



LUND UNIVERSITY

School of Economics and Management

Master's Programme in Economic Growth, Population, and Development

## Welcoming Change?

### An Individual- and Prefecture- Level Analysis of Public Opinion towards Immigration in Japan

Momoko Nishikido

mo2227ni-s@student.lu.se

In April of 2019, Japan implemented a new visa system projected to bring in approximately 345,000 semi-skilled foreign workers into the country over several years. As the Japanese society also faces an ageing population and simultaneously a diminishing workforce, it has turned to immigrant workers to fill labor shortages. This influx of foreigners may result in cultural, societal, and economic issues in the country as it challenges the homogenous society of Japan, with only two percent of its total population being foreigners. Do the native Japanese support or oppose increasing immigration and what shapes their opinions to be one way or the other? In an attempt to answer this question, this thesis uses a pooled dataset combining six rounds of the Japanese General Social Survey between 2000 to 2006. Estimating linear probability models with year and prefecture fixed effects, this study focuses on several overarching concerns that may influence immigration attitudes: economic conditions of the country, perceived threats to public safety, share of foreigners, and opportunities for contact between natives and foreigners. Our findings show support for the labor market competition theory and the contact hypothesis in explaining immigration attitudes of Japanese natives.

*Keywords: Immigration attitudes, JGSS, labor market competition theory, group threat theory, contact theory*

EKHS02

Master's Thesis (15 credits ECTS)

June 2019

Supervisor: Kirk Scott

Examiner: Martin Dribe

Word Count: 19012

# Acknowledgements

I would like to thank my parents who have loved me unconditionally and have supported me these past 25 years.

Thank you to my thesis supervisor, Kirk Scott, for his guidance throughout the thesis-writing process.

Lastly, thank you to the friends I have made in Lund: to SDG, to MDCB., and to J.K.

# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Research Questions	2
1.2	Aim of Study	1
1.3	Outline of the Thesis	3
<b>2</b>	<b>Background</b>	<b>4</b>
2.1	Immigration History and Trends in Japan	4
<b>3</b>	<b>Theory and Previous Literature</b>	<b>8</b>
3.1	Theories	8
3.2	Analyzing Determinants of Immigration Attitudes	11
3.3	Immigration Opinion in the JGSS	15
<b>4</b>	<b>Data</b>	<b>19</b>
4.1	Source Material	19
4.2	Variables and Definitions	20
<b>5</b>	<b>Methodology</b>	<b>28</b>
<b>6</b>	<b>Empirical Analysis</b>	<b>30</b>
6.1	Main Results	30
6.2	Education Level	34
6.3	Labor Force Status	36
6.4	Geographical Differences	38
6.5	Robustness Tests	40
6.6	Discussion	41
<b>7</b>	<b>Conclusion</b>	<b>45</b>
7.1	Future Research	46

# List of Tables

Table 1. Descriptive Statistics of our pooled dataset .....	27
Table 2. Individual- and prefecture-level correlates of immigration attitudes in Japan from 2000-2006 with prefecture and year fixed effects.....	31
Table 3. English proficiency level estimates on immigration attitudes in Japan from 2000-2006 with prefecture and year fixed effects. ....	33
Table 4. Individual- and prefecture-level correlates of immigration attitudes in Japan by education group from 2000-2006 with prefecture and year fixed effects.....	35
Table 5. Individual- and prefecture-level correlates of immigration attitudes in Japan by labor force status from 2000-2006 with prefecture and year fixed effects.....	37
Table 6. Covariates for the geographical regions from original pooled data.....	39
Table 7. Definitions and values of all variables. ....	52
Table 8. Individual- and prefecture-level correlates of immigration attitudes in Japan by different geographic aggregation from 2000-2006 with prefecture and year fixed effects.....	55
Table 9. Individual- and prefecture-level correlates of immigration attitudes in Japan by region from 2000-2006 with year fixed effects.....	56
Table 10. Logistic regression as a robustness check.....	58
Table 11. Individual- and prefecture-level correlates for the truncated sample as a robustness check.....	60

# List of Figures

Figure 1: Japan’s dependency ratio (%) from 1995-2017 and Japan’s total fertility rate from 1995-2017.....	4
Figure 2: The average share of foreign nationals in Japan during our period of study .....	6
Figure 3: The average percentage of our pooled sample that are in favor of increasing immigration.....	20
Figure 4: Examining anti-immigration attitudes in 2005.....	44

# 1 Introduction

With increasing international mobility, issues of immigration policies and national security have become salient topics of discussion among scholars and the public. In the developed West, a surge in refugee and asylum-seeking migrants to new European immigration countries have raised public concerns on integration, economically and societally, and concerns over accommodation within receiving countries (IMF 2015). A 2015 IMF report stated the number of asylum applications have more than doubled from 2014 to 2015, with nearly one million first-time asylum applications submitted in countries within the EU. In the United States, population projections foresee an increase in the foreign-born population, expected to grow from 44 million in 2018 to nearly 70 million by 2060 (U.S. Census Bureau 2018). 2018 estimates from the U.S. Census Bureau suggest that the foreign-born population will make up 17 percent of the total population in 2060, as opposed to the current 14 million. Unlike the experiences of the developed West, however, East Asian countries such as South Korea and Japan have long remained homogenous societies with strict immigration policies (Kondo 2002); however, these countries are at a crossroads as demographic issues such as population ageing and a dwindling workforce are in need of urgent attention due to its threat to social and economic institutions. Japan's immigration policies underwent a revision as the country has now opened its doors to receiving foreign semi-skilled workers to fill labor shortages (McCurry 2019). However, are members of the Japanese society willing to accept these immigrants as neighbors, coworkers, or acquaintances? Examining the determinants that shape public opinion on immigration becomes important as policy makers attempt to create an environment in which both populations can effectively coexist (Nukaga 2006).

The primary drivers of natives' perceptions of immigrants and immigration are debated upon in literature. While some scholars have found that economic concerns of natives influence their attitudes on immigrants through fear of labor market competition (Scheve & Slaughter 2001; Mayda 2006) or fear of fiscal burdening on public services (Facchini & Mayda 2009), others have argued otherwise. Scholars have also concluded noneconomic factors, for example, differences in cultural ideologies (Hainmueller & Hiscox 2007, 2010) or contact between natives and foreigners (Green & Kadoya 2013), to be strong factors on the formation of natives' perceptions.

## 1.1 Aim of Study

Building off previous literature, this study aims to analyze the determinants of immigration attitudes in the context of Japan. Linear probability models (LPM) will be used to estimate the effects of individual-level characteristics from a pooled dataset containing data over six survey years of the Japanese General Social Survey (JGSS)—2000, 2001, 2002, 2003, 2005,

and 2006. A pooled dataset allows for a larger number of observations by prefecture and moreover, will help to improve the reliability of results. To my knowledge, related studies have not conducted this analysis using a pooled dataset but have instead, focused on one cross-section. Economic and non-economic prefecture level indicators will also be analyzed alongside the individual-level determinants. Contextual level data have been gathered from the Japanese Ministry of Internal Affairs and Communication, the Ministry of Foreign Affairs, and the Cabinet Office. Basing our analysis on the group threat theories and the contact theory, which will be discussed in greater detail in a later section, the study focuses on testing several overarching areas that may influence immigration attitudes—economic conditions of the receiving country, potential threats over public safety felt by natives, share of the foreign population, and increased opportunities of contact between natives and foreigners. Overall, this study will attempt to distinguish important determinants of immigration opinion among Japanese natives following the turn of the century.

## 1.2 Research Questions

To achieve a better understanding of the factors which shape natives' attitudes toward immigration, this study will attempt to answer four research questions. First, the influence of economic conditions on natives' immigration attitudes has been studied extensively; although, geographical concentration has been on the developed West—*i.e.* the United States and recently, Western European countries. Whether it be through labor market competition or increasing fiscal burden, previous research has provided mixed result. Many scholars, however, conclude that economic concerns are weak indicators of public perceptions toward immigration. Regardless, this may still be debated upon in the context of Japan as studies are still limited. Therefore, the first question is:

*Q. Do economic conditions shape natives' attitudes toward immigration in Japan?*

The effects of non-economic concerns, such as the share of foreign population size, on public opinion towards immigration will also be analyzed. According to the group threat theory, a large foreign population may increase the threat felt by natives. This, in turn, may induce anti-immigration sentiments among the native population. Since Japan is still a rather homogenous country (Kondo 2002), this study will attempt to test the correlation between the ratio of foreigners within prefectures and natives' immigration attitudes.

*Q. Does the share of foreigners shape natives' attitudes toward immigration in Japan?*

An influx of immigrants may threaten natives' feeling of safety as the country loosens immigration policies, permitting more semi-skilled workers to enter the country. According to Hainmueller and Hiscox (2007), natives of many European countries have expressed concern over immigrants' tendencies to be involved in criminal activities. Crime rates have also been included in several studies as a non-economic concern that may potentially impact natives'

immigration attitudes (Mayda 2006; Facchini & Mayda 2009; Ceobanu 2011). To examine this in the context of Japan, the next research question is as follows:

*Q. Are concerns over public safety a determinant in shaping natives' attitudes toward immigration in Japan?*

In an attempt to test the contact theory, a crude variable for contact will be used to examine the effects of *superficial contact* (Green & Kadoya 2013) on natives' immigration attitudes. While Green and Kadoya (2013) use natives' self-reported English language proficiency to proxy for contact, we will utilize a variable measuring the frequency in which the respondent takes trips lasting longer than two days. This thesis argues that this may crudely measure contact between natives and foreigners, specifically through the channel of increased opportunities for one to travel abroad. According to the World Tourism Organization, an average of approximately 16.52 million trips were made abroad by Japanese visitors within our timeframe of study, 2000 to 2006. To estimate the effects of increased potential contact, our last question is as follows:

*Q. Are increased opportunities for potential contact with foreigners through travel associated with more favorable immigration attitudes among natives?*

### 1.3 Outline of the Thesis

The outline of this thesis is as follows: Section 2 will review the immigration history and trends in Japan. The current situation of the country and its impact on immigration will also be discussed, including the most recent reform of the country's immigration policy that was implemented in April 2019. Section 3 will present relevant theories and previous literature regarding the formation of natives' public opinion on immigration. The majority of previous literature that will be discussed are based on the experiences of the developed West, such as the United States and Western Europe; although, related studies using the JGSS datasets will be summarized in this section as well. Section 4 details the primary dataset of this study, a pooled dataset from six JGSS survey years 2000, 2001, 2002, 2003, 2005, and 2006. The binary dependent variable, *for increasing immigration*, and the main independent variables to examine our research questions, *unemployment rate*, *log GDP per capita*, *foreign ratio*, *dissatisfaction of area*, *violent crime rate*, and *frequency of trips lasting longer than two days* will be discussed in further detail. Section 5 will briefly describe the methodology chosen to perform our analysis studying the determinants of natives' immigration attitudes at the individual- and prefecture-level in Japan. Next, Section 6 will present the empirical results of our analyses and go through the robustness checks performed to validate our findings. The results and robustness checks are followed by a discussion, relating our important findings to previous literature and theory. Lastly, Section 7 will conclude and suggest extensions for future research.



# 2 Background

## 2.1 Immigration History and Trends in Japan

With the inevitable demographic issues Japan is facing in the present-day, primarily an increasing share of elderly and a low fertility rate, the Japanese government has hoped to rely on foreigners to sustain their economy since the beginning of the 21<sup>st</sup> century (Kondo 2002). The lack of natives in the labor force due to a diminishing population, owing to low fertility rates and an increasing share of elderly who become consumers instead of producers, have caused the country's dependency ratio to surpass 65 percent in 2017 (Figure 1). This puts Japan in a difficult position which the country is now hoping to resolve with the introduction of foreign immigrant workers.

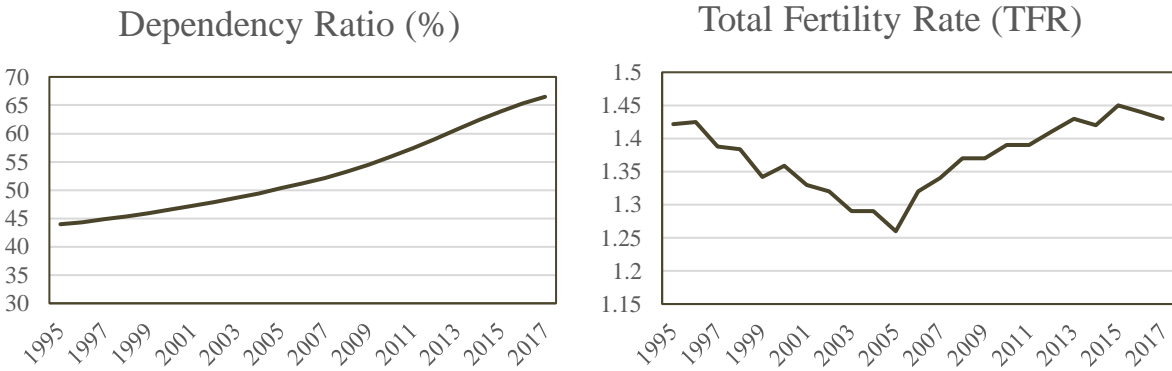


Figure 1. (LEFT) Japan's dependency ratio (%) from 1995-2017. (RIGHT) Japan's total fertility rate from 1995-2017.

Source: World Bank Indicators (2019)

According to the Japanese Ministry of Justice (2016, cited by Mazumi 2016), Japan experienced its largest population of registered foreigners in 2015 with more than 2.2 million in the country. Despite registered immigrants constituting less than two percent of Japan's total population, their increasing presence represents an unavoidable social change in the society.

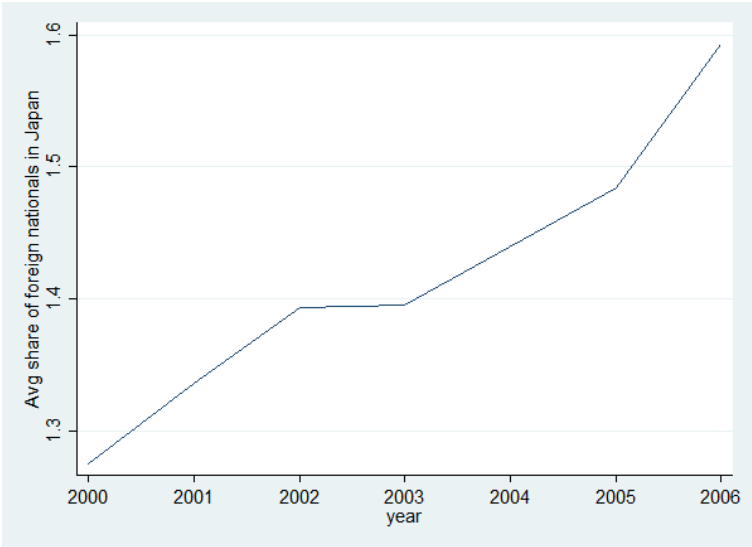
Historically, immigration into Japan began from as early as the 1600s. Kondo (2002) divides these flows into six phases: (i) No immigration was allowed during the country's period of isolation between 1639 and 1853; (ii) From 1853 to 1945, however, large emigration and colonial immigration occurred due to the country *opening the door* (p.415) ;

(iii) Kondo distinguishes the period following the Second World War, 1945 to 1951, as a time in which immigration and emigration were strictly controlled; (iv) Immigration persisted to be strictly controlled from 1951 to 1981, when the rights of foreigners were improved. Unlike Europe's post-war economic growth, Japan's economy took off following the Second World War without the importation of migrant workers; (v) In 1981, Japan introduced the Industrial Training Program (ITP) with the intention to transfer skills, technology and knowledge on an international scale. However, many perceive the ITP as a way the country brings in low-wage laborers (Ohmi 2006, cited by Liu-Farrer 2009); (vi) Lastly, despite the continuation of strict immigration controls, Kondo marks the period from 1990 as a period of increasing immigration. This may be due to the labor shortages in the 1990s after the collapse of the bubble economy—a period, beginning in the 1980s, in which land and stock prices were overinflated (Wood 1992). Most immigrants arrived from surrounding, lesser developed Asian countries; although, the country also saw a substantial influx of Latin American immigrants of Japanese-descent. This came after a revision of the Japanese immigration policy in 1990. Mainly originating from Brazil and Peru, they are referred to as *Nikkeijin* (Athukorala 2006). Kondo (2009) speculates that the admittance of the *Nikkeijin* may have been Japan's way of importing unskilled workers while still maintaining cultural homogeneity. Around the turn of the century, Koreans made up the largest foreign group in Japan (Piper 2003).

Generally, foreign laborers in Japan fill unskilled occupations that are considered undesirable by the native Japanese, such as 3K occupations. 3K occupations are similar to English 3D occupations; in Japanese, the 3Ks stand for *kitanai*, *kitsui*, *kiken*, while in English they translate into dirty, dangerous, and demanding (Athukorala 2006). One industry that has become heavily dependent on foreign labor is manufacturing (Mori 1997). According to Martin (1991), approximately 40,000 trainees, most of whom are Chinese, arrive to Japan each year to work and learn for below minimum wage in the vicinity of Tokyo. Trainees work under short-term contracts which can be renewed up to five years. In addition to the trainees, international students have also provided Japan with a stock of low wage labor. This is possible because the government issues work permits allowing students up to 28 hours of work a week (Athukorala 2006; Liu-Farrer 2009). High-skilled foreign workers make up only a small share of the immigration flows into the country. Japan's strict immigration policies have been successful in minimizing immigration and moreover, immigrant settlement in the country. This contrasts with the European experience in which temporary guest workers turned into settlers and new ethnic minorities.

Another source of foreigners in the country results from international marriages. Since 1989, international marriages have begun increasing in prominence; though, they are more common between Japanese men and foreign women (Piper 2003). Most foreign brides originate from neighboring, low-income Asian countries such as the Philippines, Thailand, and China. Intercultural marriage between Korean and Japanese partners is also one of the most frequent. While in 1970 less than one percent of all marriages in Japan was intercultural, by the turn of the century, up to 4.5 percent of all marriages were intercultural (Jones & Hsiuhua 2008). This phenomenon was especially prevalent in the largest cities such as Tokyo and Osaka, with the inclusion of some rural areas as well.

According to the Japanese Ministry of Justice (2012), most foreign nationals residing in Japan originate from Asian countries, particularly China, South Korea, and the Philippines in present-day Japan. As previously mentioned, there are also many foreign nationals that are *Nikkeijin*, South American descendants of Japanese immigrants. Estimates from 2017, provided by the Ministry of Internal Affairs and Communications (2019), reveal



there are nearly 2.6 million foreign residents in Japan. The number of foreign residents in Japan has more than doubled since two decades ago. Looking at Figure 2, an increase can already be observed from our period of study; however, the average share of foreigners within the country was still less than two percent of the population between 2000 and 2006. In the present-day, scholars argue that the country must open its doors to immigration for the

Figure 2: The average share of foreign nationals in Japan during our period of study (averaged prefecture-level values).

Source: JGSS

sake of sustaining its economy (Vogt 2007; Ogawa 2011). As the country is experiencing labor shortages, predominantly concentrated in semi-skilled occupations within sectors such as manufacturing and long-term care (Ganelli & Miake 2015), recent amendments have been made to the country’s immigration policies to attempt to recover from these shortages. These amendments for a new visa system were passed in December, 2018 and implemented in April 2019 with the intention to take in approximately 345,000 blue-collar laborers over the span of five years (McCurry 2019). The new visa system will allow the creation of two new foreign worker visas; both having Japanese language proficiency as a pre-requisite. This requirement is interesting as it may be viewed as an attempt to preserve Japanese identity and culture through the preservation of language. The first type of visa will be for blue-collar workers and is renewable for up to five years. The main sectors that will benefit from this visa will be manufacturing and caregiving. Alternatively, the second type of visa is targeted towards high-skilled foreign workers and has no limit on renewals (Jozuka 2018).

With Japan beginning to open its doors to immigrants, the country will have to confront an influx of low-skilled foreign workers. Meanwhile, natives must learn to live with an increasing foreign population, perhaps originating from countries which they may view unfavorably. Numerous studies have also suggested that Japanese natives may favor certain countries and nationalities over others. For example, Tanabe (2008, cited by Nagayoshi 2009) found Japanese natives to favor Western countries the most—particularly Western European countries, the least to China and Middle Eastern countries, and moderate favorability to South

American and other East Asian countries. Although, natives' attitudes and opinions toward these countries are still unclear as it can differ from genuine favorability.

Further, Zhang (2015) found Japanese natives were more likely to accept Chinese immigrants as acquaintances, specifically colleagues or neighbors, rather than close relatives. Like Tanabe, Zhang concluded from his findings that Japanese natives were more likely to show favorable attitudes toward population growth of Western immigrants from Europe and North America compared to increasing immigrant populations from Asian countries. Again, natives were found to hold more favorable opinions toward Southeast Asian and Korean immigrants compared to Chinese immigrants. Chinese residents from Zhang's study believed that one reason for the natives' negative perceptions of Chinese immigrants may be due to the high crime rates of Chinese residents in recent years. This is plausible as Japanese natives have vocalized their perception of immigrants increasing crime in the country (Simon & Sikich, 2007). Similar to developed Western countries such as the U.S. and Western European countries, overstayers and illegal foreigners are associated with a higher crime rate in Japan than legal foreign residents. According to the Ministry of Justice (2011), there were approximately 90,000 to 100,000 undocumented immigrants in 2011, 80,000 of which were visa-overstayers originating from nearby Asian countries such as China, South Korea, and the Philippines. Although, the number of overstayers has been drastically decreasing over the years. Japan's refugee recognition rate, on the other hand, remains low with less than 40 out of the 1,200 applications accepted in 2010. Including individuals who could stay in Japan due to humanitarian reasons, only around 400 applicants were given refugee status or permission to remain in the country.

Immigration has also been associated with fiscal burdens to the country. According to the Japan Times, the number of non-Japanese receiving social welfare benefits peaked in 2018. While non-Japanese individuals are eligible to receive social benefits if they are (i) permanent and long-term residents or (ii) asylum-seekers, they found Korean foreign nationals to be the largest minority group on welfare (Osumi 2018). Although the reason for this increase is unknown, the growth of the elderly population, both foreign and native, may be one potential explanation. Overall, however, the number of residents on welfare has been on the decline. The fiscal burden brought about by the small foreign population in the country may not be considered a notable issue to the native population at this point in time.

## 3 Theory and Previous Literature

This section will review several theories relevant to the formation of immigration attitudes and will also discuss previous literature. Studies that have examined the formation of public opinion towards immigrants or immigration have found either economic or non-economic, typically cultural and social, concerns to be strong indicators in shaping public opinion (for a review see Escandell & Coenders 2010; Hainmueller & Hopkins 2014).

### 3.1 Theories

#### **ECONOMIC SELF-INTEREST**

One economic concern that immigration is often associated with is labor market competition, insinuating that individuals hold unfavorable attitudes toward immigrants with similar skillsets as themselves as they threaten their employment opportunities. Studies subsequently find natives to favor immigrants who have different skillsets instead. The economic theory of self-interest is based on the factor-proportions-approach (FPA) in a closed economy (Borjas 1999). It posits that a change in a country's labor supply, low-skilled or high-skilled, will have effects on the wages (factor prices) of laborers (Mayda 2006). For example, in the case of an influx of low-skilled immigrants, the FPA suggests low-skilled natives will be opposed to increasing immigration (Scheve & Slaughter 2001). This is because an increase in low-skilled foreign laborers will increase the overall supply of low-skilled laborers relative to the supply of high-skilled laborers in a destination country. As low-skilled foreign immigrants enter the labor market, the change in relative factors of production will decrease the wages of low-skilled natives. Simultaneously, the wages of high-skilled natives are positively impacted as the supply of high-skilled workers to low-skilled workers declines and the return to skill grows (Mayda 2006). Thus, economic self-interest suggests increased immigration of low-skilled foreigners will foster anti-immigration attitudes among low-skilled natives but will be favored by their high-skilled counterparts. The hostile attitudes foster as the natives may experience declining wages owing to an increased competition in the labor market. This has also been referred to as the labor market competition theory.

There are also numerous theories used in related literature that are based heavily on the distinction between the in-group (typically the native population) and the out-groups (typically the immigrant populations). For example, the social identity theory emphasizes the influences of intergroup cohesion and group comparisons on opinion (Tajfel 1978; Tajfel & Turner 1986). Individuals identify themselves as members of a certain social group, the in-group, and make comparisons between their group and other social groups, the out-group, to reinforce their exaggerated sense of self-worth. This may be in the form of holding

discriminatory attitudes toward the out-group, as this may strengthen social identity. This theory, however, will not be tested in this study.

## **GROUP THREAT THEORY**

The group threat theory is based on the works of Blumer (1958) and Blalock (1967). The theory posits that negative attitudes toward unfamiliar out-groups may stem from natives' perceived economic, social, or cultural threats through the influx of foreign populations (Bonacich 1972; Quillian 1995). The group threat theory emphasizes that immigration attitudes stem from threat towards the collective in-group and not specifically towards one's self. Individual-level determinants influence opinions toward immigration, as this study will also examine; however, group threat highlights immigration attitudes shaped by the individual's feeling of belonging to a racial group, and moreover, their opinion concerning the relations between groups (Quillian 1995). In the case of the United States, empirical results supporting the group threat theory have been found when studying the relationship between native, white Americans and African Americans. According to Blalock (1967), there are two reasons in which a larger share of immigrants in the population may be perceived as a threat. First, a larger immigrant presence may suggest greater labor market competition, and thus, a threat to natives' employment and other economic resources. Second, an increasing share of immigrants may be considered a threat as they may be a large enough group to collectively engage against the native population if they desired. Further, a larger share of foreigners may also increase the probability of contact between natives and immigrations. This will be discussed in greater detail through the introduction of the intergroup contact theory.

From the group threat theory, we expect that the share of foreigners in Japan will negatively affect public opinion towards immigration. Therefore, a larger share of immigrants within a prefecture suggests a higher likelihood that individuals residing within the prefecture will feel collectively threatened and hold attitudes against an increasing foreign population. Therefore, one would expect a negative association between favorable immigration attitudes and unemployment rates. This is because an influx of immigrants may be perceived as economic threat to the native population. If the dominant group feels their economic opportunities and resources are threatened by the presence of immigrants, a high unemployment rate would suggest poor economic conditions and scarce resources in which natives must compete with immigrants for. In the same sense, a high GDP per capita is expected to be associate with more favorable opinions toward immigration as it represents economic prosperity. Overall, we expect macro-level variables signaling a prosperous economy to be related to favorable immigration attitudes among natives (Quillian, 1995). In addition to the potential threat over economic resources, natives may also perceive nontangible resources to be threatened by an increasing foreign population—for example, public safety. We will test the potential effects economic threats and threats to public safety may have on shaping immigration attitudes in Japan.

Another theoretical approach suggesting an association between group threat and anti-immigration attitudes is the realistic group conflict theory. Unlike the group threat theory, however, the realistic group conflict theory emphasizes realistic, not perceived, threats

as the most influential in shaping disapproving attitudes toward immigrants (Bobo 1983). The realistic group conflict theory posits that prejudice against the out-group may be fostered in the occurrence of a zero-sum competition over resources (Campbell 1965). Zero-sum competition implies that only one group is able to benefit from the resources and the other contesting groups cannot (Card et al. 2005). In-groups that are in this situation may experience increased hostility, and thus, suggested by the realistic group theory, may cultivate negative attitudes toward opposing groups. Groups may compete over economic resources such as employment opportunities, but also may contest over resources such as political power. Based on the group threat theory, studies on public opinion on immigration may argue that the threat of losing resources to incoming immigrants fosters anti-immigration attitudes. Furthermore, the realistic group theory also suggests that declining economic conditions may be associated with higher unemployment rates, which may drive anti-immigration sentiments as natives must compete against foreign laborers for employment. Please note, this study does not make an explicit distinction between perceived/real threats. Therefore, both theories will be referred throughout this thesis as group threat theory or group threat theories.

## **INTERGROUP CONTACT THEORY**

The intergroup contact theory, also referred to as the contact theory or hypothesis (Pettigrew 1998), will also be examined in this study. Based on Allport's *The Nature of Prejudice* (1954), this theory suggests that contact between the majority group and racial minorities alleviates racial prejudices held by the majority. The contact theory also recognizes that higher education allows individuals to come in contact with diverse populations and create a more multicultural network (Chandler & Tsai 2001). However, Allport provides copious conditions of the contact theory. For one, he notes that the type of contact between groups is important, classifying contact as either casual contact or true acquaintance. The former includes, for example, passing one another by on the street, while the latter includes more intimate contact, such as being invited to an event as a guest. Therefore, the motivation of contact, whether contact is voluntary or involuntary, is also an important aspect of the theory. The differentiation between the quality, emotional connection, and frequency of contact may be important to consider when studying contact. Although, Allport argues that contact as acquaintances may mitigate racial prejudices as contact between both parties may alter previous negative stereotypes into more favorable ones, casual contact may increase them. This is due to the fact that a simple encounter may remind natives of negative stereotypes or customs the out-group may be known for. Several other conditions of contact Pettigrew (1998) argues may impact the outcomes of contact were (i) the quantity of contact between groups, (ii) the equality of status, (iii) and the environment of contact, whether it is collaborative or competitive. Please note, that this study is unable to make robust distinctions between contact types or motivation for contact due to data limitations.

A possible issue with the contact hypothesis is selection bias. Although contact between natives and foreigners may help mitigate racial stereotypes of minorities, perhaps those with more anti-immigration attitudes may avoid contact with foreigners. Thus, scholars such as Pettigrew (1998), have recommended finding methods or situations to study the effects of contact in which one's choice to encounter foreigners is restricted.

## 3.2 Analyzing Determinants of Immigration Attitudes

There has been a growing literature on the analyses of individual- and macro-level effects on immigration attitudes among natives in various immigrant receiving countries. The findings of these studies are important in a time where the stock of migrants worldwide is continuously growing (United Nations 2017). In 2017, the United Nations reported 258 million international migrants globally; this is an increase of nearly 40 million migrants from 2010 and an increase of approximately 90 million migrants from the turn of the century. Furthermore, the findings of these studies assist in understanding the implications of personal preferences on domestic policies in an age of globalization. Academic research, however, has predominantly focused on the experiences of Western societies where immigrants have an established presence, for example the United States and parts of Western Europe. The studies that will be discussed in this section are predominantly based on the experiences of the West.

### **ECONOMIC CONCERNS**

A well-cited study done by Scheve and Slaughter (2001) in the context of the United States, attempted to model the relationship between the skill levels of immigrants and immigration attitudes among U.S. voters. They used data on voters from the National Election Studies (NES) surveys for the years 1992, 1994, and 1996. Their findings suggested labor market competition to be a strong driver of shaping immigration attitudes among U.S. voters. Specifically, they found low-skilled individuals had a much higher likelihood of supporting immigration restrictions compared to individuals with higher skills; they argued this was due to competition for the same employment opportunities in the labor market. Note, this study measured respondents' skills by their years of education.

Mayda's (2006) findings support those of Scheve and Slaughter's and moreover, reinforces the labor market competition theory as an influential factor in shaping natives' immigration attitudes. Using data from the 1995 National Identity Module within the Social Survey Programme (ISSP), she studied over 23 countries including the U.S., Canada, and Japan. The same data is also used by Citrin and others (1997), whose work will also be discussed in this section. Mayda also used data from the third wave of the World Value Survey (WVS) to include 44 developing countries into the study. Thus, her sample contained data from 1995 and 1997. Mayda examined the effects of individual- and contextual-level economic and noneconomic determinants and their effects on natives' immigration sentiments across countries. She found highly skilled individuals were more likely to voice favorable attitudes in countries where the native population were more skilled relative to immigrants. On the other hand, countries with a low-skilled native population, relative to their immigrant population, were more likely to have negative opinions. Like Scheve and Slaughter (2001), Mayda utilized years of education as a measurement of individuals' skill levels. She also uses GDP per capita as an indirect measure of the skill composition of a country's native labor force. Further, respondents with higher levels of skill residing in high GDP per capita countries were found to be more likely to favor immigration than high-skilled respondents



from low GDP per capita countries. She concludes that her results reject the perception of purely noneconomic concerns shaping public opinion towards immigrants.

Contrary to the findings of Scheve and Slaughter and Mayda, Hainmueller and Hiscox (2007, 2010) argue labor market competition to be a weak indicator of immigration attitudes. Rather, they find cultural and ideological differences to explain the relationship between one's education level and perceptions on immigration. Using micro-data from the 2003 European Social Survey (ESS), Hainmueller and Hiscox examine natives' attitudes toward immigration across 22 European countries. Testing the labor market competition hypothesis, their results suggest native Europeans with higher levels of education and occupational skills are more likely to favor immigrants, regardless of the immigrants' skill levels. This result holds constant for natives who are also not in the labor market at the time of survey. Thus, Hainmueller and Hiscox conclude that highly educated natives are less likely to be prejudiced towards immigrants and moreover, can appreciate ethnic diversity. This interpretation of the association between educational attainment and immigration attitudes is consistent with the findings of Chandler and Tsai (2001). Both studies conclude the effects of education to be that it fosters tolerance by increasing one's understanding of foreign cultures. In addition, education also allows one to establish more diverse and multicultural social networks. More recent studies conducted by Hainmueller and Hiscox (2010) and Hainmueller and colleagues (2015) examine the context of the United States. Similar results against the effects of labor market competition on immigration attitudes were found.

In addition to economic concerns over labor market competition, studies have also shown immigration opinions to be shaped by natives' concern over the fiscal burden foreigners may have on public services (Facchini & Mayda 2009). These studies argue that respondents who are more exposed to increased costs from immigration, i.e. taxes based on income or area of residence, may be more likely oppose immigration<sup>1</sup>.

---

<sup>1</sup> Hainmueller and Hiscox (2010) find evidence against the fiscal burden theory; thus, the effect of fiscal burden on natives' attitudes can be argued to be mixed.

## NON-ECONOMIC CONCERNS

Numerous studies have empirically found economic determinants to be weak predictors of immigration attitudes (Hainmuller and Hiscox 2007, 2010). Instead, a selection of studies has found non-economic concerns, such as cultural and social differences, to be important contributing factor to natives' perceptions on immigrants and immigration. Card and colleagues (2012) found social and cultural threats to be up to five times more influential in shaping public opinion towards immigration compared to economic concerns, such as unemployment and fiscal burdening. Studies in support of non-economic drivers will be discussed.

Using data from the 1992 and 1994 National Election Study (NES) surveys, Citrin and co-authors (1997) test various effects of economic conditions on natives' anti-immigration attitudes. County-level data from the 1900 U.S. Census was also used for contextual variables, such as the share of foreigners in a respondent's area of residence. Interestingly, no relationship was found between the number of immigrants in a state or county and natives' attitudes on immigration; however, the findings of Citrin and colleagues show that an apparent increase in immigrants within a community may foster negative attitudes toward new immigrant arrivals. Moreover, they find personal economic circumstances to have little effect on the formation of natives' attitudes towards immigration. The average consensus of opinion towards majority immigrant populations (Hispanics and Asians), however, was found to be a major determinant of anti-immigration attitudes. Overall, the study by Citrin and colleagues suggests that individual longstanding values are strong indicators of public attitudes toward immigration.

Chandler and Tsai (2001) utilize data from the 1994 General Social Survey (GSS) to assess social determinants on public opinion towards immigration policies in the United States. The findings of their study suggest perceived cultural threat to be the most influential determinant of natives' immigration attitudes. Chandler and Tsai find perceived threat to the English language, in particular, to foster anti-immigration sentiments, while finding individual-level demographic characteristics and fear of crime to be weak predictors of attitudes. On the other hand, respondents' political ideologies appeared to have strong effects on opinion according to their study. Political conservatives were found to have more unfavorable attitudes toward immigration. They also find, however, almost all respondents to oppose illegal immigration.

Using data from the 1997 Eurobarometer survey, McLaren (2003) performs a multi-level analysis and finds that the larger the share of foreigners, the less opposition natives voiced towards immigration. She argues that this is due to the positive effect contact between natives and foreigners has on alleviating prejudice towards immigrants in the European context. Previous studies studying the U.S. had found mixed results when testing for the contact hypothesis. She argues that the reason for a positive relationship between contact and more favorable immigration attitudes may be due to historical differences with minorities in the two settings.

Bauer and co-authors (2000) study the importance of immigrants' education and skillsets on public opinion in the receiving country. Representative cross-national data from

the International Social Survey Programme (ISSP) was used to analyze the effects of immigrant composition on 12 OECD countries. This included traditional immigration countries (the U.S., Canada, and New Zealand), European immigration countries (the U.K., Germany, Austria, the Netherlands, Norway, and Sweden), and the new European immigration countries (Ireland, Italy, and Spain). They find public opinion to vary depending on the type of immigrants the country received, economic or non-economic, and also find more favorable attitudes towards immigrants if they are selected based on the labor market needs of the receiving country. They conclude noneconomic factors to be important determinants of natives' perceptions on immigration. Their findings revealed that natives in countries receiving predominantly refugee migrants, such as Sweden, Norway, and the Netherlands, were more concerned over the effects immigration may have on social issues, specifically crime rates. This is relative to the effects immigration may have on the labor market. Bauer and colleagues also find that countries receiving predominantly economic migrants voiced more concern over labor market competition. This is the case for countries with immigration policies accepting immigrants based on skills, such as Canada and New Zealand. Thus, Bauer and colleagues conclude that natives in traditional immigration countries, receiving predominantly economic migrants, showed most concern over potential labor market competition. Contrastingly, natives in European immigration countries receiving mostly non-economic migrants, except for the U.K., appeared more concerned about the potential increase in crime rates. Although, their results also suggest immigrants were more favored among natives when they were able to integrate well into the labor market of the receiving country.

## **SOCIOTROPIC CONCERNS**

Although many studies examine the effects of individual-level characteristics on perceptions of immigrants and immigration, research has also shed light on the potential effects sociotropic concerns, such as macroeconomic shocks, may have on public opinion towards immigration. These studies have included the following types of variables into their analysis: (i) share of foreigners (Card et al. 2005; Coenders et al. 2005; Semyonov et al. 2006, 2008; Hatton 2016); (ii) unemployment rates (Card et al. 2005; Hatton 2016); (iii) GDP per capita (Card et al. 2005; Coenders et al. 2005; Semyonov et al. 2006, 2008); (iv) share of GDP spent on social welfare (Hatton 2016). Unfortunately, findings are rather mixed as some report inconclusive or trivial findings (for example, Hatton 2016) while other studies conclude may find significant effects, i.e. a larger presence of foreigners and less prosperous economic conditions are associated with anti-immigration attitudes among natives (Coenders et al. 2005; Semyonov et al. 2006). Differences in results may be due to the use of different datasets and methodologies for analysis.

Hatton (2014) examines the effects of the 2008 economic crisis on public opinions toward immigrants and immigration within European countries. Analyzing six rounds of the European Social Surveys (ESS) datasets, he finds the crisis only trivially effects natives' sentiments toward immigration; although, this varied by country. At the country-level, he finds the share of immigrants in the population to be negatively associated with favorable opinions on immigration and only weakly associated to unemployment. He argues

that this is the case due to the recession being relatively mild in some European countries and partly due to the overall weakness of these variables, variations in immigration and macroeconomic factors, as indicators of public opinion.

Analyzing western Germany over the span of two decades (1980-2000), Coenders and Scheepers (2008) find increased anti-immigrant sentiments among natives due to the surges in immigration and unemployment. Their findings suggest that the increasing level of competition due to immigration drives natives' anti-immigrant sentiments—not the actual level of competition. Meuleman and colleagues (2009) expand the scope of Coenders and Scheepers study and analyze trends in anti-immigration attitudes using the first three waves of the European Social Survey (ESS) between 2002/2003 and 2006/2007 among 17 European countries. Basing their interpretations around a dynamic version of group conflict theory, Meuleman and authors find country-specific variations in attitudes toward immigration to be associated with macro-level variables. In line with Coenders and Scheepers, they conclude that the average changes are more informative when examining macro level trends on the formation of public opinion on immigrants and not the actual levels.

Many related studies have analyzed cross-country differences in the determinants of shaping public opinion towards immigrants or immigration. However, analyzing attitudes at regional levels is also important as empirical research has found notable differences across regions (Markaki and Longhi, 2013).

### 3.3 Immigration Opinion in the JGSS

Though studies done on immigration opinion typically study experiences of developed Western nations, the recent increase in immigration seen in the developed East, in countries like Japan, has been attracting more attention. There have been numerous studies analyzing the determinants of immigration attitudes in Japan using various rounds from the JGSS, the same data source used in this study. Overall, previous research has found empirical evidence in support of the contact hypothesis theory with less support for theories in support of the group threat theories.

Nukaga (2006) studies the relationship between the educational attainment of Japanese natives' and their attitudes toward immigration. Utilizing the 2002-JGSS dataset, she performs logistic regressions with xenophobia as her dependent variable and education as her primary independent variable of interest. Her variable for xenophobia was constructed as a binary outcome based on responses from the survey question: "Do you approve or oppose foreigners increasing in your town?" This will be the same survey question utilized for this study to analyze immigration attitudes. Nukaga restricted her sample to strictly natives who were employed at the time of the survey. Having also included basic demographic variables such as age and sex into the analysis, she found age, ratio of foreign residents in the prefecture, and economic threat (derived from a question concerning fear of losing one's job) to be positively associated with xenophobia. Overall, there are three main findings. First, consistent with studies done on Western societies, an increase in educational attainment is

associated with more favorable attitudes towards increased immigration among native Japanese in the labor force. Second, Nukaga's concludes that effects of education on attitudes toward foreigners are related through contact with foreigners rather than economic self-interest. Thus, individuals who have received a higher education hold more favorable attitudes because they have more opportunities to come in contact with and interact with foreigners due to multicultural network. Lastly, Nukaga argues that the contact theory provides a better explanation of xenophobia among Japanese natives in the labor force than the economic-based theories such as the labor market theory. Her results specifically find strong, positive effects of having foreign friends and relatives on reducing xenophobic attitudes. Stronger social relationships, as the contact theory suggests, appear to be important in reducing negative attitudes towards immigrants; although theory posits superficial and casual social relationships may potentially foster anti-immigration attitudes, this was not found to be the case for Nukaga's study.

Green and Kadoya (2013) analyze the effects of natives' self-reported English language proficiency levels on shaping public opinion towards immigration. They perform probit regressions using the 2010-JGSS as their main source of data. They find that a Japanese native's conversational English proficiency level has a large, significant impact on their perceptions on immigration. An individual's English reading comprehension ability, however, showed a weaker influence on attitudes. Thus, respondents' English-speaking proficiency was used as a proxy for superficial contact (Green 2017, p. 390). Although Green and Kadoya do not explicitly mention the connection<sup>2</sup>, they discuss their findings relative to the contact hypothesis. Green and Kadoya also find regional differences in immigration attitudes that merit further research. Regarding individual demographic characteristics, Green and Kadoya find the respondent's number of children to be associated with public opinion. They posit a possible reason to be parents' concern over crime and public security for the safety of their children. This reasoning suggests respondents associate immigration with crime and potential threats to their safety.

---

<sup>2</sup> Green relates the two explicitly in a more recent study from 2017.

Nagayoshi (2009) performed a multi-level analysis to examine individual and prefecture level factors that may impact immigration attitudes in Japan using the JGSS 2006 dataset. Focusing on the potential effects of various foreign populations, she concludes that nationalities, occupations, and increasing rates of immigrants impact public opinion towards immigration. Prefectures with predominantly large South American or Chinese foreign residents, prefectures with a notable share of foreign manual workers, or prefectures experiencing a rapid increase in immigrants were found to foster anti-immigrant attitudes among natives. Nagayoshi argues that these findings intertwine, as South American immigrants predominantly work as manual workers and the share of Chinese and South American foreign residents has been increasing nationally. Thus, she concludes from her results that the size of foreign residents who threaten the natives' economic or social resources is the most influential on the formation of natives' attitudes toward immigration.

In a 2015 study, Green and Kadoya test the contact and group threat theories, once again, utilizing the JGSS 2010 dataset. New to this study was the inclusion of the percentage of foreign population in the respondents' prefecture and the percentage of increased foreign population from 2000 to 2010 by prefecture; this data was retrieved from the Ministry of Internal Affairs. Green and Kadoya found the prior to be associated with more negative views on immigration at the national level. To examine this further, they studied the percentage of Chinese, Korean, Filipino, and Brazilian populations within each prefecture to dissect public opinions toward dominant minority groups in Japan (also done by Nukaga 2006; Nagayoshi 2009; Green 2017). Their estimates suggest natives hold negative attitudes toward Brazilians at the national level, while the estimates for the foreign populations were statistically insignificant. Consistent with their previous study (2013), English conversation ability was also found to be positively associated with attitudes toward immigrants. Interestingly, Green and Kadoya found a significant, positive relationship between self-reported unemployment and favorable attitudes toward increasing immigration. This then suggests unemployment may be associated with more negative opinions among the native population due to possible economic competition. Furthermore, similar to their previous study, demographic indicators such as gender, educational attainment, and income were not significantly associated with public opinion regarding an increase in Japan's immigrant population. Although, this does contradict several studies on natives' sentiments on immigration in Japan (i.e. Ohtsuki 2006; Nagayoshi 2008).

Yamamura (2009, 2012) examined the effects of individual level characteristics on natives' sentiments toward immigration using the JGSS 2003 dataset. He focused on the size of the foreign population by prefectures and individual level household income. He argued that in general, the frequency of contact with foreigners causes natives to become more aware of the increasing share of immigrants. For the case of natives with lower household incomes, increased contact with foreigners may lead them to believe the growing share of foreigners may threaten their economic outcomes. Though, this would not be the case for natives belonging to higher household income levels. Yamamura's findings suggest that highly educated individuals are less likely to feel their employment opportunities are reduced, regardless of their frequency of contact with foreigners. Although his findings support the contact hypothesis, Yamamura argues that the effects of contact may differ depending on an individual's household income level. This is interesting as numerous studies have found

mixed results concerning the effects of individual household income on immigration attitudes, while Yamamura's studies highlight this variable.

Immigration is currently a significant topic of debate in Japan. This is due to the country's need to sustain its economy and counter the diminishing native work force and simultaneously, their increasing elderly population. Japan is hoping to accept more foreign laborers into the country to avoid potential economically devastating consequences. Mazumi (2016) examines native attitudes towards immigration in Japan in the setting of Japanese workplaces. The slowly increasing population of migrant workers in Japan implies an increased likelihood of contact with immigrants in Japanese society. Thus, this study is important in that it provides insight on how contact with foreigners in the workplace may influence Japanese attitudes toward immigration. Using the most recent JGSS data from 2015, Mazumi performed logistic regression analyses to find an overall positive effect of worksite presence of migrants on natives' perceptions toward immigration. Like Nukaga, he found empirical evidence in support of the contact hypothesis. More migrant workers at Japanese worksites make communication and interaction between natives and immigrants nearly inevitable. This can lead to a greater understanding of immigrants which can help overcome negative stereotypes previously held by Japanese employees. Nukaga's findings in support of the contact hypothesis depends, however, on the occupational status of Japanese employees. He found that the presence of immigrant workers negatively affects natives' attitudes toward immigration among those in unskilled occupations. This result supports the threat hypothesis as native low-skilled laborers may fear that immigrants will replace their roles in the labor market. This finding is also worrisome as labor shortages in Japan are requiring the country to loosen immigration policies, allowing for more unskilled laborers to enter the country.

A more recent study by Green (2017) analyzed immigration attitudes among Japanese natives by performing a multi-level analysis to test three hypotheses—economic threat, contact, and salience-of-change. Similar to this study, he used the 2010 JGSS dataset for information at the individual level and included prefecture-level variables, such as share of foreign population, unemployment rate, and share of unskilled foreign immigrants, in his analysis. Green also studied the potential impact the size of several different foreign populations may have on opinion. While he found negative and statistically significant associations between the share of foreigners, share of largest nationalities, and share of unskilled foreign laborers on favorable immigration attitudes—all testing for cultural threat, Green found a positive, significant association between unemployment rate and public opinion. This finding was contradictory to the suggestions of the economic threat theory. Thus, his results showed cultural indicators to be stronger determinants of immigration attitudes among foreigners compared to economic indicators.

Previous studies utilizing the JGSS datasets have mostly attempted to examine one survey year per analysis. The problem with this is, however, analyzing the observations by prefecture leaves few observations per prefecture. Small, rural prefectures may be the victims to this issue compared to the more populated such as Tokyo and Osaka. This may create issues with the interpretation of results, as the sample per prefecture may be too small to suggest any concrete results. Therefore, this analysis will use a pooled dataset, including the JGSS 2000, 2001, 2002, 2003, 2005, and 2006 datasets, to increase the number of observations by prefecture and estimate more stable results.

## 4 Data

### 4.1 Source Material

Our primary source of data for our analysis was obtained from the Japanese General Social Survey (JGSS). The JGSS is a repeated cross-sectional study and not a longitudinal one. A pooled dataset comprising six rounds of the JGSS will be used to investigate our research questions. The survey years include 2000, 2001, 2002, 2003, 2005, and 2006. The year 2004 is excluded as the JGSS was not conducted this year.

The JGSS is conducted by the Osaka University of Commerce and is also in cooperation with the University of Tokyo's Institute of Social Science. Members of the JGSS project generally include researchers from research institutions, both private and public, from various fields of academia such as sociology, psychology, economics, and population studies. Furthermore, the JGSS is a nationally representative social survey from Japan modeled after the General Social Survey (GSS) conducted in the United States. Although not as extensive as the GSS, the JGSS is conducted annually or semiannually within a timeframe of approximately three to four months (JGSS Research Center n.d). The survey collects personal opinions on a variety of topics from a nationally representative sample. Respondents include both males and females between the ages of 20 to 89 years old. From 2000 to 2012, there have been approximately 35,000 respondents across nine rounds. The JGSS Project aims to study the attitudes and behavior of Japanese people and have covered an array of topics including, but not limited to, personal economic situations, organization of family, time use on leisure activities, and political ideologies.

Alongside the micro-level data obtained from the JGSS datasets, this study will also examine several prefecture-level effects. Attempting to answer the main research questions, the data for annual unemployment rates by prefecture was retrieved from the results of the labor force survey conducted by the Statistics Bureau within the Ministry of Internal Affairs and Communications. Furthermore, all other macro-level variables, excluding the prefectural GDP data, were also retrieved from the same source, the Statistics Bureau within the Ministry of Internal Affairs and Communications. Please note, that the population of foreigners per prefecture is specifically defined as the total number of registered foreign residents. According to the Ministry of Foreign Affairs, foreigners staying in Japan for over 90 days (also called mid- to long-term residents) are required to register in the alien registration system within 90 days of arrival; though, military personnel were not required to register. In 2012, a new registration system replaced the former, and immigrants residing in Japan are now registered in the residents' registration system with Japanese natives. Annual nominal GDP estimates by prefecture were obtained from the Cabinet Office; using these



estimates the real GDP in 2006 prices were calculated with the consumer price indices retrieved from the World Bank.

This study analyzes individuals and contextual determinants at the prefecture level in an attempt to better our understanding of the determinants that shape natives' immigration attitudes in Japan. Our pooled dataset contains 8816 observations over six years from 2000 to 2006, excluding 2004. The selected observations contain no missing values for all variables included in the analysis. The variables will be discussed in detail below.

## 4.2 Variables and Definitions

The dependent variable of this study conveys natives' attitudes on immigration. This binary variable takes the value 0 if they are against an increase in immigration in their community and takes the value 1 if they are in support of an increasing immigration. The exact survey question found in the JGSS is the following:

*Are you for or against an increase in the number of foreigners in your community?*

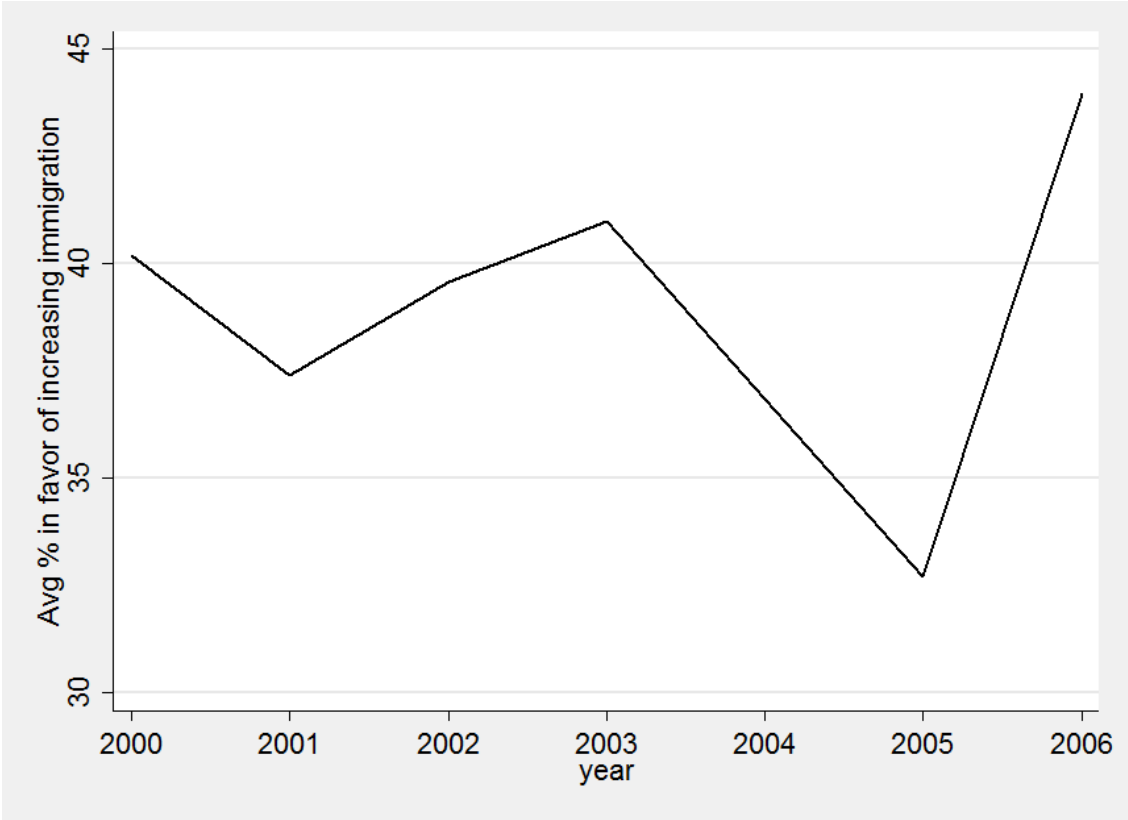


Figure 3. The average percentage of our pooled sample that are in favor of increasing immigration.

Source: JGSS

Figure 3 shows the average share of respondents in our sample who are in favor of increasing immigration. Some variation is observed throughout our period of study. The remarkable decline in favorable attitudes will be explored in the discussion, Section 6.

However, there are limitations with this using this variable to measure attitudes toward immigration. First and foremost, the binary nature of this survey question may not allow for respondents to express their true stance on immigration. Perhaps, a respondent is not entirely supportive of the idea of increasing immigration nor are they against immigration. Opinions on social issues such as this may not be entirely captured as 0 or 1. Thus, this is a shortcoming of the analysis. Another shortcoming is the lack of survey questions regarding public opinions on immigrants and immigration in the JGSS datasets. Similar datasets, like the European Social Surveys, include numerous survey questions regarding the respondents' opinions on the perceived economic and social consequences of immigration. With more extensive survey questions on immigration attitudes, the better our understanding will be of potential determinants on public opinion. The wording used in the JGSS question may also be considered vague. It inquires one's opinion on increased immigration; although, the type of immigration is left for interpretation. Possible improvements may be to incorporate questions on how respondents perceive immigrants with certain characteristics. For example, a distinction can be made between low skilled and high skilled immigrants. These data limitations also apply to previously mentioned studies using the JGSS datasets.

Scholars have pointed out that related studies tend to use immigration and immigrants synonymously, though they are not the same (Nagayoshi 2009; Ceobanu & Escandell 2010). We argue that this particular JGSS survey question refers to immigration and not immigrants; however, it can be expected that anti-immigration attitudes may be strongly associated with anti-immigrant attitudes. This study will not explicitly make a distinction between the two and may use the words synonymously.

Referring back to our research questions, we hope to examine the effects of economic concerns, threats to public safety, share of foreign population, and increased opportunities for foreign contact on immigration attitudes. First, we analyze the potential

effects economic conditions may have on natives' attitude formation to assess the group threat theories. The two prefecture level variables are unemployment rate, specifically capturing the conditions of the labor market, and log GDP per capita in 2006 prices, capturing the economic prosperity within a prefecture. Favorable immigration attitudes are assumed to be associated with affluent economic conditions, such as low unemployment rates and high GDP per capita (Sides & Citrin 2007). Therefore, support for the group threat theory would suggest low GDP per capita, potentially increasing unemployment rates, and high unemployment rates, collectively increasing competition for employment opportunities, to be associated with anti-immigration attitudes<sup>3</sup>.

Furthermore, we will examine whether threats to public safety through crime rates effect natives' perceptions of immigration. Due to language restrictions, we were unable to acquire data on crime rates committed by foreigners. Although a large number of statistical data is available in English through online sources run by various ministries of the Japanese government, many files are still only available in the Japanese language. Navigation of the sources in Japanese also restrained our retrieval of this data. Instead, the ratio of reported violent crimes per 1000 prefectural inhabitants was used as the contextual variable to test the group threat theory. The individual-level variable that will also be used to examine the impact of possible societal threats is the dissatisfaction with one's area of residence. This variable is on a scale from 1 to 5—1 if one feels satisfied and 5 if they feel opposite. This variable attempts to study the influence individual neighborhood conditions may have on immigration attitudes, i.e. perhaps, they will be dissatisfied with their area of residence because they feel it is unsafe with the pronounced presence of a foreign population. These two variables will be used to test whether threats to safety, suggested by the group threat theory, is a viable indicator of public opinion towards immigration in Japan.

---

<sup>3</sup> Many studies (Sides and Citrin 2007; Rustenbach 2010; Green 2017) have found economic concerns to be weak indicators, since their results showed no significance or estimates that were the *wrong sign*, i.e. Sides and Citrin (2007), Rustenbach (2010), and Green (2017) all found higher unemployment rates to be associated with favorable immigration attitudes instead of the opposite.

Since the group threat theories posits that a notable foreign population may exacerbate anti-immigration sentiments among natives, we will analyze the share of foreign residents. This variable is constructed as the number of registered foreign nationals over the total number of inhabitants in the prefecture, and is observed as a percentage. While the group threat theory posits a larger share of foreigners to foster anti-immigration attitudes, the contact hypothesis may suggest the opposite effect to take place—a larger foreign population increases the likelihood of foreign contact and thus, may help to alleviate negative public opinion on immigration.

Although studies have found mixed results regarding the contact hypothesis, research in the context of Japan appear recurrently find a positive relationship between favorable immigration attitudes among natives and frequency of contact with foreigners. Unlike studies in the past that have used individual English language proficiency as a sort of proxy for artificial contact (Green & Kadoya 2013, 2015), this thesis will similarly use a crude, artificial variable. We examine the frequency of trips natives take which lasts longer than two days<sup>4</sup>. This thesis argues that the higher frequency of trips survey respondents take, the higher the likelihood they are to have also travelled internationally instead of just domestically. International travel will allow for native Japanese to come in contact with foreigners as tourists and visitors. The variable takes the value 1 if the respondent never goes on a trip lasting longer than two days; 2 if they take these type of trips once a year; 3 if they take these types of trips several times a year; and 4 if they take trips lasting more than two days several times a month. In sum, we attempt to find an association between increased opportunities for contact between foreigners by means of travel and natives' immigration attitudes with the inclusion of this variable.

The effect of contact this variable is attempting to measure will most likely be shallow and in a setting outside their personal environments, i.e. their area of residence. There are, however, several shortcomings with using this variable as a measure of superficial

---

<sup>4</sup> The survey question on the JGSS asks respondents: *How often do you go on a trip which takes more than two days (business trips are excluded)?*

contact. Not only does the data exclude business trips, which some may require to travel abroad, but it does not make the distinction between international and domestic travel. Therefore, we can only argue that this is an attempt to measure the effect an increase in probability of travelling abroad may have on immigration attitudes. Similar to the contact theory, the issue of selection bias still remains as selected natives may enjoy going abroad to experience different cultures and people while others can easily choose to avoid traveling abroad.

In addition, we will also examine the effects of English language proficiency, both speaking and reading, on public opinion towards immigration in Japan. Though this is not part of the main analysis, we aim to study the conclusions of Green and Kadoya (2013, 2015)<sup>5</sup> using a pooled dataset with more observations by prefecture. The construction of the variable slightly differs from Green and Kadoya's study as well<sup>6</sup>. First, respondents who provided no answer or answered the question was inapplicable. The English conversation proficiency level variable then takes the value 1 if the individual reported they can that hardly speak English; the variable takes the value 2, basic level of speaking, if the individual reported they can ask for directions or order at restaurants, can greet, or can manage to make themselves understood; the variable takes the value 3, can speak sufficiently, if respondents can speak adequately for everyday life. The English reading comprehension level variable, on

---

<sup>5</sup> They used a self-reported English language proficiency (conversation and reading comprehension) variable as a proxy for contact and found that natives with a higher English conversation ability were more likely to hold favorable opinions on immigration.

<sup>6</sup> Green and Kadoya's (2013, 2015) English conversation proficiency level variable is categorical and has five levels. The value 1 = "I can hardly speak English."; 2 = "I can greet"; 3 = "I can ask for directions or order at restaurants"; 4 = "I can manage to make myself understood for daily life"; 5 = "I can speak sufficiently for daily life". The English reading comprehension variable is also categorical and has five levels. The value 1 = "I can hardly read English."; 2 = "I can understand easy words."; 3 = "I can read short sentences in English."; 4 = "I can manage to read English books and newspapers."; 5 = "I can read English books and newspapers without trouble."

the other hand, also excludes respondents who did not answer the survey question or who answered the question as being inapplicable. The variable takes the value 1 if the respondent reports that they are barely able to read English; the variable takes the value 2, basic level of reading, if the individual reports they are able to understand easy words or are able to read short English sentences; the variable takes the value 3, can read English materials, if the respondent answers that they can read English materials such as books or newspapers.

Individual level of education is an important determinant of immigration attitudes (Chandler & Tsai 2001; Hainmueller & Hiscox 2007). The original survey variable for respondents' education levels was categorized into thirteen groups. The survey question asked respondents to report their last school attended. After excluding the "Don't know" responses, those who answered ordinary elementary school in the old system and higher elementary school in the old system were categorized within the new group, primary school; junior high school/girl's high school in the old system and junior high school were categorized as lower secondary school; high school, vocational school/commerce school in the old system, and higher school or vocational school in the old system were categorized as upper secondary and post-secondary, non-tertiary; lastly, university/graduate school in the old system, college of technology, 2-year college, and university were included into the post-secondary, tertiary education level.

The control variables for this analysis include individual level, socio-demographic indicators taken from the JGSS datasets. These variables are: age, gender, education level, labor force status, political view (scale from 1 to 5), household annual income (in million yen), marital status, and number of children. Although studies generally include a basic set of socio-demographic variables in their models, many have found them to be weak indicators of public opinion. For example, the demographic variable for age. While the findings of Citrin and colleagues (1997) and Dustmann and Preston (2000) have all women more likely to oppose immigrants and immigration than men, Ceobanu and Escandell (2010) argued that such demographic characteristics estimate volatile findings relative to variables based on individual achievement, i.e. educational attainment. Ceobanu and Escandell have also argued other individual-level characteristics, namely marital status and religion, tend to show inconclusive results on shaping immigration attitudes.

Green and Kadoya (2013) found the respondent's number of children to have an effect on their opinion towards immigration; for this reason, this variable was included in our analysis. In addition, many studies consider natives' political stances to be correlated with immigration attitudes, specifically anti-immigration attitudes, through the channel of cultural threat (Citrin *et al.* 1997). Individuals who support the political right, hold conservative ideas, or have a stronger sense of national identity, are more likely to voice anti-immigrant sentiments as they believe immigration may threaten their cultural and social institutions (Chandler & Tsai 2001). Lastly, labor force status is included as a control because immigration is often associated with increased labor market competition for natives, particularly so for those who are low-skilled or out of the labor force.

Considering the results of previous research, we also expect to find mixed results from the socio-demographic variables that are not based on individual accomplishments included in our analysis. Please refer to Table 7 in the Appendix for

descriptions on variable values and definitions. The descriptive statistics of the pooled dataset of this study are shown in Table 1, with all values weighted using the sampling weights provided by the JGSS. There are 8836 individuals in our pooled sample gathered from six survey years of the JGSS, 2000 to 2006 excluding 2004. Approximately 42 percent of respondents in our pooled sample favor increasing immigration. Therefore, the majority of natives are then, against the idea of increasing immigration. In terms of economic conditions, the average unemployment rate is 4.81 while the average log GDP per capita is 15.18, with the Tokyo prefecture having the highest value. Very few violent crimes, 0.57, appear to have been reported on average per 1000 prefectural inhabitants. Overall, respondents appear to either have no particular opinion about their area of residence or express satisfaction with their residence; very few natives voiced dissatisfaction. Foreigners make up, on average, 1.4 percent of the total population within prefectures. The highest percentage of foreigners was in the Tokyo prefecture; the share of foreigners in this prefecture was above 2.5 for every year we observe. Interestingly, the Aichi prefecture also showed ratios of above 2.5 in 2005 and 2006. Most individuals from our pooled sample appear to take a trip lasting longer than two days once a year, 39 percent. Although, 35 percent of natives responded that they take trips lasting longer than two days several times a year. Only 3 percent of individuals take trips of this length at least once a month.

The average age of an individual in our pooled sample is approximately 50 years old. Our dataset contains slightly more males than females, with 53 percent identifying as male. 76 percent of our sample is also married. Furthermore, more than half of the respondents have one to three children with the rest distributed almost equally to the other categories. The majority of respondents are also in the labor force. In terms of education level, most respondents have an upper secondary or post-secondary, non-tertiary education level—44 percent of the sample. 34 percent have a post-secondary, tertiary education and only 7 percent have a primary education level. 49 percent of respondents in our pooled sample also expressed a neutral stance in terms of political view, with 24 percent identifying more with progressive ideologies and 28 percent identifying more towards conservatism. Most natives appear to receive annual household income. The most common range of income among our sample was between 3.5 and 5.5 million yen.

Our original pooled sample of 8836 individuals is reduced to 4228 as the survey question regarding self-reported English language proficiency is only available in 2002, 2003 and 2006. More than half of the respondents in this limited sample barely speak English. Only one percent reported that they are able to speak and be understood in English. In terms of English reading comprehension, the majority of individuals in this sample reported they have a basic level of reading comprehension. Only 3 percent identified themselves as being able to read English materials, such as books and newspapers, without any trouble.

Table 1. Descriptive statistics for pooled JGSS dataset, 2000-2006 excluding 2004.

	Mean	Std. Dev.	Min	Max	N
<b>Dependent variable</b>					
<i>For</i> increasing immigration	0.42	0.49	0.00	1.00	8836
<b>Independent variables (prefecture-level)</b>					
Economic conditions					
Unemployment rate	4.81	1.13	2.30	8.40	8836
Log GDP per capita	15.18	0.24	14.78	15.86	8836
Public safety					
Reported violent crimes per 1000 inhabitants	0.57	0.21	0.16	1.03	8836
Dissatisfaction with area of residence					
1, Satisfied	0.25	0.43	0.00	1.00	8836
2	0.31	0.46	0.00	1.00	8836
3	0.31	0.46	0.00	1.00	8836
4	0.11	0.31	0.00	1.00	8836
5, Dissatisfied	0.03	0.17	0.00	1.00	8836
Foreign population					
Share of foreigners (%)	1.44	0.77	0.25	2.87	8836
Contact					
Frequency of trips more than two days					
Never	0.23	0.42	0.00	1.00	8836
Once a year	0.39	0.49	0.00	1.00	8836
Several times a year	0.35	0.48	0.00	1.00	8836
At least once a month	0.03	0.17	0.00	1.00	8836
<b>Socio-demographic controls</b>					
Age	49.60	16.21	20.00	89.00	8836
Male	0.53	0.50	0.00	1.00	8836
Not in labor force	0.33	0.47	0.00	1.00	8836
Education level					
Primary	0.07	0.25	0.00	1.00	8836
Lower secondary	0.16	0.36	0.00	1.00	8836
Upper secondary or post-secondary, non-tertiary	0.44	0.50	0.00	1.00	8836
Post-secondary, tertiary	0.34	0.47	0.00	1.00	8836
Political view					
1, Progressive	0.05	0.21	0.00	1.00	8836
2	0.19	0.39	0.00	1.00	8836
3	0.49	0.50	0.00	1.00	8836
4	0.21	0.40	0.00	1.00	8836
5, Conservative	0.07	0.26	0.00	1.00	8836
Married	0.76	0.42	0.00	1.00	8836
Number of children					
None	0.22	0.41	0.00	1.00	8836
1 to 3 children	0.57	0.49	0.00	1.00	8836
More than 3	0.21	0.41	0.00	1.00	8836
Annual household income (in million yen)					
No income	0.01	0.09	0.00	1.00	8836
Less than 1.5	0.07	0.26	0.00	1.00	8836
1.5 to 3.5	0.19	0.39	0.00	1.00	8836
3.5 to 5.5	0.23	0.42	0.00	1.00	8836
5.5 to 7.5	0.17	0.38	0.00	1.00	8836
7.5 to 10	0.17	0.37	0.00	1.00	8836
10 million and over	0.16	0.37	0.00	1.00	8836
English conversation proficiency level					
Barely speaks English	0.52	0.50	0	1	4228
Basic level of speaking	0.47	0.50	0	1	4228
Can speak and be understood	0.01	0.10	0	1	4228
English reading comprehension level					
Barely reads English	0.38	0.49	0	1	4228
Basic level of reading	0.56	0.50	0	1	4228
Can read English materials with no trouble	0.05	0.22	0	1	4228

Note: The estimates are weighted using sampling weights provided by the JGSS.

Source: JGSS



## 5 Methodology

Linear probability models (LPM) will be estimated using our pooled dataset containing six rounds of the JGSS—2000 to 2006, excluding the year 2004. We aim to analyze the relationships between potential determinants and natives' perceptions on immigration in Japan. The LPM is a different variety of the classical linear regression model (OLS) as the LPM considers a binary outcome. The LPM was chosen because of its direct interpretability of coefficients. There are several assumptions of the OLS, which also apply to the LPM. Known as the classical linear model assumptions, the OLS is efficient, unbiased, and consistent under all six assumptions. These will briefly be discussed in this section (Wooldridge 2013, pp.45-51).

1. Linearity: The dependent  $Y$  is linearly related to the independent  $X$  and error,  $u$ .
2. Random sampling: The sample used in the study is randomly selected (for cross-sections).
3. Sample variation in the independent variable: The values of the independent variables are not all identical.
4. Zero conditional mean: The model is properly specified such that there are no omitted variables; thus, there is no correlation between the error term and independent variables.
5. Variance of error term is constant: The error term takes the expected value zero for all values of the independent variables.
6. Homoskedasticity: The error term has constant variance for all values of the independent variable.

The LPM poses two major implications with bias and inconsistency due to the model's dichotomous outcome. From the assumptions above, the LPM violates number 5 and number 6. This implies that the residuals are not normally distributed and heteroskedasticity may be an issue. First, the LMP is able to predict probabilities that are below 0 or above 1. As shown by Horrace and Oaxaca (2006), the higher the share of predicted probabilities that are outside this interval, the LMP's potential bias also increases. On the other hand, if this share is nonexistent or trivial, then the LPM can be assumed to be mainly unbiased and consistent. Checking for this issue, predicted probabilities were estimated from the LPM of our analysis. We found approximately three percent, 31 out of 8944 total observations, had predicted probabilities below 0 (ranging from -0.1153 to -0.0003). As this is only a small share of predicted probabilities that lie outside 0 or 1, all observations will be kept in the sample. However, a robustness check will be performed excluding the 31 observations with predicted probabilities below 0. This truncation method was suggested by Horrace and Oaxaca. The results of this can be found in Table 11 in the Appendix. Next, is the issue of heteroskedasticity; although, this can be resolved by using robust standard errors which we have done. Thus, the LPM of this study does not violate the aforementioned assumptions. Logistic regression using odds ratios will be performed as a robustness check to validate our

use of the LPM. The results can be found in Table 10 of the Appendix. The following theoretical model will be used to examine the effects of individual characteristics with prefecture level effects on natives' immigration attitudes:

$$Y_{ipt} = \beta_0 + \beta_1 X_{ipt} + \beta_2 Z_{pt} + d_t + u_p + \varepsilon_{ipt}$$

where  $Y_{ipt}$  is the binary outcome for the dependent variable, whether the individual is for or against an increase in number of foreigners. Subscript  $i$  is individual,  $p$  is prefecture-level determinants, and  $t$  is year.  $X_{ipt}$  is a set of individual characteristics, while  $Z_{pt}$  is a set of prefecture-level factors with the vectors  $\beta_1$  and  $\beta_2$  containing coefficients its respective coefficients. Further,  $d_t$  is a set of year fixed effects (from 2000 to 2006, excluding 2004), and  $u_p$  is a set of prefecture fixed effects. Fixed effects are included in the analysis to control for omitted variable biases by absorbing time-invariant characteristics between prefectures and between years. Lastly,  $\varepsilon_{ipt}$  is the error term. Sampling weights provided by the JGSS have been used in all estimations to minimize potential sampling bias.

# 6 Empirical Analysis

## 6.1 Main Results

Column 1 in Table 2 includes only the control variables and is the base model for our analysis. Columns 2 to 5 each study a research question. Specifically, column 2 examines the effects of economic conditions on natives' immigration attitudes; column 3 examines public safety concerns as a determinant; column 4 examines the impact of the share of foreigners within a prefecture; and column 5 examines the effects of increased opportunities for foreign contact. Lastly, column 6 is our final model, containing all variables and their estimates. Robust standard errors are found in parentheses to the right of their coefficients.

In column 1 we observe age to be one of the few consistent and statistically significant variables throughout the six models. It shows a trivial, negative association with favorable immigration attitudes suggesting older respondents are more likely to hold anti-immigration attitudes. The individual level education variable appears to be a strong indicator of public opinion on immigration. Compared to respondents with an upper secondary or post-secondary, non-tertiary education level, natives with a primary or lower secondary level were more likely to be disapproving of immigration. Contrastingly, natives with a post-secondary, tertiary education were more likely to hold favorable public opinions on immigration. This finding is consistent throughout all models in Table 2 and is significant at the one percent level. Although in the final model, the estimate for the political conservative stance is also statistically significant at the ten percent level. This suggest that natives who support conservative ideologies are more likely to voice anti-immigration attitudes. Furthermore, estimates show personal political views to be significantly associated with immigration attitudes as well. Compared to respondent's who chose a neutral stance, natives who reported themselves as more progressive communicated pro-immigration sentiments. These coefficients are statistically significant at the one percent level. Furthermore, compared to respondents with no children, those with one to three showed a higher likelihood of disapproving immigration. The individual level education and political view variables provide consistent results throughout all six models in Table 2.

Variables indicating the economic condition of prefectures in column 2 show inconclusive estimates. In column 3, however, we see that respondents who voiced dissatisfaction with one's area of residence were more likely to hold negative attitudes toward immigration compared to individuals who responded neutrally. Contrastingly, respondents who voiced satisfaction with their residential area were more likely to approve of immigration. Crime rates showed no results. The estimates for the ratio of foreigners in column 4 also showed no significant results. Column 5 shows interesting results—a linear increase in favorable attitudes toward immigration as frequency of trips lasting longer than

Table 2. Individual- and prefecture-level correlates of immigration attitudes in Japan from 2000-2006 with prefecture and year fixed effects.

	Base		Economic		Safety		Foreign population		Contact		Final	
	(1)	(2)	(3)	(4)	(5)	(6)						
	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE
Age	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)
Male	-0.016	(0.012)	-0.016	(0.012)	-0.016	(0.012)	-0.016	(0.012)	-0.016	(0.012)	-0.015	(0.012)
Not in labor force	0.003	(0.013)	0.002	(0.013)	0.003	(0.013)	0.003	(0.013)	0.002	(0.013)	0.002	(0.013)
Education level												
Primary	-0.075***	(0.022)	-0.075***	(0.022)	-0.081***	(0.022)	-0.075***	(0.022)	-0.068***	(0.022)	-0.074***	(0.022)
Lower secondary	-0.055***	(0.016)	-0.055***	(0.016)	-0.055***	(0.016)	-0.055***	(0.016)	-0.051***	(0.016)	-0.053***	(0.016)
Upper secondary and non-tertiary	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
Post-secondary, tertiary	0.070***	(0.014)	0.070***	(0.014)	0.068***	(0.014)	0.070***	(0.014)	0.065***	(0.014)	0.063***	(0.014)
Political views												
1, Progressive	0.131***	(0.028)	0.131***	(0.028)	0.135***	(0.029)	0.132***	(0.028)	0.131***	(0.028)	0.135***	(0.029)
2	0.087***	(0.015)	0.086***	(0.015)	0.087***	(0.015)	0.087***	(0.015)	0.084***	(0.015)	0.084***	(0.015)
3	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
4	-0.003	(0.014)	-0.004	(0.014)	-0.005	(0.014)	-0.003	(0.014)	-0.005	(0.014)	-0.007	(0.014)
5, Conservative	-0.029	(0.020)	-0.029	(0.020)	-0.032	(0.020)	-0.029	(0.020)	-0.031	(0.020)	-0.034*	(0.020)
Annual Household Income (in million yen)												
None	-0.028	(0.061)	-0.028	(0.061)	-0.031	(0.061)	-0.029	(0.061)	-0.019	(0.060)	-0.023	(0.060)
Less than 1.5	-0.047**	(0.024)	-0.047**	(0.024)	-0.044*	(0.024)	-0.047**	(0.024)	-0.040*	(0.024)	-0.038	(0.024)
1.5 - 3.5	-0.003	(0.018)	-0.003	(0.018)	-0.002	(0.018)	-0.003	(0.018)	-0.001	(0.018)	-0.001	(0.018)
3.5 - 5.5	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
5.5 - 8.5	-0.001	(0.018)	-0.001	(0.018)	-0.003	(0.018)	-0.001	(0.018)	-0.003	(0.018)	-0.005	(0.018)
8.5 - 10	-0.012	(0.018)	-0.012	(0.018)	-0.013	(0.018)	-0.012	(0.018)	-0.016	(0.018)	-0.017	(0.018)
10 and above	0.018	(0.019)	0.018	(0.019)	0.015	(0.019)	0.018	(0.019)	0.010	(0.019)	0.008	(0.019)
Married	-0.016	(0.016)	-0.016	(0.016)	-0.014	(0.016)	-0.015	(0.016)	-0.016	(0.016)	-0.015	(0.016)
Total number of children												
No kids	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
1-3 children	-0.042**	(0.018)	-0.042**	(0.018)	-0.043**	(0.018)	-0.042**	(0.018)	-0.038**	(0.018)	-0.040**	(0.018)
More than 3 children	0.004	(0.021)	0.004	(0.021)	0.002	(0.021)	0.004	(0.021)	0.010	(0.021)	0.007	(0.021)
Unemployment rate			-0.030	(0.023)							-0.027	(0.023)
Log GDP per capita			-0.289	(0.380)							-0.452	(0.413)
No. of violent crimes per 1000 inhabitants					-0.042	(0.076)					-0.048	(0.077)
Dissatisfaction with area of residence												
1, Satisfied					0.038**	(0.015)					0.035**	(0.015)
2					0.016	(0.014)					0.013	(0.014)
3					(ref)						(ref)	
4					-0.013	(0.020)					-0.012	(0.020)
5, Dissatisfied					-0.072**	(0.033)					-0.069**	(0.033)
Foreign Ratio							0.045	(0.058)			0.061	(0.065)

Frequency of trips more than two days												
Never									(ref)		(ref)	
Once a year									0.037***	(0.014)	0.035**	(0.014)
Several times a year									0.046***	(0.015)	0.043***	(0.015)
At least once a month									0.129***	(0.034)	0.124***	(0.034)
Constant	0.829***	(0.035)	5.361	(5.767)	0.838***	(0.044)	0.821***	(0.036)	0.802***	(0.036)	7.786	(6.267)
Year FE	Yes		Yes		Yes		Yes		Yes		Yes	
Prefecture FE	Yes		Yes		Yes		Yes		Yes		Yes	
Adj. R-squared	0.093		0.093		0.094		0.093		0.095		0.096	
Observations	8836		8836		8836		8836		8836		8836	

Note: Robust standard errors are in parentheses.

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Source:** Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office.

two days also linearly increase. All estimates are significant at the one percent level, and they are relative to those who do not take trips of this length. Including all variables together in the final model, column 6, does not appear to significantly change any results. Other socio-demographic variables such as gender, labor force status, annual household income, and marital status showed no results and are perhaps, weak indicators of natives' immigration attitudes. Variables regarding the size of the municipality and dissatisfaction with one's job were initially included in the model but have been excluded entirely due to the lack of results. Any further analysis from this point forward will be done based on the final model as it includes all variables (column 6).

## ENGLISH LANGUAGE PROFICIENCY

Table 3 analyzes the effects of individual English language proficiency on immigration attitudes. This variable was used by Green and Kadoya (2013) as a proxy for contact between native Japanese and foreigners. Since this variable was analyzed using only one survey year of the JGSS dataset, JGSS-2006, we attempt to expand their findings by studying the effects of natives' English language proficiency on immigration attitudes using our pooled dataset including more observations per prefecture. However, this self-reported question on language proficiency is only included in the 2002, 2003, and 2006 JGSS surveys. For this reason, the total number of observations from our original sample decreases from 8836 to 4228. The results suggest respondents with a high ability to speak English are more likely to approve of immigration relative to natives who can hardly speak English. These estimates are statistically significant at the one percent level. The coefficients for English reading comprehension are less significant and consistent; nonetheless, findings suggest a high English reading comprehension level to be associated with favorable attitudes toward immigration.

Table 3. English proficiency level estimates on immigration attitudes in Japan from 2000-2006 with prefecture and year fixed effects.		
	Coef	Robust SE
English conversation proficiency level		
Can hardly speak	(ref)	
Basic speaking	0.112***	(0.021)
Can speak	0.259***	(0.085)
English reading comprehension proficiency level		
Can hardly read	(ref)	
Basic reading	-0.009	(0.022)
Can read	0.091*	(0.047)
Adj. R-squared	0.102	
Observations	4228	

Note: (1) Robust standard errors are in parentheses. (2) Coefficients were taken from a pooled version of the final model with year and prefecture fixed effects. Full results can be found in the Appendix. (3) Only the 2002, 2003, and 2006 surveys included the question on English language proficiency.

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Source: Author's own calculations using data from JGSS

## 6.2 Education Level

The education level of natives has been found to be an important indicator of their immigration attitudes (see Scheve & Slaughter 2001; Mayda 2006; Hainmueller & Hiscox 2007, 2010; Hatton 2016). Categorizing our observations into three education groups, we attempt to investigate how our set of variables impact perceptions of immigration differently based on respondent's level of education. Using the definitions from Hatton (2016), respondents were categorized as belonging to the high education group if they received tertiary education; respondents were categorized as mid-level education if they had received upper secondary or post-secondary, non-tertiary education; and respondents who received less than an upper secondary education were placed in the low education group. Results of the analysis will be discussed.

Interestingly, column 1 of Table 4 shows a negative and statistically significant association between unemployment rates and favorable immigration attitudes among lowly educated natives. Individual education level can also be a proxy for their skill level, as seen in the studies done by Scheve and Slaughter (2001) and Mayda (2006). Thus, low-skilled natives have a higher likelihood of voicing disapproval of immigration when their prefecture of residence has a high unemployment rate. Although the level of significance is at the ten percent level, this finding is in line with studies suggesting lowly educated natives perceive immigration as a threat to their employment opportunities. Thus, an increase in unemployment rates within prefectures may increase the likelihood lowly educated individuals negatively perceive immigration. These estimates show the *right sign*<sup>7</sup> in comparison to the estimates from the final model in Table 2. The relationship between

---

<sup>7</sup> Studies done by Sides and Citrin (2007) and Nagayoshi (2009) find estimates for unemployment rate to be the *wrong sign*, suggesting a higher unemployment rate is associated with a higher likelihood natives support immigration.

Table 4. Individual- and prefecture-level correlates of immigration attitudes in Japan by education group from 2000-2006 with prefecture and year fixed effects.

	Low		Middle		High	
	(1)		(2)		(3)	
	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE
Age	-0.003***	(0.001)	-0.007***	(0.001)	-0.003***	(0.001)
Male	0.023	(0.021)	-0.021	(0.018)	-0.041*	(0.022)
Not in labor force	-0.017	(0.024)	0.023	(0.020)	-0.022	(0.026)
Political views						
1, Progressive	0.086	(0.059)	0.178***	(0.042)	0.102**	(0.048)
2	0.042	(0.035)	0.092***	(0.023)	0.083***	(0.026)
3	(ref)		(ref)		(ref)	
4	-0.006	(0.025)	-0.001	(0.022)	-0.026	(0.027)
5, Conservative	-0.055*	(0.029)	0.011	(0.034)	-0.080*	(0.047)
Annual Household Income (in million yen)						
None	-0.059	(0.086)	-0.032	(0.100)	-0.001	(0.101)
Less than 1.5	-0.078**	(0.034)	-0.024	(0.043)	-0.026	(0.066)
1.5 - 3.5	-0.048	(0.029)	0.013	(0.026)	0.019	(0.040)
3.5 - 5.5	(ref)		(ref)		(ref)	
5.5 - 8.5	-0.039	(0.040)	-0.005	(0.025)	0.018	(0.033)
8.5 - 10	-0.081**	(0.040)	0.021	(0.025)	-0.017	(0.033)
10 and above	-0.070	(0.046)	-0.008	(0.028)	0.040	(0.032)
Married	-0.016	(0.025)	-0.000	(0.027)	-0.046	(0.034)
Total number of children						
No kids	(ref)		(ref)		(ref)	
1-3 children	-0.024	(0.036)	-0.026	(0.029)	-0.046	(0.033)
More than 3 children	0.007	(0.039)	0.004	(0.033)	0.034	(0.040)
Unemployment rate	-0.081*	(0.042)	-0.019	(0.034)	-0.011	(0.045)
Log GDP per capita	0.226	(0.704)	-0.486	(0.615)	-0.978	(0.821)
No. of violent crimes per 1000 inhabitants	0.010	(0.149)	-0.153	(0.117)	0.015	(0.139)
Dissatisfaction with area of residence						
1, Satisfied	-0.020	(0.025)	0.071***	(0.023)	0.041	(0.028)
2	-0.039	(0.027)	0.044**	(0.021)	0.009	(0.025)
3	(ref)		(ref)		(ref)	
4	-0.036	(0.037)	0.028	(0.028)	-0.062*	(0.037)
5, Dissatisfied	-0.108*	(0.056)	-0.032	(0.047)	-0.104	(0.074)
Foreign Ratio	0.111	(0.114)	0.051	(0.096)	0.091	(0.125)
Frequency of trips more than two days						
Never	(ref)		(ref)		(ref)	
Once a year	0.041*	(0.024)	0.022	(0.021)	0.087***	(0.032)
Several times a year	0.028	(0.026)	0.009	(0.023)	0.120***	(0.031)
At least once a month	0.098	(0.076)	-0.003	(0.054)	0.284***	(0.054)
Constant	-2.342	(10.663)	8.382	(9.326)	15.577	(12.454)
Year FE	Yes		Yes		Yes	
Prefecture FE	Yes		Yes		Yes	
Adj. R-squared	0.044		0.078		0.065	
Observations	2219		3900		2717	

Note: Robust standard errors are in parentheses.

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Source: Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office



unemployment rate and immigration attitudes are inconclusive for mid-level and high education groups. Furthermore, lowly educated respondents were more likely to voice disapproval of immigration when they identified with politically conservative ideologies. Natives also appeared to disapprove of immigration when they felt dissatisfied with their area of residence compared to those who felt impartial. Natives categorized within the mid-level education group were more likely to hold favorable immigration opinions if they self-reported a more progressive political view. This is statically significant at the one percent level. In addition, the variable dissatisfaction with area of residence appears to be a strong indicator of public opinion, as it suggests natives who are more satisfied with their area of residence also tend to support immigration.

Lastly, column 3 consists of Japanese natives with a high level of education. This model suggests males are more likely to hold anti-immigration attitudes among the highly educated. Once again, one's political stance appears to be an influential indicator of public opinion among this group. The coefficients suggest highly educated natives who hold more progressive values, compared to those who identify as neutral, have a higher probability of accepting foreigners. On the other hand, natives in this group who identify with conservative values are more likely to disapprove of immigration. Highly educated respondents who were slightly dissatisfied with their area of residence also had a higher likelihood of expressing anti-immigration sentiments. Interestingly, the higher frequency of trips these respondents take which last longer than two days is associated with a linear increase in probability that they hold positive perceptions of immigration. The estimates are highly significant at the one percent level. The reference group is natives who never take trips lasting longer than two days.

### 6.3 Labor Force Status

Table 5 examines the possible determinants of immigration attitudes by labor force status among JGSS respondents. Natives were considered out of the labor force if they were unemployed, retired, a student, engaged in housework, or provided another reason they are not working. Natives were otherwise categorized as in the labor force. All contextual variables at the prefecture level show inconclusive estimates. Among natives in the labor force, male respondents were more likely to express anti-immigration attitudes compared to women. The estimate is statistically significant at the ten percent level. Interesting to note are the estimates for individual education level. Relative to natives in the labor force and having an upper secondary or post-secondary, non-tertiary education, those with a lower secondary education were more likely to hold anti-immigration attitudes. Yet, those with a post-secondary, tertiary education level were more likely to support immigration. Coefficients for one's political views show strong associations to the shaping of public opinion. With the reference category being those who identify as neutral, natives in the labor force with progressive philosophies showed a higher probability of favoring immigration. These estimates were at the one percent. Satisfaction with one's area of residence is also associated with positive immigration attitudes. Regardless of one's labor force status, estimates of Table

Table 5 Individual- and prefecture-level correlates of immigration attitudes in Japan by labor force status from 2000-2006 with prefecture and year fixed effects.

	In LF		Out of LF	
	(1)	(2)	(1)	(2)
	Coef	Robust SE	Coef	Robust SE
Age	-0.004***	(0.001)	-0.005***	(0.001)
Male	-0.025*	(0.014)	0.014	(0.020)
Education level				
Primary	-0.030	(0.044)	-0.090***	(0.028)
Lower secondary	-0.056***	(0.021)	-0.062***	(0.024)
Upper secondary and non-tertiary	(ref)		(ref)	
Post-secondary, tertiary	0.071***	(0.016)	0.031	(0.026)
Political views				
1, Progressive	0.101***	(0.034)	0.242***	(0.050)
2	0.090***	(0.019)	0.062**	(0.027)
3	(ref)		(ref)	
4	-0.007	(0.018)	-0.011	(0.023)
5, Conservative	-0.011	(0.029)	-0.074***	(0.028)
Annual Household Income (in million yen)				
None	-0.084	(0.113)	0.027	(0.069)
Less than 1.5	-0.061*	(0.037)	-0.003	(0.033)
1.5 - 3.5	-0.009	(0.025)	0.023	(0.025)
3.5 - 5.5	(ref)		(ref)	
5.5 - 8.5	-0.010	(0.022)	0.006	(0.032)
8.5 - 10	-0.024	(0.022)	0.007	(0.034)
10 and above	-0.003	(0.023)	0.034	(0.036)
Married	-0.014	(0.022)	-0.020	(0.024)
Total number of children				
No kids	(ref)		(ref)	
1-3 children	-0.045*	(0.023)	-0.025	(0.031)
More than 3 children	-0.012	(0.027)	0.045	(0.034)
Unemployment rate	-0.024	(0.029)	-0.035	(0.036)
Log GDP per capita	-0.470	(0.537)	-0.302	(0.635)
No. of violent crimes per 1000 inhabitants	-0.095	(0.097)	0.080	(0.126)
Dissatisfaction with area of residence				
1, Satisfied	0.057***	(0.019)	-0.006	(0.023)
2	0.022	(0.018)	-0.008	(0.023)
3	(ref)		(ref)	
4	-0.002	(0.025)	-0.032	(0.032)
5, Dissatisfied	-0.058	(0.043)	-0.105**	(0.050)
Foreign Ratio	0.112	(0.084)	-0.064	(0.099)
Frequency of trips more than two days				
Never	(ref)		(ref)	
Once a year	0.031*	(0.019)	0.048**	(0.022)
Several times a year	0.043**	(0.020)	0.044*	(0.023)
At least once a month	0.103**	(0.044)	0.154***	(0.054)
Constant	8.070	(8.135)	5.511	(9.623)
Year FE	Yes		Yes	
Prefecture FE	Yes		Yes	
Adj. R-squared	0.079		0.111	
Observations	5679		3157	

Note: Robust standard errors are in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Source:** Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office

5 suggest the more often natives take trips lasting longer than two days, the more likely they are to support immigration into the country. Studying column 2, natives out of the labor force, education level and political stance are both important factors in shaping public opinion on immigration. Compared to those who have an upper secondary or post-secondary, non-tertiary education, natives who are out of the labor force and have a primary or lower secondary education, are more likely to possess anti-immigration attitudes. Moreover, relative to those who reported they hold a neutral political stance, natives with more progressive attitudes were associated with pro-immigration opinions and those who identify with conservative values were more likely to be associated with anti-immigration sentiments instead. Natives who were out of the labor force and expressed dissatisfaction with their area of residence were also more likely to oppose immigration.

## 6.4 Geographical Differences

This section will discuss the geographical differences in the effects of determinants on immigration attitudes in Japan. Table 6, found in the Appendix, shows three models for three different levels of aggregation—national, regional, and prefectural. Please note the values of all contextual level variables are based at the prefecture level.

Estimates from our pooled dataset are shown in column 1. Coefficients for the model in column 1 contain no area level fixed effects but do contain year fixed effects. Further, omitted variable bias may be present due to the exclusion of any geographic controls for our pooled dataset. Nonetheless, economic conditions appear to be strong indicators on natives' immigration attitudes. Both unemployment rate and log GDP per capita variables suggest a prosperous economy is more likely to foster favorable attitudes toward immigration. The former is statistically significant at the one percent and the latter at the five percent. However, the effect of log GDP per capita, however, is miniscule at a 0.0008 increase in probability of favorable attitudes with a one percent increase in GDP per capita at the national level. The share of foreigners appears to also be a statistically significant indicator of public opinion. The covariates suggest a larger share of foreigners to be associated with a higher likelihood of respondents' disapproval of immigration.

In column 2, region fixed effects are included together with the year fixed effects. It appears the inclusion of the region indicators has improved our model in explanation power through the increase in adjusted R-squared; however, estimates for the unemployment rate on immigration attitudes has become smaller and insignificant. Meanwhile, the effect of log GDP per capita has slightly increased but remains trivial; a 0.0011 increase in probability of approving immigrations with a one percent increase in GDP per capita at the regional level. Column 3 shows the covariates of our main findings at the prefecture level and raises some issues when compared to the previous models. GDP per capita variables, which were positive and statistically significant, have now become negative and insignificant. The standard error for the log GDP per capita estimate has also drastically increased. In addition, the coefficients for the ratio of foreigners has also changed in sign and significance compared to the former models.

Crime rates show no results. Further, respondents who are more satisfied with their area of residence, compared to those who neutrally, are more likely to approve of immigration according to the results. Meanwhile, respondents who are dissatisfied with their area of residence were found more likely to disapprove. These results are significant and consistent throughout all levels of aggregation.

	Coef	Robust SE
Hokkaido/Tohoku	(ref)	
Kanto	-0.035	(0.031)
Chubu	-0.093***	(0.033)
Kinki	0.052	(0.032)
Chugoku/Shikoku	-0.034	(0.027)
Kyushu/Okinawa	-0.012	(0.023)
Adj. R-squared		0.089
Observations		8836

Note: (1) Robust standard errors are in parentheses.

(2) Coefficients were taken from a pooled version of the final model with year fixed effects.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Source:** Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office

Covariates for the regions in Table 7 are taken from a pooled version of the final model with year fixed effects. These estimates present estimates for the associations between geographic regions and individual-level immigration attitudes. We observe that compared to the Hokkaido/Tohoku region, the Chubu region is the only region that shows a statistically significant association. The coefficient suggests that compared to respondents residing in the Hokkaido/Tohoku region, natives residing in the Chubu region were more likely to vocalize anti-immigration attitudes. This is statistically significant at the one percent level. To investigate this finding more closely, we run the final model by region. Table 9 presents the results for this analysis. Please refer to the Appendix for information on which prefectures are included in which region.

One interesting result found within the Hokkaido/Tohoku region (column 1) is the positive association between respondents' conservative political stance and favorable immigration attitudes. This is in comparison with respondents who answered neutrally. Generally, we have found natives' conservative ideologies to be related to anti-immigration sentiments, as is the case with several other regions. The coefficient for the log GDP per capita in the northern Hokkaido/Tohoku region (column 1) suggests a 0.017 increase in probability in natives' favorable attitudes with one percent increase in regional GDP per capita. This is significant at the one percent level. On the other hand, the southern Chugoku/Shikoku region (column 5) shows the complete opposite results—a 0.015 decrease in probability of natives' approving immigration as GDP per capita increases by one percent. This estimate is also significant at the one percent. Within the Hokkaido/Tohoku region (column 1), we observe a negative relationship between number of violent crimes reported and natives' approval of immigration. This is significant at the ten percent level. Moreover, the estimate for the share of foreigners on public attitudes also suggests a negative association between the two. This suggests that first, more reported violent crimes within the region, the

more likely natives within the region tend to disapprove of immigration; and second, the larger the share of foreigners, the more likely natives tend to disapprove of immigration. It can be argued that these results suggest that the natives within the Hokkaido/Tohoku region are impacted by both economic concerns, such as economic prosperity at the regional, not individual, level and non-economic concerns including public safety and share of foreigners; though, concerns regarding cultural threats do not seem to be an issue in this region, as shown by the pro-immigration attitudes of natives who hold conservative ideologies.

Column 2 shows the estimates of the Kanto region. This region includes the most populous city of Tokyo. Unlike the Hokkaido/Tohoku region, the coefficient for the crime rates variable shows a positive, statistically significant association. This implies the higher the reported violent crime rates, the higher the likelihood the population felt favorably about immigration. It may be the ambiguity of this variable, as it does not distinguish between crimes committed by foreign and native residents, that generates questionable results such as this. Natives who were satisfied with their area of residence voiced favorable immigration attitudes compared to individuals who felt neutrally about their residence. In addition, Kanto residents who were dissatisfied with their area of residence were more likely to hold anti-immigration sentiments.

Like the Hokkaido/Tohoku region, the Chubu region in column 3 finds a negative correlation between ratio of foreigners to natives and favorable public opinion towards immigration. The estimate is significant at the one percent level. In addition, the contact variable, frequency of trips lasting longer than two days, shows a linearly increasing likelihood of positive public opinion on immigration as the respondent's frequency of travel increases.

The Kinki region shows a statistically significant and negative estimate for the male variable, suggesting males disapprove of immigration more than females. Similar to the Hokkaido/Tohoku, Kanto, and Kinki regions, political views at the individual level appear to be significant indicators for the Chugoku/Shikoku region but not the Kyushu/Okinawa region. Interestingly, this is the only region in which political views have no impact on immigration attitudes. Moreover, the Kyushu/Okinawa region is the only region to show notable results when observing the household income variable. Compared to natives whose annual household income is between 3.5 to 5.5 million yen, natives who do not earn an income or earn less than 1.5 million yen annually are more likely to hold unfavorable attitudes on immigration. It appears that economically vulnerable natives residing in the Kyushu/Okinawa region are more likely to disapprove of immigration.

## 6.5 Robustness Tests

Several robustness checks were performed to ensure there were no issues with the chosen methodology and data sample. The tables showing the results for our robustness checks can be found in the Appendix. First, odds ratios were calculated from logistic regressions in place of the original methodology, the LPM, to validate our methodological choice. Logistic

regressions were chosen in this case due to its commonality among related studies using JGSS datasets. Furthermore, odds ratios allow for reasonable interpretability of the results as the odds of the outcome. We find that the odds ratios of the logistic regressions depict similar results those in our main analysis estimating the LPM. The implication and statistical significance of the odds ratios are consistent with the coefficients of Table 10.

Furthermore, having found 31 observations with predicted probabilities outside the interval of 0 and 1, Table 11 displays the LPM estimates with a truncated sample which excluded these observations. This was suggested by Horrace and Oaxaca (2006). Once again, the results are consistent to our main findings presented in Table 2. The magnitude, sign, and statistical significance are all consistent. This may be due to the fact that only a small share of observations in our sample estimated predicted probabilities outside 0 and 1—specifically three percent. Therefore, our results from the main analysis are stable and the use of the LPM for this study is rationalized.

Diagnostic tests for heteroskedasticity and multicollinearity were performed as well. Results of both tests can be found in the Appendix. The VIF (variance inflation factor) was utilized to check for multicollinearity among the explanatory variables. As the VIF estimates were below the threshold of 10, in which case would warrant further investigation, multicollinearity does not appear to be a noteworthy issue in our analysis. To investigate potential heteroskedasticity, the Breusch-Pagan test was performed. The large chi-square indicates heteroskedasticity to be an issue, which was expected with the LPM. To account for this, robust standard errors were applied to all regressions.

## 6.6 Discussion

This study finds no results concerning relationships between prefecture level variables testing the group threat theories and natives' immigration attitudes. This result is inconsistent with several previous studies that have found statistically significant results in support of the group threat theory (Nukaga 2006; Nagayoshi 2009; Green & Kadoya 2015; Green 2017). On the other hand, numerous individual level determinants are found to be significantly associated with shaping immigration attitudes among Japanese natives. First, individual ideologies, portrayed by one's political viewpoints, appear to be a strong indicator of immigration attitudes. The findings suggest natives with more progressive views are more likely to favor immigration while those with conservative views voice disapproval. Our analysis also finds respondents who have a low education level to have a higher likelihood of voicing disapproval towards immigration if they identified as politically conservative. Similarly, individuals belonging to the middle and high education levels show a strong association between politically progressive ideologies and favorable immigration attitudes.

Moreover, our findings show support for the labor market competition theory and suggest immigration attitudes belonging to natives with a low education level are impacted by prefecture level conditions of the labor market. Specifically, higher levels of prefectural level unemployment rates are found to be associated with anti-immigration

attitudes (Table 4). If interpreted from the perspective of Scheve and Slaughter (2001) and Mayda (2006) who used education levels to proxy for individual skill levels, this would suggest that low-skilled natives feel threatened by high unemployment rates due to the influx of low-skilled foreign laborers. The increase of immigrants with similar skillsets in the labor market may foster negative attitudes due to the rise in competition for employment opportunities; perhaps Borjas' (1999) notion may also be considered a factor here, as the factor-proportions-approach suggests the influx of low-skilled immigrants to drive down wages for low-skilled natives. Studying a subsample of respondents based on labor force status reaffirmed support for the labor market competition theory. Natives who were out of the labor force during the time of survey and had education levels that were below a post-secondary, tertiary education level, were more likely to disapprove of immigration. Again, this may be due to the pressure of increased competition for low-skilled occupations in the labor market felt by natives who were economically vulnerable. Overall, this study finds economic concerns based on self-interest to be a strong determinant of natives' immigration attitudes in Japan. However, considering the current demographic and economic situation of Japan, one can argue that the labor market competition theory will become a less viable explanation over time. With Japan's urgent need of foreign laborers to fill the country's blue-collared, semi-skilled labor shortages, less competition will exist over these occupations; thus, labor market competition may cease to be an important driver of immigration attitudes.

We find no results on the association between perceived threats to public safety and natives' public opinion towards immigration. Specifically, we find no results between prefecture level violent crime rates and immigration attitudes. Nonetheless, our findings show natives' satisfaction with their area of residence to be associated with their immigration attitudes. Natives who voiced more dissatisfaction with one's area of residence were found to also hold anti-immigration views. Natives who voiced more satisfaction with their area of residence, on the other hand, were more likely to hold pro-immigration attitudes. The explanation behind this becomes more difficult due to the various reasons respondent's may be dissatisfied with their area of residence. However, the results suggest there is a significant association between the dissatisfaction of one's area of residence and anti-immigration attitudes. Observing this variable by education level, we also find highly educated natives who expressed slight dissatisfaction with one's area of residence to hold anti-immigration attitudes—similar to natives with low education. This result is interesting since highly educated natives have generally been observed to have more favorable attitudes toward immigration, unless one's ideologies are conservative. Further research on the association between this variable, dissatisfaction with area of residence, and immigration attitudes based on natives' education level may provide interesting insights.

All studies testing the contact hypothesis using the JGSS datasets have found a significant association between foreign contact and favorable immigration attitudes (Nukaga 2006; Green & Kadoya 2013; Mazumi 2016). Examining our artificial proxy for contact, frequency of trips lasting more than two days, we attempted to analyze the impact increased opportunities for foreign contact abroad may have on natives' immigration attitudes. Results generally found a linear increase in favorable attitudes, as the frequency of trips a respondent took lasting longer than two days also increased linearly. Thus, we observed respondents who traveled more frequently to hold more favorable immigration attitudes. This indicator fell short when estimating effects by education levels. Respondents with a low education held

favorable attitudes if they went on a trip at least once a year compared to never. However, the subsample of those in the middle education level showed no results, and natives belonging to the high education group showed positive relationships between frequency of trips and public opinion. Perhaps, the findings by education level are inconsistent with the rest because of selection bias. As previously mentioned, natives can decide to go on trips abroad or not; thus, individuals opposed to immigrants and immigration can opt out of encountering foreigners through this channel. Studies done by Chandler and Tsai (2001) and Hainmueller and Hiscox (2007) have found highly educated individuals to be less prejudiced against foreigners and moreover, have a greater appreciation for a multicultural society. Based on these conclusions, it can be argued that this group would be more likely to travel abroad with the desire to encounter foreign cultures and people. In addition, natives among the lowly educated appear to hold positive attitudes when they travel once a year for more than two days; this finding is relative to natives who do not take trips lasting longer than two days. One possible explanation for this may be that the native Japanese may only be able to take a prolonged trip, possibly abroad, only once a year due to the intense work culture. A remarkable shortcoming of this variable, however, is that it does not distinguish between domestic and international travel. We argue that the higher the frequency of travel, the more opportunities one has to travel abroad. Therefore, this study finds support for the contact theory, as estimates suggest contact between natives, as visitors or tourists, and foreigners abroad is likely to foster pro-immigration public opinions. Further, research is required as this variable is weak to selection bias and does not specify between domestic and international trips.

Lastly, the discussion will center around Figure 3, the average percentage of respondents' in favor of increasing immigration. Figure 3 shows the years surrounding 2005, with the exclusion of 2004, to have had a higher proportion of respondents voicing favorable attitudes toward immigration in Japan. Only in 2005, however, do we observe a noticeable drop in approval. Since we include year fixed effects in our analysis, we dispose of between-variations across survey years and are unable to interpret these estimates. Therefore, a speculative explanation of the noticeably low approval of immigration in 2005 will be discussed; this is the potential effects of international terrorist attacks on natives' immigration attitudes. Since we are unable to analyze the salience of these attacks in the Japanese media due to language constraints, this will be based primarily on speculation and is in need of additional study.

Japanese troops entered Iraq in 2004 to carry out humanitarian operations and reconstruction during the Iraq War (CNN 2004, January). This had been the first foreign deployment of Japanese troops since World War II. Though the aim of deploying the JIRSG was de jure for humanitarian efforts, the involvement of Japan in Iraq led to numerous Japanese nationals to be taken hostage between 2003 and 2005. Five hostages were taken within a two-week span in April 2004 and fortunately, were released (CNN 2004, April); however, a separate Japanese national was also kidnapped and killed in Iraq within the same year (CNN 2004, October).

Compared to other international terrorist attacks having taken place between or during the time of survey throughout the years of study (2000, 2001, 2002, 2003, 2005, and 2006), these tragic incidences in Iraq may have negatively impacted natives' immigration attitudes the most because of its directness to the country. The attacks were purposefully



toward Japanese nationals in Iraq, with some incidences primarily with the goal to force Japan to withdraw the JIRSG from Iraq. Although the hostages who were returned home to Japan have been met with some criticisms (Taylor, 2015), it can be argued that these direct attacks to Japanese nationals, particularly in 2004, may have negatively impacted public opinion on opening its doors to more immigrants. This is a potential explanation to why we observe a decrease in the average percentage of respondents voicing favorable immigration attitudes in 2005. More research is needed, however, to verify this speculation.

To crudely test the potential outcome of international terrorist attacks on Japanese sentiments toward immigration in 2005, respondents' attitudes were reviewed by date of interview (see Figure 4). According to the Institute for Social Research at the University of Michigan, where JGSS datasets have been deposited to data archives, the 2005 survey data was collected between August 25 and November 23, 2004. On October 1st of that year, Bali, Indonesia experienced a terrorist attack that resulted in 20 casualties and over 100 injured. One of the casualties included a Japanese national while four more were reported injured. Looking at a timeframe from September to the end of October 2004, Figure 4 shows a lower percentage of respondents in support of increasing immigration after October 1st compared to the month before. This shows the possible adverse effects international terrorism may have on public opinion towards immigration in Japan. Perhaps, the negative attitudes are not long-lasting and do not alter an individual's fundamental beliefs and opinions. As previously mentioned, this is based merely on speculation. Further research on this relationship is necessary as various factors must also be considered; for example, the difference in effects on public sentiments based on where attacks take place, if Japanese nationals are harmed, media coverage and media depiction of attacks, whether the effects are long-lasting or not, and so on.

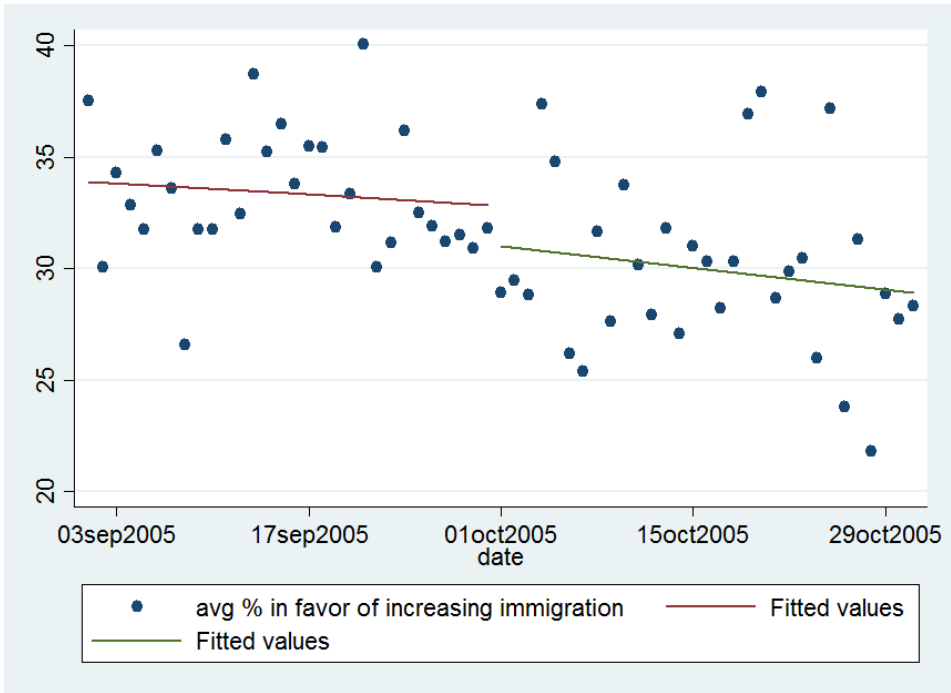


Figure 4. Examining the share of respondents and their immigration attitudes based on the interview dates. October 01, 2005 is the date in which the terrorist attack occurred in Bali, Indonesia. We observe that more people express disapproval of increasing immigration into the country after this date . Source: JGSS

## 7 Conclusion

This study has attempted to examine potential determinants and their effects on immigration attitudes among Japanese natives. We see a low average percentage of natives in favor of immigration within our sample, as only 39 percent of our pooled sample have voiced support for increasing immigration. With the influx of immigrants observed worldwide, addressing public opinion on immigration becomes important for policy makers to effectively create a cooperative environment for their native and foreign populations. Using a pooled dataset with data gathered from six years of the Japanese General Social Surveys (2000, 2001, 2002, 2003, 2005, and 2006), linear probability models were estimated. Individual level characteristics were included in the analysis, along with prefecture level effects.

The empirical results of this study find support for the labor market competition theory. This contradicts recent findings which find non-economic factors, such as cultural ideologies and contact, to be the main drivers of public opinion towards immigration in the developed West (Citrin et al. 1997; Chandler & Tsai 2001; McLaren 2003; Hainmueller & Hiscox 2007, 2010; Hatton 2016), as well as more related studies using the JGSS (Nukaga 2006; Green & Kadoya 2013; Green 2017). We find natives with a low education level to hold anti-immigration attitudes with higher rates of prefectural unemployment. Furthermore, we find natives out of the labor force to voice disapproval towards immigration when their education level is below an upper secondary or post-secondary, non-tertiary education level. However, with the serious labor shortages Japan faces in semi-skilled blue-collar occupations due to their demographic circumstances, we argue that the labor market competition theory may be less of a determinant of immigration attitudes in the near future.

The study also finds support for the contact hypothesis. Similar to Green and Kadoya's (2013) superficial contact variable, using JGSS's English language proficiency variable, we use a crude variable proxying contact between native Japanese, as tourists or visitors, and foreigners abroad. This variable measures the frequency of trips the respondent takes which lasts longer than two days. We argue that this variable may capture the effects of an increase in opportunities for contact between Japanese natives and foreigners abroad. However, this is a weak measure since the variable does not distinguish between domestic and international trips. Nonetheless, estimates showed more favorable attitudes to be related to a higher frequency of trips lasting longer than two days, taken by the respondent.

Group threat theories which posit negative attitudes toward immigration may be fostered through perceived or real threats over resources felt by natives. However, prefecture-level economic conditions, violent crime rates, and share of foreigners did not show any noteworthy results in our study. Thus, our findings find no support for the group threat theories. Economic conditions and at a higher aggregation, such as at the regional-level, however, appeared to show some impact on public opinion towards immigration in Japan.

This thesis finds labor market competition to have been an important factor in shaping public attitudes on immigration in Japan. Furthermore, our results in support of the contact hypothesis suggests increased opportunities for contact through the channel of international travel may be associated with favorable immigration attitudes.

## 7.1 Future Research

There are numerous ways to expand this study for future research. First, the analyses of more recent survey datasets would provide insight on immigration attitudes as Japan's demographic issues have become more urgent and salient throughout recent years. Furthermore, another interesting study would be to examine the differences in immigration attitudes before and after the amendment on immigration policies made this year. Since the creation of two new visa types will allow a notable influx of blue-collar foreign workers into Japan, the country will see a more composed foreign population in the near future.

In addition, future research would benefit from examining determinants of immigration attitudes at the municipal-level as immigrants tend to form communities which become concentrated in certain areas. For example according to Nagayoshi (2009), more than half of the foreign residents in the Aichi prefecture are concentrated in 5 of the 63 municipalities. We may find interesting results given that this study has observed geographical differences to effect model estimates.

Next, to further test the contact theory, examining the effects of outbound and inbound tourism on immigration attitudes would provide remarkable insight as international tourism is continuously on the rise. As tourists are only short-term visitors, it would be interesting to assess how much of a native's opinion on tourists from a certain country translates into their opinion on immigration. It may also be noteworthy to examine possible effects of outbound tourism, as one is able to encounter foreign populations while abroad. Positive outcomes of tourism may encourage travel to alleviate anti-immigration attitudes and may help promote policies allowing individuals more opportunities to be able to travel abroad. This extension would provide a more reliable understanding of the positive relationship between natives' favorable immigration attitudes and *frequency of trips lasting longer than two day*, found in this study.

Lastly, an important contextual factor to consider would be the depiction and salience of foreigners and immigration on national media. This thesis was unable to examine the association due to language restriction; however, with the national media being one very influential outlet of information for individuals, incorporating this into the study may help further explain determinants of immigration attitudes. Midooka (1991, cited by Okai & Ishikawa 2012) argues natives' opinions on immigrants and immigration can be shaped without any direct contact with a foreign population. Since approximately two percent of the country's population is foreign, opportunities for direct contact with foreigners may be scarce. Therefore, he highlights the importance and power of the media in shaping attitudes of natives in homogenous societies such as Japan.

# References

- Allport, G. W. (1954). *The Nature of Prejudice*. Oxford, England: Addison-Wesley.
- Angrist, J.D. and Pischke, J. (2015). *Mastering 'Metrics*. Princeton: Princeton University Press.
- Athukorala, P. C. (2006). International labour migration in East Asia: Trends, patterns and policy issues. *Asian-Pacific Economic Literature*, 20(1), pp.18-39.
- Blalock, H. M. (1967). Causal inferences, closed populations, and measures of association. *American Political Science Review*, 61(1), pp.130-136.
- Blumer, H. (1958). Race Prejudice as a Sense of Group Position. *Pacific Sociological Review*, 1(1), pp.3-7.
- Bobo, L. (1983). Whites' opposition to busing: Symbolic racism or realistic group conflict?. *Journal of Personality and Social Psychology*, 45(6), pp.1196.
- Borjas, G. J., (1999). *The Economic Analysis of Immigration* (Chapter 28, pp. 1697–1760), in O. Ashenfelter and D. Card (Eds.), *Handbook of Labor Economics*, North-Holland Elsevier Science.
- Campbell, D. T. (1965). Ethnocentric and other altruistic motives. In *Nebraska Symposium on Motivation*, 13, pp. 283-311.
- Card, D. (2005). *Is the New Immigration Really So Bad?*. NBER Working Paper 11547.
- Chandler, C. R., & Tsai, Y. M. (2001). Social factors influencing immigration attitudes: an analysis of data from the General Social Survey. *The Social Science Journal*, 38(2), pp.177-188.
- Citrin, J., Green, D. P., Muste, C., & Wong, C. (1997). Public opinion toward immigration reform: The role of economic motivations. *The Journal of Politics*, 59(3), pp.858-881.
- Ceobanu, A. M., & Escandell, X. (2010). Comparative analyses of public attitudes toward immigrants and immigration using multinational survey data: A review of theories and research. *Annual Review of Sociology*, 36, pp.309-328.
- Coenders, M. T. A., Lubbers, M., & Scheepers, P. L. H. (2005). Majorities' attitudes towards minorities in European Union member states: Results from the Standard Eurobarometer 1997-2000-2003 [report 2].
- Coenders, M., & Scheepers, P. (2008). Changes in resistance to the social integration of foreigners in Germany 1980–2000: Individual and contextual determinants. *Journal of Ethnic and Migration Studies*, 34(1), pp.1-26.

- Dustmann, C., & Preston, I. (2001). Attitudes to ethnic minorities, ethnic context and location decisions. *The Economic Journal*, 111(470), pp.353-373.
- Dustmann, C., & Preston, I. P. (2007). Racial and economic factors in attitudes to immigration. *The BE Journal of Economic Analysis & Policy*, 7(1).
- Facchini, G., & Mayda, A. M. (2009). Does the welfare state affect individual attitudes toward immigrants? Evidence across countries. *The Review of Economics and Statistics*, 91(2), pp.295-314.
- Ganelli, M. G., & Miake, N. (2015). *Foreign Help Wanted: Easing Japan's Labor Shortages* (No. 15-181). International Monetary Fund.
- Green, David; Kadoya, Yoshihiko (2013) : *English as a gateway? Immigration and public opinion in Japan*. ISER Discussion Paper, No. 883, Osaka University, Institute of Social and Economic Research (ISER), Osaka.
- Green, D., & Kadoya, Y. (2015). Contact and threat: Factors affecting views on increasing immigration in Japan. *Politics & Policy*, 43(1), pp.59-93.
- Hainmueller, J., & Hiscox, M. J. (2007). Educated preferences: Explaining attitudes toward immigration in Europe. *International Organization*, 61(2), pp.399-442.
- Hainmueller, J., & Hiscox, M. J. (2010). Attitudes toward highly skilled and low-skilled immigration: Evidence from a survey experiment. *American Political Science Review*, 104(1), pp.61-84.
- Hainmueller, J., & Hopkins, D. J. (2014). Public attitudes toward immigration. *Annual Review of Political Science*, 17, pp.225-249.
- Hainmueller, J., Hiscox, M. J., & Margalit, Y. (2015). Do concerns about labor market competition shape attitudes toward immigration? New evidence. *Journal of International Economics*, 97(1), pp.193-207.
- Hainmueller, J., & Hopkins, D. J. (2015). The hidden American immigration consensus: A conjoint analysis of attitudes toward immigrants. *American Journal of Political Science*, 59(3), pp.529-548.
- Hatton, Timothy J. (2014). *Public Opinion on Immigration: Has the Recession Changed Minds?*. IZA Discussion Papers, No. 8248, Institute for the Study of Labor (IZA), Bonn
- Hatton, T. J. (2016). Immigration, public opinion and the recession in Europe. *Economic Policy*, 31(86), pp. 205-246.
- Hollifield, J. F., & Orlando Sharpe, M. (2017). Japan as an 'Emerging Migration State'. *International Relations of the Asia-Pacific*, 17(3), pp.371-400
- Horrace, W. C., & Oaxaca, R. L. (2006). Results on the bias and inconsistency of ordinary least squares for the linear probability model. *Economics Letters*, 90(3), pp.321-327.

- International Monetary Fund (IMF). (2016). *The Refugee Surg in Europe: Economic Challenges*. IMFSTAFF Discussion Note, SDN/16/02.
- JGSS Research Center. *Introduction of JGSS Research Center: Purpose of JGSS Project*. Access from: [http://jgss.daishodai.ac.jp/english/introduction/int\\_jgss\\_project.html](http://jgss.daishodai.ac.jp/english/introduction/int_jgss_project.html).
- Jozuka, E. (2018, December 08). Japan needs immigrants, but do immigrants need Japan?. *CNN*. Retrieved from: <https://edition.cnn.com>.
- Kobayashi, T., Collet, C., Iyengar, S., & Hahn, K. S. (2015). Who deserves citizenship? An experimental study of Japanese attitudes toward immigrant workers. *Social Science Japan Journal*, 18(1), pp.3-22.
- Kondo, A. (2002). The development of immigration policy in Japan. *Asian and Pacific Migration Journal*, 11(4), pp.415-436.
- Liu-Farrer, G. (2009). Educationally channeled international labor mobility: *Contemporary student migration from China to Japan*. *International Migration Review*, 43(1), pp.178-204.
- Martin, P. L. (1991). Labor migration in Asia. *International Migration Review*, 25(1), pp.176-193.
- Mayda, A. M. (2006). Who is against immigration? A cross-country investigation of individual attitudes toward immigrants. *The Review of Economics and Statistics*, 88(3), pp.510-530.
- Mazumi, Y. (2016). *How Does the Presence of Migrants at Worksites Shape Japanese Attitudes toward Migration?: An Analysis Using JGSS-2015*. JGSS Research Series 13, pp.17-28.
- McCurry, J. (2019, January 02). Fears of exploitation as Japan prepares to admit foreign workers. *The Guardian*. Retrieved from: <https://www.theguardian.com>.
- Nagayoshi, K. (2009). Whose Size Counts? Multilevel Analysis of Japanese Anti-Immigrant Attitudes Based on JGSS-2006. 日本版総合的社会調査共同研究拠点研究論文集, (9), pp.157.
- Nukaga, M. (2006). *Xenophobia and the Effects of Education: Determinants of Japanese Attitudes toward Accepting Foreigners*. JGSS Research Series 2, pp.191-202.
- n.d. (2004, November 01). Beheaded Japanese to be flown home. *CNN International*. Retrieved from <http://edition.cnn.com>.
- n.d. (2004, April 15). Three Japanese hostages released. *CNN International*. Retrieved from <http://edition.cnn.com>.

- n.d. (2004, January 19). Japan in historic Iraq deployment. *CNN International*. Retrieved from <http://edition.cnn.com/2004/WORLD/meast/01/19/sprj.nitop.iraq.japan.troops.reut/index.html>
- Ogawa, N. (2011). Population aging and immigration in Japan. *Asian and Pacific Migration Journal*, 20(2), pp.133-167.
- Okai, H. & Ishikawa, K. (2012). *Determinants of Local Residents' Perceptions and Attitude toward Islam and Muslims—A Case Study in Gifu City, Japan—*. IMEMGS Research Papers: Muslims in Japan No.10. Waseda University, Tokyo.
- Osumi, M. (2018, May 07). More of Japan's Non-Japanese are Living on Welfare. *The Japan Times*. Retrieved from <http://www.japantimes.co.jp>.
- Pettigrew, T. F. (1998). Intergroup Contact Theory. *Annual Review of Psychology*, 49(1), pp.65-85.
- Piper, N. (2003). Wife or worker? Worker or wife? Marriage and cross-border migration in contemporary Japan. *International Journal of Population Geography*, 9(6), pp.457-469.
- Quillian, L. (1995). Prejudice as a Response to Perceived Group Threat: Population Composition and anti-Immigrant and Racial Prejudice in Europe. *Anagayamerican Sociological Review*, pp.586-611.
- Rustenbach, E. (2010). Sources of negative attitudes toward immigrants in Europe: A multi-level analysis. *International Migration Review*, 44(1), pp.53-77.
- Scheve, K. F., & Slaughter, M. J. (2001). Labor market competition and individual preferences over immigration policy. *Review of Economics and Statistics*, 83(1), pp.133-145.
- Semyonov, M., Rajzman, R., & Gorodzeisky, A. (2006). The rise of anti-foreigner sentiment in European societies, 1988-2000. *American Sociological Review*, 71(3), pp.426-449.
- Sides, J., & Citrin, J. (2007). European opinion about immigration: The role of identities, interests and information. *British Journal of Political Science*, 37(3), pp.477-504.
- Simon, R. J., & Sikich, K. W. (2007). Public attitudes toward immigrants and immigration policies across seven nations. *International Migration Review*, 41(4), pp.956-962.
- Tajfel, H. E. (1978). *Differentiation between social groups: Studies in the Social Psychology of Intergroup Relations*. Academic Press.
- Tanabe, S. (2008). "Nihonjin no Gaikokujin Kohkando to sono Kohzou no Jisshouteki Bunseki: Ajia-shugi, Tohzai Reisen, Gurohbarization"(Empirical Assessment of "Japanese" Cognition Toward Various Nations: Asianism, cold war, and globalization). *Shakaigaku Hyoron* 59(2): pp,369-87.

- Taylor, A. (2015). Japan and hostages: A nagging feeling that it's their fault. *The Washington Post*. Retrieved from <https://www.washingtonpost.com/>.
- Vogt, G. (2007). Closed doors, open doors, doors wide shut? Migration politics in Japan. *Japan Aktuell*, 5, pp. 3-30.
- Wood, C. (1992). *The Bubble Economy: Japan's Extraordinary Speculative Boom of the '80's and the Dramatic Bust of the '90'*, The Atlantic Monthly Press.
- Wooldridge, J. M. (2013). *Introductory Econometrics: A Modern Approach: 5<sup>th</sup> Edition*. Nelson Education.
- World Tourism Organization. (2017). *Arrivals of non-resident tourists/vistors, departures-trips abroad by resident tourists/visitors*. Retrieved from <http://www2.unwto.org/>.
- Yamamura, E. (2009). Frequency of contact with foreigners in a homogenous society: perceived consequences of foreigner increases in Japan. MPRA Paper No. 14646,
- Yamamura, E. (2012). Perceived consequences of immigration in Japan depend upon frequency of contact with foreigners. *Japanese Economy*, 39(2), pp.37-48.
- Zhang, J. (2015). Specific Xenophobia? Japanese Acceptance Attitudes toward Chinese Immigrants. *Journal of the Graduate School of Asia-Pacific Studies*.
- Ministry of Internal Affairs and Communications Statistics Bureau, Government of Japan. Workforce survey result.
- Cabinet Office, Government of Japan. Annual GDP estimates.
- Cabinet Office, Government of Japan. (2004). "Survey on acceptance of Migrant Labor" Retrieved from: <http://www8.cao.go.jp/survey/h16/h16-foreignerworker/index.html>.
- Cabinet Office, Government of Japan. (2010). "Survey on International Labor Migration". Retrieved from: <http://www8.cao.go.jp/survey/h22/h22-roudousya/index.html>.
- Japanese Ministry of Justice (MoJ), (2012). Immigration Control Report. Retrieved from: [http://www.moj.go.jp/nyuukokukanri/kouhou/nyuukokukanri06\\_00025.html](http://www.moj.go.jp/nyuukokukanri/kouhou/nyuukokukanri06_00025.html).
- UN Special Rapporteur on the human rights of migrants (SRHRM). (2011). Mission to Japan. A/HRC/17/33/Add.3. 2011.
- United Nations, Department of Economic and Social Affairs, Population Division (2017). *International Migration Report 2017: Highlights (ST/ESA/SER.A/404)*.
- Japan Tourism Agency. (2017). 2016 Survey of Trends in Travel and Tourism Consumption. Retrieved from: [http://www.mlit.go.jp/kankocho/en/kouhou/page01\\_000299.html](http://www.mlit.go.jp/kankocho/en/kouhou/page01_000299.html).



# Appendix A

Table 8. Definitions and values of all variables.

Variables	Definition
For increasing foreign population	Are you for or against an increase in the number of foreigners in your community? Binary; 0 = against, 1 = for
Unemployment rate	Unemployment rate (%) of residents at the prefecture-level; <i>Source: Statistics Bureau, Ministry of Internal Affairs and Communications</i>
Log GDP per capita	Natural log of GDP per capita; real GDP (1993 SNA, 2000 standard) <i>Source: Cabinet Office</i>
Reported violent crimes per 1000 inhabitants	Total number of reported violent crimes per 1000 prefectural inhabitants; Note: Variable does not distinguish whether reported crimes have been committed by natives or immigrants. <i>Source: Statistics Bureau, Ministry of Internal Affairs and Communications:</i>
Dissatisfaction with area of residence	Categorical; 1 = satisfied, 2, 3 (ref), 4, 5 = dissatisfied
Share of foreigners (%)	Total number of registered foreign residents within a prefecture by the total population within a prefecture as a percentage; <i>Source: Statistics Bureau, Ministry of Internal Affairs and Communications</i>
Frequency of trips more than two days	Categorical; 0 = never, 1 = once a year, 2 = several times a year, 3 = at least once a month Note: Variable does not distinguish between domestic and international trips.
Age	Continuous; 20-89 years old
Male	Binary; 0 = female (ref), 1 = male
Education level	Categorical; 1 = primary school, 2 = lower secondary, 3 = upper secondary and post-secondary (ref), non-tertiary, 4 = post-secondary, tertiary
Married	Binary; 0 = single (ref), 1 = married
Number of children	Categorical; 0 = none (ref), 1 = one to three children, 2 = three or more children
Annual household income (in million yen)	Categorical; 1 = none, 2 = less than 1.5, 3 = 1.5 to 3.5, 4 = 3.5 to 5.5 (ref), 5 = 5.5 to 8.5, 6 = 8.5 to 10, 7 = 10 and above
Not in labor force	Binary; 0 = in the labor force, 1 = out of the labor force Individuals out of the labor force include individuals who are unemployed, retired, a student, engaged in housework, or has another reason they are not working.
Political scale	Categorical; 1 = Progressive, 2, 3 (ref), 4, 5 = Conservative
English conversation proficiency level	Categorical; 1 = can hardly speak English (ref), 2 = basic level of speaking proficiency in English (i.e. ordering at restaurants or asking for directions), 3 = can speak and be understood in English (i.e. in daily life or business)
English reading comprehension level	Categorical; 1 = can hardly read English (ref), 2 = basic level of reading comprehension (i.e. reading easy words or short sentences), 3 = can read English materials without much trouble (i.e. books, newspapers)

## Diagnostic Tests

1. VIF is less than the threshold of 10; thus, no issues with multicollinearity.
2. Heteroskedasticity is an issue; robust standard errors were used to account for this.

VIF test for multicollinearity	
Unemployment rate	1.58
Log GDP per capita	1.93
No. of violent crimes per 1000 inhabitants	2.09
Dissatisfaction with area of residence	
1, Satisfied	1.39
2	1.42
4	1.22
5, Dissatisfied	1.07
Foreign Ratio	2.57
Frequency of trips more than two days	
Once a year	1.73
Several times a year	1.81
At least once a month	1.13
Mean VIF	1.55

Breusch-Pagan test for heteroskedasticity		
	Chi2	p-value
Base	61.20	0.00
Economic	61.23	0.00
Safety	60.19	0.00
Foreign pop.	61.59	0.00
Contact	57.69	0.00
Final model	57.42	0.00

Table 3. Full English proficiency level estimates on immigration attitudes in Japan from 2000-2006 with prefecture and year fixed effects.

	English language	
	Coef	Robust SE
Age	-0.004***	(0.001)
Male	-0.050***	(0.016)
Not in labor force	0.007	(0.019)
Education level		
Primary	-0.071**	(0.035)
Lower secondary	-0.044*	(0.024)
Upper secondary and non-tertiary	(ref)	
Post-secondary, tertiary	0.022	(0.020)
Political views		
1, Progressive (ref)	0.121***	(0.040)
2	0.028	(0.022)
3	(ref)	
4	0.005	(0.020)
5, Conservative	-0.024	(0.030)
Annual Household Income (in million yen)		
None (ref)	-0.073	(0.089)
Less than 1.5	-0.017	(0.034)
1.5 - 3.5	-0.014	(0.025)
3.5 - 5.5	(ref)	
5.5 - 8.5	0.014	(0.025)
8.5 - 10	-0.003	(0.026)
10 and above	0.029	(0.028)
Married	-0.036	(0.024)
Total number of children		
No kids	(ref)	
1-3 children	-0.012	(0.027)
More than 3 children	0.009	(0.030)
Unemployment rate	-0.033	(0.037)
Log GDP per capita	0.451	(0.739)
No. of violent crimes per 1000 inhabitants	-0.045	(0.154)
Dissatisfaction with area of residence		
1, Satisfied	0.051**	(0.021)
2	0.028	(0.020)
3	(ref)	
4	0.027	(0.029)
5, Dissatisfied	-0.068	(0.048)
Foreign Ratio	-0.070	(0.100)
Frequency of trips more than two days		
Never	(ref)	
Once a year	0.019	(0.021)
Several times a year	0.036*	(0.022)
At least once a month	0.098**	(0.048)
English conversation proficiency level		
Can hardly speak	(ref)	
Basic speaking	0.112***	(0.021)
Can speak	0.259***	(0.085)
English reading comprehension proficiency level		
Can hardly read	(ref)	
Basic reading	-0.009	(0.022)
Can read	0.091*	(0.047)
Adj. R-squared		0.102
Observations		4228

Note: Robust standard errors are in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Only the 2002, 2003, and 2006 surveys included the question on English language proficiency.

Source: Author's own calculations using data from the JGSS, Ministry of Internal Affairs, and the Cabinet Office

Table 6. Individual- and prefecture-level correlates of immigration attitudes in Japan by geographic aggregation from 2000-2006 with area and year fixed effects.

	National		Regional		Prefectural	
	(1)		(2)		(3)	
	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE
Age	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)
Male	-0.015	(0.012)	-0.015	(0.012)	-0.015	(0.012)
Not in labor force	0.005	(0.013)	0.004	(0.013)	0.002	(0.013)
Education level						
Primary	-0.082***	(0.022)	-0.077***	(0.022)	-0.074***	(0.022)
Lower secondary	-0.060***	(0.016)	-0.057***	(0.016)	-0.053***	(0.016)
Upper secondary and non-tertiary	(ref)		(ref)		(ref)	
Post-secondary, tertiary	0.064***	(0.014)	0.064***	(0.014)	0.063***	(0.014)
Political views						
1, Progressive	0.140***	(0.029)	0.140***	(0.028)	0.135***	(0.029)
2	0.084***	(0.015)	0.084***	(0.015)	0.084***	(0.015)
3	(ref)		(ref)		(ref)	
4	-0.005	(0.014)	-0.006	(0.014)	-0.007	(0.014)
5, Conservative	-0.036*	(0.020)	-0.039*	(0.020)	-0.034*	(0.020)
Annual Household Income (in million yen)						
None	-0.021	(0.061)	-0.030	(0.061)	-0.023	(0.060)
Less than 1.5	-0.039	(0.024)	-0.038	(0.024)	-0.038	(0.024)
1.5 - 3.5	0.002	(0.018)	0.002	(0.018)	-0.001	(0.018)
3.5 - 5.5	(ref)		(ref)		(ref)	
5.5 - 8.5	-0.004	(0.018)	-0.004	(0.018)	-0.005	(0.018)
8.5 - 10	-0.014	(0.018)	-0.013	(0.018)	-0.017	(0.018)
10 and above	0.014	(0.019)	0.013	(0.019)	0.008	(0.019)
Married	-0.015	(0.016)	-0.015	(0.016)	-0.015	(0.016)
Total number of children						
No kids	(ref)		(ref)		(ref)	
1-3 children	-0.042**	(0.018)	-0.041**	(0.018)	-0.040**	(0.018)
More than 3 children	0.001	(0.021)	0.003	(0.021)	0.007	(0.021)
Unemployment rate	0.033***	(0.007)	0.002	(0.010)	-0.027	(0.023)
Log GDP per capita	0.077**	(0.033)	0.108***	(0.038)	-0.452	(0.413)
No. of violent crimes per 1000 inhabitants	0.020	(0.037)	0.032	(0.044)	-0.048	(0.077)
Dissatisfaction with area of residence						
1, Satisfied	0.039***	(0.015)	0.038**	(0.015)	0.035**	(0.015)
2	0.017	(0.014)	0.017	(0.014)	0.013	(0.014)
3	(ref)		(ref)		(ref)	
4	-0.012	(0.020)	-0.014	(0.020)	-0.012	(0.020)
5, Dissatisfied	-0.066**	(0.033)	-0.067**	(0.033)	-0.069**	(0.033)
Foreign Ratio	-0.073***	(0.011)	-0.077***	(0.018)	0.061	(0.065)
Frequency of trips more than two days						
Never	(ref)		(ref)		(ref)	
Once a year	0.039***	(0.014)	0.039***	(0.014)	0.035**	(0.014)
Several times a year	0.048***	(0.015)	0.048***	(0.015)	0.043***	(0.015)
At least once a month	0.122***	(0.034)	0.123***	(0.034)	0.124***	(0.034)
Constant	-0.594	(0.489)	-0.907	(0.577)	7.786	(6.267)
Year FE		Yes		Yes		Yes
Geographic FE		No		Yes		Yes
Adj. R-squared		0.085		0.089		0.096
Observations		8836		8836		8836

Note: Robust standard errors are in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Source: Author's own calculations using data from the JGSS, Ministry of Internal Affairs, and the Cabinet Office

Table 9. Individual- and prefecture-level correlates of immigration attitudes in Japan by REGION from 2000-2006 with year fixed effects.

	Hokkaido/Tohoku		Kanto		Chubu		Kinki		Chugoku/Shikoku		Kyushu/Okinawa	
	(1)	(2)	(3)	(4)	(5)	(6)						
	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE	Coef	Robust SE
Age	-0.005***	(0.001)	-0.005***	(0.001)	-0.005***	(0.001)	-0.005***	(0.001)	-0.005***	(0.002)	-0.005***	(0.002)
Male	-0.045	(0.032)	-0.016	(0.022)	0.003	(0.025)	-0.052*	(0.030)	-0.002	(0.036)	0.020	(0.034)
Not in labor force	-0.008	(0.037)	0.029	(0.025)	-0.022	(0.028)	-0.014	(0.034)	-0.011	(0.042)	0.019	(0.039)
Education level												
Primary	-0.124**	(0.061)	-0.063	(0.047)	-0.046	(0.041)	-0.117*	(0.060)	-0.048	(0.067)	0.014	(0.068)
Lower secondary	-0.034	(0.042)	-0.055*	(0.032)	-0.004	(0.032)	-0.047	(0.044)	-0.103**	(0.047)	-0.095**	(0.045)
Upper secondary and non-tertiary	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
Post-secondary, tertiary	0.042	(0.040)	0.095***	(0.024)	0.048	(0.031)	0.076**	(0.035)	0.033	(0.046)	0.032	(0.041)
Political views												
1, Progressive	0.084	(0.071)	0.108**	(0.048)	0.122*	(0.069)	0.216***	(0.077)	0.277***	(0.091)	0.089	(0.089)
2	0.124***	(0.042)	0.032	(0.028)	0.061*	(0.034)	0.158***	(0.040)	0.166***	(0.053)	0.061	(0.044)
3	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
4	0.008	(0.040)	-0.018	(0.028)	-0.016	(0.030)	0.025	(0.035)	-0.067	(0.042)	0.013	(0.043)
5, Conservative	0.108**	(0.053)	-0.101***	(0.038)	0.022	(0.045)	-0.033	(0.051)	-0.135**	(0.061)	-0.059	(0.057)
Annual Household Income (in million yen)												
None	-0.027	(0.107)	-0.008	(0.119)	-0.072	(0.177)	0.123	(0.147)	-0.132	(0.202)	-0.257**	(0.112)
Less than 1.5	-0.001	(0.060)	-0.051	(0.048)	-0.039	(0.049)	-0.002	(0.063)	0.024	(0.072)	-0.131**	(0.063)
1.5 - 3.5	-0.035	(0.045)	-0.006	(0.035)	-0.041	(0.039)	0.048	(0.045)	0.073	(0.051)	-0.010	(0.048)
3.5 - 5.5	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
5.5 - 8.5	0.030	(0.047)	-0.070**	(0.034)	-0.016	(0.03)	0.021	(0.047)	0.080	(0.055)	0.042	(0.051)
8.5 - 10	0.097*	(0.051)	-0.030	(0.033)	-0.054	(0.037)	-0.029	(0.046)	0.041	(0.058)	-0.054	(0.057)
10 and above	0.024	(0.059)	-0.011	(0.033)	-0.033	(0.039)	0.041	(0.047)	0.082	(0.062)	0.029	(0.060)
Married	-0.071*	(0.043)	0.022	(0.031)	0.001	(0.035)	0.004	(0.042)	-0.049	(0.051)	-0.094**	(0.045)
Total number of children												
No kids	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
1-3 children	-0.068	(0.049)	-0.070**	(0.032)	-0.044	(0.044)	0.009	(0.046)	-0.015	(0.064)	-0.002	(0.052)
More than 3 children	-0.065	(0.056)	0.024	(0.039)	0.010	(0.046)	0.080	(0.053)	0.030	(0.069)	-0.048	(0.056)
Unemployment rate	-0.034	(0.028)	-0.046	(0.031)	-0.001	(0.046)	0.044	(0.030)	0.004	(0.048)	0.016	(0.041)
Log GDP per capita	1.724***	(0.358)	-0.148	(0.134)	0.214	(0.162)	-0.003	(0.224)	-1.471***	(0.493)	0.767	(0.537)
No. of violent crimes per 1000 inhabitants	-0.363*	(0.215)	0.279***	(0.095)	-0.155	(0.161)	-0.149	(0.150)	-0.038	(0.295)	0.088	(0.140)
Dissatisfaction with area of residence												
1, Satisfied	0.001	(0.039)	0.061**	(0.029)	-0.006	(0.030)	0.038	(0.038)	0.037	(0.045)	0.061	(0.042)
2	-0.035	(0.038)	0.045*	(0.027)	-0.005	(0.029)	-0.027	(0.035)	0.034	(0.043)	0.024	(0.043)
3	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	

4	-0.023	(0.053)	0.008	(0.035)	-0.009	(0.044)	-0.068	(0.050)	-0.025	(0.061)	-0.004	(0.057)
5, Dissatisfied	-0.070	(0.095)	-0.118**	(0.058)	0.026	(0.067)	-0.149*	(0.089)	-0.110	(0.116)	-0.018	(0.102)
Foreign Ratio	-0.435***	(0.152)	0.097	(0.088)	-0.090***	(0.028)	-0.024	(0.073)	0.261	(0.206)	-0.329	(0.339)
Frequency of trips more than two days												
Never	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
Once a year	0.046	(0.038)	0.044	(0.029)	0.068**	(0.030)	0.017	(0.038)	0.002	(0.041)	0.032	(0.039)
Several times a year	0.096**	(0.040)	0.036	(0.029)	0.081***	(0.031)	0.021	(0.039)	0.006	(0.046)	0.047	(0.043)
At least once a month	0.076	(0.113)	0.075	(0.056)	0.234***	(0.075)	0.250***	(0.078)	0.158	(0.140)	-0.004	(0.094)
Constant	-24.748***	(5.360)	2.702	(1.883)	-2.533	(2.458)	0.551	(3.364)	22.774***	(7.410)	-10.670	(8.106)

Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.079	0.111	0.111	0.111	0.111	0.111	0.111
Observations	1162	2479	1783	1373	935	1104	

Note: Robust standard errors are in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Source:** Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office

Table 10. Odds ratios from logistic regressions on immigration attitudes in Japan from 2000-2006 with prefecture and year fixed effects.

	Base (1)		Economic (2)		Safety (3)		Foreign population (4)		Contact (5)		Final (6)	
Age	0.980***	(0.002)	0.980***	(0.002)	0.979***	(0.002)	0.980***	(0.002)	0.979***	(0.002)	0.979***	(0.002)
Male	0.931	(0.049)	0.931	(0.049)	0.929	(0.049)	0.931	(0.049)	0.932	(0.049)	0.931	(0.049)
Not in labor force	1.009	(0.062)	1.008	(0.062)	1.013	(0.062)	1.010	(0.062)	1.005	(0.061)	1.008	(0.061)
Education level												
Primary school (ref)	0.628***	(0.079)	0.627***	(0.079)	0.612***	(0.077)	0.627***	(0.079)	0.647***	(0.081)	0.631***	(0.080)
Lower secondary school	0.760***	(0.059)	0.759***	(0.059)	0.756***	(0.059)	0.760***	(0.059)	0.771***	(0.060)	0.766***	(0.059)
Upper secondary and non-tertiary	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
Post-secondary, tertiary	1.349***	(0.079)	1.350***	(0.080)	1.334***	(0.079)	1.348***	(0.079)	1.316***	(0.078)	1.304***	(0.078)
Political views												
1, Progressive (ref)	1.784***	(0.224)	1.782***	(0.224)	1.816***	(0.231)	1.787***	(0.225)	1.786***	(0.226)	1.817***	(0.232)
2	1.462***	(0.099)	1.459***	(0.098)	1.466***	(0.099)	1.462***	(0.099)	1.448***	(0.098)	1.448***	(0.098)
3	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
4	0.984	(0.064)	0.982	(0.064)	0.977	(0.064)	0.984	(0.064)	0.976	(0.064)	0.969	(0.064)
5, Conservative	0.859	(0.087)	0.859	(0.087)	0.850	(0.086)	0.859	(0.087)	0.852	(0.087)	0.843*	(0.086)
Annual Household Income (in million yen)												
None (ref)	0.875	(0.254)	0.877	(0.255)	0.866	(0.252)	0.874	(0.254)	0.912	(0.263)	0.900	(0.260)
Less than 1.5	0.788**	(0.095)	0.788**	(0.095)	0.795*	(0.096)	0.788**	(0.095)	0.811*	(0.098)	0.817*	(0.099)
1.5 - 3.5	0.992	(0.081)	0.993	(0.081)	0.994	(0.081)	0.993	(0.081)	0.997	(0.081)	1.000	(0.081)
3.5 - 5.5	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
5.5 - 8.5	0.996	(0.080)	0.996	(0.080)	0.989	(0.080)	0.996	(0.080)	0.984	(0.079)	0.977	(0.079)
8.5 - 10	0.949	(0.077)	0.949	(0.077)	0.947	(0.077)	0.948	(0.077)	0.931	(0.075)	0.929	(0.075)
10 and above	1.086	(0.090)	1.086	(0.090)	1.072	(0.089)	1.086	(0.090)	1.048	(0.088)	1.037	(0.087)
Married	0.937	(0.072)	0.936	(0.072)	0.941	(0.073)	0.938	(0.072)	0.935	(0.072)	0.937	(0.072)
Total number of children												
No kids (ref)	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
1-3 children	0.834**	(0.069)	0.833**	(0.069)	0.831**	(0.069)	0.834**	(0.069)	0.848**	(0.070)	0.843**	(0.070)
More than 3 children	1.034	(0.097)	1.032	(0.097)	1.024	(0.097)	1.033	(0.097)	1.065	(0.100)	1.050	(0.099)
Unemployment rate			0.866	(0.089)							0.877	(0.092)
Log GDP per capita			0.265	(0.474)							0.124	(0.238)
No. of violent crimes per 1000 inhabitants					0.819	(0.276)					0.793	(0.272)
Dissatisfaction with area of residence												
1, Satisfied (ref)					1.182**	(0.079)					1.167**	(0.079)
2					1.070	(0.068)					1.058	(0.067)
3					(ref)						(ref)	
4					0.943	(0.084)					0.948	(0.085)

5, Dissatisfied					0.712**	(0.115)					0.716**	(0.116)
Foreign Ratio							1.247	(0.355)			1.331	(0.414)
Frequency of trips more than two days												
Never (ref)									(ref)		(ref)	
Once a year									1.190***	(0.080)	1.181**	(0.080)
Several times a year									1.235***	(0.086)	1.220***	(0.086)
At least once a month									1.801***	(0.278)	1.767***	(0.273)
Constant	4.401	0.688	5.13e+09	1.39e+11	4.619	0.911	4.230	0.698	3.904	0.631	4.35e+14	1.26e+16
Year FE	Yes		Yes		Yes		Yes		Yes		Yes	
Region FE	Yes		Yes		Yes		Yes		Yes		Yes	
Pseudo R-squared	0.078		0.078		0.080		0.078		0.080		0.082	
Observations	8836		8836		8836		8836		8836		8836	

Note: Robust standard errors are in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Source:** Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office



Table 11. Individual- and prefecture-level correlates of immigration attitudes in Japan using a *truncated sample* and with prefecture and year fixed effects.

	Base		Economic		Safety		Foreign population		Contact		Final	
	(1)	(1)	(2)	(2)	(3)	(3)	(4)	(4)	(5)	(5)	(6)	(6)
Age	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)	-0.005***	(0.000)
Male	-0.017	(0.012)	-0.016	(0.012)	-0.017	(0.012)	-0.017	(0.012)	-0.016	(0.012)	-0.016	(0.012)
Not in labor force	0.002	(0.013)	0.002	(0.013)	0.003	(0.013)	0.002	(0.013)	0.001	(0.013)	0.002	(0.013)
Highest educational attainment												
Primary school	-0.075***	(0.022)	-0.075***	(0.022)	-0.080***	(0.022)	-0.075***	(0.022)	-0.068***	(0.022)	-0.073***	(0.023)
Lower secondary school	-0.055***	(0.016)	-0.055***	(0.016)	-0.056***	(0.016)	-0.055***	(0.016)	-0.052***	(0.016)	-0.053***	(0.016)
Post-secondary, non-tertiary	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
Post-secondary, tertiary	0.070***	(0.014)	0.070***	(0.014)	0.068***	(0.014)	0.070***	(0.014)	0.065***	(0.014)	0.063***	(0.014)
Political views												
1, Progressive	0.130***	(0.028)	0.130***	(0.028)	0.134***	(0.029)	0.130***	(0.028)	0.130***	(0.028)	0.133***	(0.029)
2	0.087***	(0.015)	0.086***	(0.015)	0.087***	(0.015)	0.087***	(0.015)	0.084***	(0.015)	0.084***	(0.015)
3	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
4	-0.003	(0.014)	-0.003	(0.014)	-0.004	(0.014)	-0.003	(0.014)	-0.004	(0.014)	-0.006	(0.014)
5, Conservative	-0.028	(0.020)	-0.028	(0.020)	-0.031	(0.020)	-0.028	(0.020)	-0.030	(0.020)	-0.033	(0.020)
Annual Household Income (in million yen)												
None	-0.028	(0.061)	-0.028	(0.061)	-0.030	(0.061)	-0.028	(0.061)	-0.019	(0.060)	-0.022	(0.060)
Less than 1.5	-0.047*	(0.024)	-0.047*	(0.024)	-0.044*	(0.024)	-0.047*	(0.024)	-0.040*	(0.024)	-0.038	(0.024)
1.5 - 3.5	-0.003	(0.018)	-0.003	(0.018)	-0.003	(0.018)	-0.003	(0.018)	-0.002	(0.018)	-0.001	(0.018)
3.5 - 5.5	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
5.5 - 8.5	-0.001	(0.018)	-0.001	(0.018)	-0.002	(0.018)	-0.001	(0.018)	-0.003	(0.018)	-0.005	(0.018)
8.5 - 10	-0.012	(0.018)	-0.012	(0.018)	-0.013	(0.018)	-0.012	(0.018)	-0.016	(0.018)	-0.017	(0.018)
10 and above	0.018	(0.019)	0.018	(0.019)	0.015	(0.019)	0.018	(0.019)	0.010	(0.019)	0.008	(0.019)
Married	-0.016	(0.016)	-0.017	(0.016)	-0.015	(0.016)	-0.016	(0.016)	-0.017	(0.016)	-0.016	(0.016)
Total number of children												
No kids	(ref)		(ref)		(ref)		(ref)		(ref)		(ref)	
1-3 children	-0.041**	(0.018)	-0.041**	(0.019)	-0.042**	(0.019)	-0.041**	(0.018)	-0.038**	(0.018)	-0.039**	(0.018)
More than 3 children	0.005	(0.021)	0.004	(0.021)	0.002	(0.021)	0.005	(0.021)	0.011	(0.021)	0.008	(0.021)
Unemployment rate			-0.030	(0.023)							-0.028	(0.023)
Log GDP per capita			-0.314	(0.382)							-0.473	(0.415)
No. of violent crimes per 1000 inhabitants					-0.040	(0.076)					-0.047	(0.077)
Dissatisfaction with area of residence												
1, Satisfied					0.038***	(0.015)					0.035**	(0.015)
2					0.016	(0.014)					0.014	(0.014)
3					(ref)						(ref)	
4					-0.012	(0.020)					-0.011	(0.020)
5, Dissatisfied					-0.071**	(0.034)					-0.069**	(0.034)
Foreign Ratio							0.044	(0.059)			0.060	(0.065)

Frequency of trips more than two days												
Never									(ref)		(ref)	
Once a year									0.037**	(0.014)	0.035**	(0.014)
Several times a year									0.046***	(0.015)	0.043***	(0.015)
At least once a month									0.130***	(0.034)	0.125***	(0.034)
Constant	0.831***	(0.035)	5.752	(5.805)	0.840***	(0.044)	0.823***	(0.037)	0.805***	(0.036)	8.145	(6.294)
Year FE	Yes		Yes		Yes		Yes		Yes		Yes	
Prefecture FE	Yes		Yes		Yes		Yes		Yes		Yes	
Adj. R-squared	0.092		0.092		0.093		0.092		0.094		0.095	
Observations	8807		8807		8807		8807		8807		8807	

Note: Robust standard errors are in parentheses.

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Source:** Author's own calculations using data from JGSS, Ministry of Internal Affairs, and the Cabinet Office