0.0191]	0.0655***	[0.0168]
Rich	0.0259	[0.0300]	0.0827**	[0.0382]
Female	-0.0548***	[0.0102]	-0.137***	[0.0113]
Age	0.000114	[0.000531]	0.00513***	[0.000391]
Risk averse	-0.0213*	[0.0110]	-0.0605***	[0.0129]
Status-quo bias	-0.0355***	[0.0101]	-0.0391***	[0.0116]
Optimistic	0.122***	[0.0107]	0.0608***	[0.0139]
Job immobility	0.00522	[0.0103]	-0.0124	[0.00797]
Residential immobility	-0.0363***	[0.0114]	-0.0215	[0.0135]
Foreign acquaintance	0.107***	[0.0125]	0.0583***	[0.0103]
No child	0.000345	[0.0116]	-0.0284**	[0.0116]
Sensitive to food safety	-0.0202	[0.0129]	-0.0892***	[0.0122]
Industry:				
Food manufacturing	-0.0193	[0.0380]	0.0772**	[0.0357]
Textile and apparel	0.0924**	[0.0418]	0.0895*	[0.0513]
Paper and printing	0.0972*	[0.0562]	0.0963	[0.0755]
Chemical products	0.146***	[0.0554]	0.112*	[0.0580]
Metals and steel	0.0872**	[0.0403]	0.114**	[0.0445]
Machine	0.0640*	[0.0371]	0.113***	[0.0358]
Misc. manuf.	0.0445*	[0.0252]	0.0941***	[0.0274]
Mining	-0.147	[0.219]	-0.0173	[0.118]
Agriculture	-0.0352	[0.0508]	-0.171***	[0.0602]
Construction	0.0393	[0.0261]	0.0927***	[0.0336]
Electricity supply	0.0626	[0.0440]	0.101*	[0.0558]
Transport and distribution	0.0541*	[0.0305]	0.0785***	[0.0300]
Telecom	0.0711**	[0.0281]	0.0518*	[0.0310]
Med care	0.0533*	[0.0288]	0.0764**	[0.0345]
Education	0.0362	[0.0277]	0.0480*	[0.0284]
Wholesale and retail	0.0311	[0.0258]	0.0566**	[0.0278]
Catering and lodging	0.0446	[0.0357]	0.0814***	[0.0293]
FIRE	0.0820***	[0.0255]	0.102***	[0.0346]
Misc. services	0.0372	[0.0236]	0.0972***	[0.0287]
Never worked	0.0816**	[0.0404]	0.0469	[0.0415]
Pseudo R2	0.0374		0.0685	

(Notes) See notes to Table 3. Industry names are abbreviated.

Table 5 Regional effects

	(1) MIGRATION		(2) IMPORT		(3) MIGRATION		(4) IMPORT	
	ME	SE	ME	SE	ME	SE	ME	SE
College educated	0.0677***	[0.00958]	0.0454***	[0.0115]	0.0677***	[0.00967]	0.0458***	[0.0116]
Unemployed	-0.0341***	[0.0113]	-0.00755	[0.00888]	-0.0350***	[0.0112]	-0.00753	[0.00896]
Managerial occupation	0.0684***	[0.0189]	0.0660***	[0.0169]	0.0687***	[0.0190]	0.0662***	[0.0169]
Rich	0.0258	[0.0294]	0.0777**	[0.0379]	0.028	[0.0294]	0.0810**	[0.0378]
Female	-0.0562***	[0.0103]	-0.139***	[0.0114]	-0.0561***	[0.0103]	-0.139***	[0.0113]
Age	8.88E-05	[0.000520]	0.00508***	[0.000390]	9.04E-05	[0.000517]	0.00510***	[0.000392]
Risk averse	-0.0211*	[0.0110]	-0.0591***	[0.0129]	-0.0210*	[0.0109]	-0.0597***	[0.0130]
Status-quo bias	-0.0343***	[0.0103]	-0.0401***	[0.0114]	-0.0342***	[0.0103]	-0.0399***	[0.0114]
Optimistic	0.122***	[0.0106]	0.0612***	[0.0138]	0.122***	[0.0106]	0.0614***	[0.0137]
Job immobility	0.00506	[0.0104]	-0.0131*	[0.00791]	0.00494	[0.0104]	-0.0133*	[0.00797]
Residential immobility	-0.0354***	[0.0115]	-0.0203	[0.0140]	-0.0362***	[0.0116]	-0.0202	[0.0139]
Foreign acquaintance	0.106***	[0.0120]	0.0553***	[0.0106]	0.106***	[0.0120]	0.0553***	[0.0108]
No child	-1.97E-04	[0.0117]	-0.0309***	[0.0115]	0.000667	[0.0116]	-0.0303***	[0.0114]
Sensitive to food safety	-0.0201	[0.0129]	-0.0901***	[0.0123]	-0.0201	[0.0128]	-0.0899***	[0.0124]
Regional Agri. Share	3.07E-04	[0.00150]	-0.00393**	[0.00167]	1.48E-04	[0.00150]	-0.00298*	[0.00170]
Regional U. rate	-0.00263	[0.00304]	-0.00856***	[0.00287]	-0.000928	[0.00305]	-0.00566*	[0.00340]
Regional Edu. Share	0.000826	[0.000508]	0.000224	[0.000708]	0.000838	[0.000511]	-1.54E-04	[0.000756]
Regional Foreigners DUM					-0.0146	[0.0119]	0.0202*	[0.0116]
Regional Labor Force					0.000731	[0.00169]	-0.00123	[0.00267]
Regional Fiscal Exposure					-0.00176**	[0.000831]	-0.00191*	[0.000983]
Industry:								
Food manufacturing	-0.0213	[0.0386]	0.0734**	[0.0360]	-0.0209	[0.0388]	0.0732**	[0.0364]
Textile and apparel	0.0891**	[0.0422]	0.0835	[0.0513]	0.0931**	[0.0426]	0.0858*	[0.0515]
Paper and printing	0.0949*	[0.0564]	0.0912	[0.0756]	0.0940*	[0.0557]	0.0903	[0.0757]
Chemical products	0.143***	[0.0554]	0.107*	[0.0582]	0.142**	[0.0553]	0.106*	[0.0578]
Metals and steel	0.0856**	[0.0409]	0.107**	[0.0444]	0.0874**	[0.0411]	0.106**	[0.0445]
Machine	0.0616	[0.0376]	0.106***	[0.0360]	0.0613*	[0.0372]	0.105***	[0.0363]
Misc. manuf.	0.0425*	[0.0251]	0.0886***	[0.0279]	0.0424*	[0.0251]	0.0869***	[0.0279]
Mining	-0.154	[0.219]	-0.0273	[0.117]	-0.154	[0.220]	-0.0242	[0.118]
Agriculture	-0.0321	[0.0518]	-0.153**	[0.0600]	-0.0318	[0.0521]	-0.151**	[0.0601]
Construction	0.037	[0.0266]	0.0873***	[0.0334]	0.0367	[0.0265]	0.0870***	[0.0335]
Electricity supply	0.0617	[0.0442]	0.0991*	[0.0565]	0.0638	[0.0446]	0.0974*	[0.0567]
Transport and distribution	0.0522*	[0.0313]	0.0726**	[0.0301]	0.0520*	[0.0313]	0.0726**	[0.0302]
Telecom	0.0639**	[0.0282]	0.0414	[0.0327]	0.0658**	[0.0282]	0.0423	[0.0326]
Med care	0.0525*	[0.0290]	0.0759**	[0.0341]	0.0540*	[0.0293]	0.0769**	[0.0341]
Education	0.0341	[0.0283]	0.046	[0.0283]	0.0336	[0.0285]	0.0454	[0.0282]
Wholesale and retail	0.0299	[0.0261]	0.0531*	[0.0275]	0.0302	[0.0259]	0.0543**	[0.0277]
Catering and lodging	0.0415	[0.0356]	0.0787***	[0.0298]	0.043	[0.0355]	0.0787***	[0.0301]
FIRE	0.0772***	[0.0261]	0.0939***	[0.0352]	0.0780***	[0.0262]	0.0947***	[0.0352]
Misc. services	0.034	[0.0241]	0.0923***	[0.0293]	0.035	[0.0243]	0.0925***	[0.0295]
Never worked	0.0814**	[0.0401]	0.0409	[0.0418]	0.0811**	[0.0401]	0.0408	[0.0417]
Pseudo R2	0.0376		0.0697		0.038		0.0701	
	10,074		10,075		10,074		10,075	

Table 6 Sample split by education

	(1) MIGRATION				(2) IMPORT			
	College Educated		Less than college		College Educated		Less than college	
	ME	SE	ME	SE	ME	SE	ME	SE
Unemployed	-0.0153	[0.0170]	-0.0423***	[0.0156]	-0.00685	[0.0233]	-0.00448	[0.0120]
Managerial occupation	0.0523*	[0.0278]	0.0778***	[0.0273]	0.0262	[0.0183]	0.0949***	[0.0214]
Rich	0.0446	[0.0411]	0.0007	[0.0781]	0.109**	[0.0424]	-0.0737	[0.0691]
Female	-0.0456***	[0.0151]	-0.0588***	[0.0138]	-0.125***	[0.0199]	-0.142***	[0.0135]
Age	0.000851	[0.000660]	-0.000295	[0.000627]	0.00658***	[0.000689]	0.00425***	[0.000476]
Risk averse	-0.0338**	[0.0139]	-0.0149	[0.0137]	-0.0562**	[0.0232]	-0.0637***	[0.0136]
Status-quo bias	-0.023	[0.0161]	-0.0399***	[0.0149]	-0.0370*	[0.0206]	-0.0405***	[0.0156]
Optimistic	0.120***	[0.0171]	0.123***	[0.0157]	0.0470**	[0.0225]	0.0756***	[0.0199]
Job immobility	0.0144	[0.0162]	-0.000548	[0.0144]	-0.0244*	[0.0141]	-0.00257	[0.0117]
Residential immobility	-0.0522***	[0.0176]	-0.0260*	[0.0144]	-0.0235	[0.0172]	-0.0192	[0.0158]
Foreign acquaintance	0.113***	[0.0170]	0.0983***	[0.0152]	0.0386***	[0.0146]	0.0645***	[0.0171]
No child	-0.0113	[0.0144]	0.00944	[0.0176]	-0.0437***	[0.0139]	-0.018	[0.0125]
Sensitive to food safety	-0.0459*	[0.0238]	-0.00268	[0.0185]	-0.0572***	[0.0215]	-0.110***	[0.0177]
Regional Agri. Share	-0.00205	[0.00275]	0.000961	[0.00170]	0.00136	[0.00272]	-0.00577***	[0.00215]
Regional U. rate	-0.00535	[0.00600]	0.0017	[0.00416]	-0.00476	[0.00491]	-0.00658	[0.00525]
Regional Edu. Share	0.000643	[0.000835]	0.000944	[0.000768]	0.000521	[0.00104]	-0.000732	[0.000972]
Regional Foreigners DUM	-0.0269	[0.0231]	-0.0041	[0.0136]	0.0358**	[0.0179]	0.0104	[0.0143]
Regional Labor Force	0.000407	[0.00280]	0.00098	[0.00220]	-0.00412	[0.00415]	0.000861	[0.00289]
Regional Fiscal Exposure	-0.00297**	[0.00138]	-0.00102	[0.000947]	-0.000965	[0.00136]	-0.00227**	[0.00108]
Industry:								
Food manufacturing	0.00251	[0.0567]	-0.027	[0.0486]	-0.00221	[0.0474]	0.130***	[0.0454]
Textile and apparel	0.0178	[0.0784]	0.130**	[0.0568]	-0.00225	[0.0850]	0.145***	[0.0520]
Paper and printing	-0.0174	[0.101]	0.143*	[0.0732]	-0.0758	[0.0959]	0.179**	[0.0839]
Chemical products	0.203***	[0.0719]	0.0663	[0.0699]	0.0867	[0.0763]	0.138**	[0.0642]
Metals and steel	0.0367	[0.0673]	0.114*	[0.0604]	0.132*	[0.0775]	0.121**	[0.0604]
Machine	0.0932	[0.0630]	0.038	[0.0490]	0.0927*	[0.0527]	0.123***	[0.0370]
Misc. manuf.	0.0435	[0.0398]	0.0455	[0.0325]	0.0549	[0.0335]	0.120***	[0.0350]
Mining	-0.0823	[0.227]	-0.221	[0.255]	0.00347	[0.242]	-0.0476	[0.175]
Agriculture	-0.0125	[0.0845]	-0.0308	[0.0588]	-0.211**	[0.0942]	-0.0968	[0.0708]
Construction	-0.0740*	[0.0381]	0.0946***	[0.0355]	-0.00409	[0.0507]	0.145***	[0.0377]
Electricity supply	0.0146	[0.0875]	0.0923	[0.0570]	0.0434	[0.0838]	0.142*	[0.0759]
Transport and distribution	0.0471	[0.0421]	0.0634*	[0.0356]	0.0850**	[0.0391]	0.0911**	[0.0388]
Telecom	0.0504*	[0.0299]	0.0815**	[0.0385]	-0.0174	[0.0410]	0.102*	[0.0580]
Med care	0.0196	[0.0439]	0.0773**	[0.0354]	0.0246	[0.0441]	0.120***	[0.0407]
Education	0.0105	[0.0324]	0.0413	[0.0437]	-0.0166	[0.0368]	0.101***	[0.0380]
Wholesale and retail	-0.00473	[0.0338]	0.0558	[0.0361]	0.000149	[0.0361]	0.0997***	[0.0328]
Catering and lodging	0.0524	[0.0459]	0.0505	[0.0426]	0.116***	[0.0380]	0.0899**	[0.0398]
FIRE	0.0572*	[0.0321]	0.0961***	[0.0367]	0.0858*	[0.0469]	0.108**	[0.0453]
Misc. services	0.0213	[0.0334]	0.0481	[0.0330]	0.0226	[0.0380]	0.145***	[0.0335]
Never worked	0.054	[0.0449]	0.130*	[0.0693]	0.0156	[0.0539]	0.148*	[0.0818]
Pseudo R2	0.032		0.027		0.090		0.056	

Table 7 Bivariate model

	(1) P(MIG=1, IMP=1)		(2) P(MIG=1, IMP=0)		(3) P(MIG=0, IMP=1)		(4) P(MIG=0, IMP=0)	
	ME	SE	ME	SE	ME	SE	ME	SE
College educated	0.0566***	[0.00698]	0.011	[0.00694]	-0.0106	[0.00857]	-0.0571***	[0.00770]
Unemployed	-0.0225***	[0.00604]	-0.0125*	[0.00735]	0.0145	[0.00921]	0.0205***	[0.00587]
Managerial occupation	0.0668***	[0.0154]	0.0025	[0.00779]	0.000858	[0.00975]	-0.0701***	[0.0163]
Rich	0.0502*	[0.0278]	-0.0227	[0.0161]	0.0319	[0.0207]	-0.0594**	[0.0299]
Female	-0.0901***	[0.00841]	0.0339***	[0.00554]	-0.0485***	[0.00763]	0.105***	[0.00911]
Age	0.00224***	[0.000393]	-0.00217***	[0.000221]	0.00288***	[0.000276]	-0.00296***	[0.000389]
Risk averse	-0.0374***	[0.00860]	0.0162**	[0.00703]	-0.0229***	[0.00862]	0.0440***	[0.00944]
Status-quo bias	-0.0356***	[0.00843]	0.00127	[0.00574]	-0.00376	[0.00732]	0.0381***	[0.00890]
Optimistic	0.0926***	[0.00763]	0.0291***	[0.00787]	-0.0314***	[0.0101]	-0.0903***	[0.00886]
Job immobility	-0.00291	[0.00717]	0.00771	[0.00517]	-0.00997	[0.00642]	0.00516	[0.00722]
Residential immobility	-0.0288***	[0.00924]	-0.00779	[0.00731]	0.00815	[0.00948]	0.0285***	[0.0102]
Foreign acquaintance	0.0818***	[0.00908]	0.0246***	[0.00634]	-0.0262***	[0.00816]	-0.0801***	[0.00880]
No child	-0.0129	[0.00865]	0.0130**	[0.00647]	-0.0173**	[0.00827]	0.0171*	[0.00899]
Sensitive to food safety	-0.0498***	[0.00927]	0.0299***	[0.00742]	-0.0410***	[0.00960]	0.0609***	[0.00960]
Regional Agri. Share	-0.0012	[0.00129]	0.00136*	[0.000762]	-0.00180*	[0.000977]	0.00164	[0.00138]
Regional U. rate	-0.003	[0.00219]	0.00191	[0.00202]	-0.00261	[0.00259]	0.00369	[0.00235]
Regional Edu. Share	0.000393	[0.000482]	0.000446	[0.000341]	-0.000543	[0.000448]	-0.000297	[0.000546]
Regional Foreigners DUM	0.000547	[0.00859]	-0.0154**	[0.00698]	0.0196**	[0.00890]	-0.00474	[0.00879]
Regional Labor Force	-0.000105	[0.00164]	0.000858	[0.00119]	-0.0011	[0.00156]	0.000343	[0.00188]
Regional Fiscal Exposure	-0.00179**	[0.000793]	0.0000338	[0.000328]	-0.000151	[0.000422]	0.00190**	[0.000861]
Industry:								
Food manufacturing	0.0198	[0.0301]	-0.0408**	[0.0193]	0.0530**	[0.0244]	-0.032	[0.0317]
Textile and apparel	0.0858**	[0.0386]	0.00741	[0.0226]	-0.00423	[0.0286]	-0.0890**	[0.0419]
Paper and printing	0.0907**	[0.0455]	0.00536	[0.0383]	-0.00132	[0.0494]	-0.0947*	[0.0509]
Chemical products	0.125**	[0.0503]	0.0183	[0.0216]	-0.0157	[0.0271]	-0.127**	[0.0538]
Metals and steel	0.0938***	[0.0288]	-0.00531	[0.0269]	0.0124	[0.0335]	-0.101***	[0.0312]
Machine	0.0783***	[0.0257]	-0.0168	[0.0230]	0.026	[0.0285]	-0.0876***	[0.0270]
Misc. manuf.	0.0609***	[0.0205]	-0.0181	[0.0141]	0.0267	[0.0180]	-0.0695***	[0.0221]
Mining	-0.0987	[0.174]	-0.0667	[0.0561]	0.0787	[0.0624]	0.0867	[0.170]
Agriculture	-0.0793**	[0.0373]	0.0498	[0.0349]	-0.068	[0.0444]	0.0976**	[0.0399]
Construction	0.0575**	[0.0236]	-0.0199	[0.0151]	0.0287	[0.0194]	-0.0664**	[0.0261]
Electricity supply	0.0756*	[0.0429]	-0.0137	[0.0225]	0.0219	[0.0290]	-0.0838*	[0.0471]
Transport and distribution	0.0605**	[0.0238]	-0.00685	[0.0169]	0.0123	[0.0210]	-0.0660***	[0.0250]
Telecom	0.0549**	[0.0249]	0.0118	[0.0145]	-0.0117	[0.0181]	-0.0550**	[0.0268]
Med care	0.0628**	[0.0267]	-0.0081	[0.0139]	0.0141	[0.0177]	-0.0688**	[0.0291]
Education	0.0387*	[0.0210]	-0.00392	[0.0166]	0.00731	[0.0208]	-0.0421*	[0.0222]
Wholesale and retail	0.0400*	[0.0226]	-0.00966	[0.0118]	0.0147	[0.0148]	-0.0450*	[0.0243]
Catering and lodging	0.0573**	[0.0268]	-0.0137	[0.0163]	0.0208	[0.0202]	-0.0644**	[0.0277]
FIRE	0.0833***	[0.0245]	-0.00472	[0.0155]	0.011	[0.0196]	-0.0896***	[0.0272]
Misc. services	0.0592***	[0.0220]	-0.0235*	[0.0126]	0.0334**	[0.0163]	-0.0691***	[0.0243]
Never worked	0.0616*	[0.0317]	0.0197	[0.0225]	-0.0213	[0.0282]	-0.0600*	[0.0337]

Appendix Table A1 Other globalization channels

	(1) Inward FDI		(2) Institutional Harmo	
	ME	SE	ME	SE
College educated	0.0654***	[0.00982]	0.0319***	[0.00951]
Unemployed	0.00904	[0.0111]	0.00126	[0.0141]
Managerial occupation	0.0327**	[0.0155]	0.0532***	[0.0187]
Rich	0.0589*	[0.0324]	0.0258	[0.0295]
Female	-0.0679***	[0.0100]	-0.0250**	[0.0105]
Age	0.0003	[0.000518]	0.00443***	[0.000463]
Risk averse	-0.0317***	[0.00926]	-0.0550***	[0.0101]
Status-quo bias	-0.0366***	[0.00930]	-0.0430***	[0.0102]
Optimistic	0.0952***	[0.0127]	0.00339	[0.0150]
Job immobility	-0.0433***	[0.0118]	-0.00869	[0.00931]
Residential immobility	-0.0360***	[0.0129]	-0.011	[0.0105]
Foreign acquaintance	0.0933***	[0.0130]	0.0441***	[0.0110]
No child	-0.0304***	[0.0117]	-0.0226**	[0.0114]
Sensitive to food safety	-0.0257**	[0.0126]	-0.0267*	[0.0138]
Regional Agri. Share	1.75E-03	[0.00148]	0.00216	[0.00137]
Regional U. rate	-0.000292	[0.00411]	0.000836	[0.00363]
Regional Edu. Share	0.000746	[0.000528]	0.00123	[0.000859]
Regional Foreigners DUM	0.0074	[0.00947]	-0.00156	[0.0117]
Regional Labor Force	-0.003	[0.00295]	0.0028	[0.00256]
Regional Fiscal Exposure	0.000359	[0.000839]	-0.000848	[0.000842]
Industry:				
Food manufacturing	-0.0163	[0.0355]	0.0122	[0.0445]
Textile and apparel	-0.0361	[0.0387]	0.023	[0.0356]
Paper and printing	-0.0254	[0.0699]	-0.00893	[0.0554]
Chemical products	0.0848*	[0.0480]	0.0208	[0.0391]
Metals and steel	0.0461	[0.0480]	0.037	[0.0503]
Machine	0.0396	[0.0411]	0.031	[0.0363]
Misc. manuf.	0.0131	[0.0296]	0.0126	[0.0282]
Mining	-0.337**	[0.148]	-0.273*	[0.166]
Agriculture	0.0455	[0.0467]	-0.0823*	[0.0445]
Construction	0.00776	[0.0338]	0.0144	[0.0270]
Electricity supply	0.000973	[0.0471]	0.0424	[0.0405]
Transport and distribution	0.00133	[0.0384]	0.0326	[0.0324]
Telecom	0.0518	[0.0317]	0.00837	[0.0231]
Med care	0.018	[0.0342]	0.00464	[0.0287]
Education	-0.0133	[0.0313]	-0.0119	[0.0284]
Wholesale and retail	0.00522	[0.0355]	0.0161	[0.0241]
Catering and lodging	-0.0326	[0.0377]	0.0365	[0.0339]
FIRE	0.0537	[0.0393]	0.0226	[0.0261]
Misc. services	-0.00555	[0.0345]	0.00405	[0.0245]
Never worked	-0.00607	[0.0485]	0.0112	[0.0392]
Pseudo R2	0.0336		0.0326	