The Dynamics of Immigration and Anti-Immigrant Sentiment in Japan

The Dynamics of Immigration and Anti-Immigrant Sentiment in Japan: How and Why Changes in Immigrant Share Affect Attitudes toward Immigration in a Newly Diversifying Society

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Extensive research investigates how immigration shapes natives’ anti-immigrant sentiment. However, several areas require further scrutiny. This paper explores how processes of immigration affect anti-immigrant sentiment in a new immigration destination country—Japan—drawing on longitudinal data to examine these processes over time and explicitly testing the mechanisms of perceived threat and intergroup contact posited to underpin this relationship. Through this analysis, the paper aims to: examine how generalizable the immigrant share/immigration attitudes theoretical framework is to non-Western societies; refine our understanding of the mechanisms underpinning this relationship; and more robustly test its causal assumptions. To pursue these aims, the study draws on two sets of nationally representative Japanese data, designed to generate complementary insights, including: four waves of longitudinal panel data (2008–2014) and a unique cross-sectional dataset containing measures of perceived threat and contact. Applying multilevel and fixed-effects panel data approaches, the findings demonstrate that as immigration increases in Japanese prefectures and municipalities, residents become increasingly averse toward immigration (although there is some evidence of non-linearity at the municipality level, with sentiment improving again in high immigrant share environments). This overall relationship appears largely driven by two competing processes. In higher immigrant share...
environments, perceived threat is higher, increasing anti-immigrant sentiment. However, concurrently, intergroup contact also increases in these environments, reducing anti-immigrant sentiment. Therefore, despite the overall negative relationship (driven primarily by perceived threat), rising contact exerts a countervailing positive effect as immigration increases. Taken together, this research demonstrates that theories of attitudinal-change with higher immigration, developed within Western-contexts, also appear salient for newer destination, non-Western societies.

Introduction

As societies continue to experience historically high levels of immigration, considerable work seeks to investigate how such immigration affects anti-immigrant sentiment in societies. This question remains critical, especially given rising right-wing populism and cultural anxiety among electorates, partly linked to historically high immigration (e.g., Norris and Inglehart 2019). Generally, studies find competing/conditional evidence for how immigration affects immigration attitudes, and while reviews suggest evidence tends toward a negative effect, debate continues as to whether immigration leads to more or less support for immigrants/immigration (Newman 2013; Pottie-Sherman and Wilkes 2017).

We suggest there are several areas where further scrutiny could develop our understanding of this relationship. Firstly, studies largely rely on cross-sectional data to test immigration effects on anti-immigrant sentiment. While providing important insights, such approaches may be biased by unobserved heterogeneity, particularly given research showing such attitudes remain largely fixed and inert to changing contexts over the life course (Kustov, Laaker, and Reller 2019). The second area is that few studies explicitly test the mechanisms posited to underpin how shifting demographics affect immigration attitudes, principally intergroup contact and perceived threat. Instead, studies often rely on the directionality of the relationship to infer their presence. This can preclude a fuller understanding of what mechanisms underpin any immigration effect, and assumptions that immigration’s effects are unidirectional, setting up an either contact or threat dichotomy. In reality, both processes could operate, exerting countervailing forces on attitudes (Laurence 2014). The third area is that research largely focuses on Western societies (such as North America, Europe, and Australia), and less attention has been given to non-Western societies, despite many growing as new-immigrant destinations (Winders 2014). For example, immigration has rapidly increased in countries such as China, South Korea, and Japan, accompanied by a rising salience of immigration-related issues. However, it is unclear whether theoretical frameworks constructed within Western contexts translate to non-Western societies. Potentially, societal contexts may influence how processes of immigrant share, contact and threat, operate, challenging the generalizability of current theories.

This paper aims to advance our understanding of how immigration affects natives’ immigration attitudes through developing these three areas. In particular,
we test immigration effects longitudinally, while explicitly examining mechanisms of contact/perceived threat, to explore how immigration affects natives’ attitudes in a new-destination society: Japan. Japan is an important case study outside of Western contexts. It has not been a mainstay immigration destination, with low levels of foreign-born residents for much of its history. However, with a rapidly ageing population coupled with sub-replacement fertility rates, immigration is recognized as critical for Japan’s future. Since 1990, policies have loosened restrictions to encourage foreign workers, with estimates now placing the immigrant share at 2%. However, this national figure belies heterogeneity across prefectures and cities; for example, in 2018, 1 out of 8 young people turning 20 in Tokyo was born outside of Japan (Japan Today 2018). Little research has explored how this rapid shift in demographics within a generation is affecting immigration attitudes (although see Nagayoshi 2009). We therefore explore how far current frameworks derived from Western contexts can generalize to the Japanese context, given acute differences in processes of immigration, racialization, and cultural/economic institutions.

To pursue these aims, we draw on several representative Japanese datasets, including: four waves of longitudinal panel data, spanning an 8-year period, and a unique cross-sectional dataset containing measures of intergroup contact and perceived threat. The first dataset allows us to more robustly test immigration’s effects via longitudinal analyses. The second dataset, despite being cross-sectional, aims to shed light on any observed longitudinal relationships. Its availability of contact/threat measures can examine the mechanisms feasibly accounting for any longitudinal association; it can explore whether theories of contact/threat are salient for newer immigrant destination societies, like Japan, and it can test for potential complementary/competing contact/threat effects, and how exhaustively these mechanisms account for observed immigration effects. In addition, while the longitudinal data can only explore immigration effects across Japanese prefectures (larger geographic areas), the cross-sectional data links respondents to their municipalities (smaller geographic areas), to test whether prefecture-level immigration effects may be driven by experiences of immigration in residents’ more immediate environments.

Through this dual-data approach, this paper provides insights into how immigration affects attitudes in Japan. However, its longitudinal approach and explicit mechanism testing also give insights into the international literature on how contextual changes in immigration affect attitudes, and how generalizable Western-context theoretical models are to newer-destination societies.

**Theoretical Framework**

*Immigration, Immigration Attitudes, and the Contact and Threat Hypotheses*

The theoretical framework deployed to understand the immigrant share/attitudes relationship broadly divides into two theories: group threat and intergroup
contact. Group-threat theories argue that larger immigrant shares lead natives to perceive outgroup members as a growing threat to their resources/status, fostering hostility toward immigration (Blumer 1958; Newman 2013). This includes perceived threats to economic/political resources, alongside more symbolic threats, fomenting cultural threat (Sniderman, Louk, and Hagendoorn 2007). In contrast, contact theory proposes that immigration could reduce anti-immigrant sentiment via increasing opportunities for positive contact with immigrants (Allport 1954), although immigration can also stimulate negative contact, worsening outgroup attitudes (Laurence and Bentley 2018). Figure 1 outlines these theoretical pathways, where immigration may increase positive contact, reducing anti-immigrant sentiment, but also increase perceived threat, increasing anti-immigrant sentiment.

Considerable research draws on this framework to explore the immigrant share/immigration attitudes relationship. US studies often demonstrate negative immigrant share/immigration attitudes associations (Branton et al. 2011; Butz and Kehrberg 2016; Hood and Morris 1997). Negative findings have also been observed in Europe (Gorodzeisky and Semyonov 2018; Weber 2018). Such studies infer, or directly demonstrate, such anti-immigrant sentiment emerges from perceived threat. However, studies also find positive immigrant share/immigration attitudes associations, providing support for contact mechanisms (e.g., Coenders et al. 2004; Wagner et al. 2006). Such heterogeneity in findings may stem from which immigrant groups are studied (Hood and Morris 1997), levels of segregation (Laurence et al. 2019), or the geographical area under study (Pottie-Sherman and Wilkes 2017).

Collectively, research demonstrates evidence of both negative (threat) and positive (contact) immigration effects. Although evidence tends toward the
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threat hypothesis, debate continues into what happens to native attitudes under increasing immigration. However, there are several areas of the field requiring further scrutiny.

Causality, Mechanisms, and the Generalizability of Theory

The first area is that studies generally employ cross-sectional data, raising the specter that apparent effects of immigrant share may be driven by between-individual unobserved differences. This is pertinent given observations that, over the life course, people have relatively stable political/immigration attitudes (Kustov, Laaker, and Reller 2019). Instead, outgroup attitudes are suggested to develop during people’s formative years (e.g., from socialization) (Henry and Sears 2009). Using cross-national panel data, Kustov, Laaker, and Reller (2019) showed that immigration attitudes are persistent over time and resistant to significant short-term societal changes. Similarly, Gorodzeisky and Semyonov (2018) showed changes in immigration attitudes largely occur between generations. However, group threat/contact theories predict short-term, within-person changes in response to immigration. In addition, cross-sectional data struggle to disentangle other explanations, such as residential selection (Laurence and Bentley 2016). However, few studies have addressed these issues (although see e.g., van Heerden and Ruedin 2017). To do so, we explore how immigration is associated with within-person changes over time through fixed-effects panel analysis.

The second area requiring scrutiny is a paucity of explicit tests of the mechanisms linking immigrant share to immigration attitudes. As outlined, contact/threat theories are often framed as producing competing predictions of how immigrant share affects attitudes. Accordingly, positive or negative associations are assumed to signify the presence of either contact or threat. However, inferring mechanisms from directionality is problematic as it presupposes a question of contact or threat; in reality, both may be operating. For example, despite work demonstrating negative immigration effects on one’s attitudes, evidence shows larger outgroup populations also trigger intergroup contact (Schlueter and Wagner 2008). Furthermore, an absence of explicit mechanism testing may obstruct our understanding of null effects. For example, non-significant immigration effects could be driven by increasing contact and threat suppressing one another (Laurence 2014). Accordingly, explicitly measuring contact/threat processes is critical to establish whether immigrant share actually triggers contact and/or threat; to examine if these mechanisms account for any positive, negative, or null effects of immigration; and to observe whether unexplained effects of immigrant share remain even accounting for contact/threat mechanisms (Laurence 2014).

The third area requiring scrutiny is the predominant focus on how the immigrant share/immigration attitudes relationship plays out across Western societies (Pottie-Sherman and Wilkes 2017). As Winders (2014) highlights, new immigrant destinations (NIDs) are emerging, both within countries (e.g., to rural zones) and especially to new countries. The predominant focus on Western contexts may limit our understanding of immigration’s impact in
general (Winders 2014). Studying NIDs can help “re-examine...aspects of the migration process as they unfold” but also test the generalizability of current theoretical frameworks (Winders 2014, p. S153). Factors such as a society’s history of immigration, individualist/collectivist outlooks, or differences across economic/cultural/social institutions could condition citizens’ responses to immigration.

Studies have begun exploring immigration effects in non-Western societies. Bessudnov (2016) found regional immigrant share negatively predicted immigration support in Russia; Lawrence (2011) found no relationship between national-level immigration and immigration attitudes across Latin American, while Lee and Chou (2018) found no effect of perceived immigration on attitudes in Hong Kong. However, studies remain relatively rare. There is, however, a burgeoning individual-level study of perceived threat/intergroup contact, such as in Singapore (Yang 2018), Indonesia (Kanas, Scheepers, and Sterkens 2015), and South Africa (Debrosse et al. 2016), demonstrating evidence of these processes in the Global South and East. However, these studies do not link contact/threat processes to immigrant share within spatial environments (the current focus of this paper).

To better understand the effects of immigration, and how far group threat/intergroup contact theories (in response to immigration) generalize outside of Western contexts, we examine these questions in Japan.

Current Study: Dynamics of Immigration and Immigration Attitudes in Japan

Japan forms a compelling case to explore how immigration affects immigration attitudes, given the relatively unique trajectory Japan, as an advanced economy, took in the post-war period, particularly, its limited use of immigration to relieve labor shortages, resulting in low immigration in the post-war period (Liu-Farrer 2020). However, since the 1980s, Japan has opened itself to migrants, with current legislation now providing a pathway for most migrants toward permanent residency/naturalization (Liu-Farrer 2020). In fact, in 2018, the majority of foreign nationals were (special) permanent residents (Holbrow 2020; Liu-Farrer 2020). Currently, just over 2% of Japan is composed of migrants, with the majority (28%) from China, Korea (16%), Vietnam (13%), Philippines (10%), and Brazil (7%) (Hōmushō Zairyū Kanri chō 2019). Figure 2 plots key migrant group numbers over time, demonstrating how current demographics are a culmination of waves of different groups arriving at different times. These patterns emerge from different push/pull factors, especially historical/governmental policy processes, potentially impacting how Japan responds to immigration.

“Non-citizens” within Japan (foreign residents who appear in Japanese government statistics) are often classified into two types. The first constitute “old comers,” primarily a large Korean population (Zainichi Koreans), alongside Taiwanese/Chinese, arriving via colonial ties (particularly the annexation of Korea by Japan in 1910) (Fielding 2009; Hirota, Sigona, and Nagai 2019). The second set is often termed “newcomers,” arriving in two key phases. The first increase
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Figure 2. Population count of key immigrant groups in Japan over time

occurred between the mid-1980s and mid-2000s in response to two policies. The first was the Immigration Control and Refugee Recognition Law (ICRRL), designed to encourage immigration, usually for employment, in response to labor shortages during the 1980s economic bubble (Fielding 2009; Liu-Farrer 2020). A significant volume of migrants during this period were ethnic Japanese Brazilians and Peruvian (Nikkei), allowed to work freely, on long-term, renewable permits (Kondo 2002; Lessard-Phillips, Roberts, Phillimore 2019a), with most going into manufacturing, channeled through labor brokers (Takenoshita 2013). However, the act also opened so-called side doors to migrants to enter for reasons other than employment, but who were also allowed to work (e.g., students) (Liu-Farrer 2020; Roberts 2018).

The second key policy development was the implementation of the 1993 Technical Intern and Trainee Program (TITP), through which migrants from developing countries (primarily Vietnam, China, the Philippines, and Indonesia) came to work in farms/small businesses, for a maximum of three years (Kondo 2002; Lessard-Phillips, Roberts, Phillimore 2019a; Liu-Farrer 2020). While ostensibly to provide training for migrants, the policy was also a means of admitting unskilled workers under the guise of trainees (Kondo 2002; Roberts 2018).

Taken together, these immigration policy shifts were key drivers of the first wave of migration, with numbers increasing by around 1.2 million from 1990 to 2008. However, the 2008 economic downturn curtailed this rise, given stalling labor demands, while the government encouraged emigration of foreign-born residents (e.g., Nikkei) (Liu-Farrer 2020).

Despite the economic downturn, some labor shortages continued, among so-called unskilled workers (e.g., factory, farm, and fishery), given Japanese youth were reluctant to take these jobs, alongside shortages among “highly skilled” workers (e.g., IT and other professionals), stemming from demographic challenges (aging population/declining birth rates) (Lessard-Phillips, Roberts,
Accordingly, in 2013, a points-based system was introduced alongside relaxing requirements for permanent residency to encourage highly skilled migrants (Holbrow 2020; Holbrow and Nagayoshi 2018; Liu-Farrer 2020). Among lower-skilled workers, 2018 saw migrants allowed to enter as “uncredentialed manual workers” (Liu-Farrer 2020). In 2019, the “Special Skilled Workers I and II” program aimed to expand the TITP program by liberalizing its restrictions, e.g., extending worker stays to 5 years. These policies saw the foreign-born population begin to rise again from 2013 to 2014 onwards, from 2.12 million in 2014 to 2.93 million at the end of 2019, with rising numbers of foreign nationals becoming permanent residents (Holbrow 2020; Liu-Farrer 2020).

Japan’s history of immigration has also affected migrants’ geographical distribution. Zainichi Koreans (and descendants) remain concentrated in the Kansai region (i.e., West regions), especially Osaka, Kyoto, and Kobe, reflecting their post-1910 move into manufacturing/shipbuilding (Hirotta, Sigona, and Nagai 2019; ISAJ 2020). Among “new-comer” groups, Chinese tend to be concentrated in “personal services” occupations (ISAJ 2020). Other South/South East Asian migrants (e.g., Vietnamese) are concentrated within manual production jobs in industrial areas (e.g., Nagoya/Kansai industrial regions), where labor shortages have been severe (ISAJ 2020). Brazilian/Peruvian migrants (Nikkeijin) are found in central Japan urban areas (e.g., Aichi/neighboring prefectures), reflecting initial immigration to manufacturing areas. Migrants from “Western” countries are over-concentrated as “professional/technical” workers, in Tokyo and other large urban areas (e.g., Osaka) (ISAJ 2020). Figure 3(a) shows how these waves of immigration have culminated in the current distribution of migrants across prefectures, in particular, around Tokyo, Kyoto, Osaka, and Aichi. As figure 3(b) shows, however, within prefectures, there is significant heterogeneity in the municipalities in which migrants are concentrated.

This outlined history of immigration could, among other societal features, impact how theories of perceived threat/contact, developed in Western contexts, translate to Japan (conditioning how immigration affects anti-immigrant sentiment). Potentially, perceived threat/intergroup contact may operate similarly in Japan. Regarding perceived threat, Japan has remained relatively homogeneous for much of its history. Processes of acculturation, whereby natives become acclimatized to cultural difference, can take time, and rapid demographic change can lead to acculturative stress and perceived threat (Newman 2013). Similarly, the novelty of immigration in a more homogeneous society could heighten its salience, raising anxiety (Hopkins 2010). Indeed, news articles on immigration are linearly growing in Japan (Koido and Kamibayashi 2018). In addition, Japanese implementation of integration strategies has often been weak (Lessard-Phillips, Roberts, Phillimore 2019b; Nagai 2019), potentially hindering
Figure 3. (a) Geographical distribution of foreign-born residents across prefectures in Japan. (b) Geographical distribution of foreign-born residents across municipalities in Japan.
immigrant integration, while allowing space for negative discourses to flourish without countervailing elite discourses (Shibuichi 2016).

Processes of intergroup contact may also operate similarly in Japan. At the contextual level, growing immigration likely increases intergroup contact. Furthermore, native/immigrant group boundaries could be more pronounced in Japan. Where such saliency is higher, contact can be particularly effective (e.g., Allport 1954).

Concurrently, there are reasons to think the immigrant share/immigration attitudes link may operate differently in Japan. Firstly, there remains a perception among Japanese and migrants that Japan is not a “country of immigration,” and many permanent residents in Japan report the sense they will never be Japanese (even if “naturalized”), despite many foreigners settling in Japan long term (Chung 2020; Liu-Farrer 2020). At the same time, restrictions on the length of time some lower-skilled migrants can remain in Japan (e.g., via TITP) may also reduce long-term settlement of some migrants. This perception of migrants as a temporary presence, and short-term visa status for some groups, may impede threat perceptions, with immigrants perceived less as a permanent feature of society, alongside being viewed as less competition for resources, despite increasing numbers settling down permanently. Relatedly, there is a belief among the public that (limited) economic migration to address labor shortages is important (Kato, Kuznetsova, and Round 2019). By design, low-skilled immigration has been highly restricted and, where allowed, aimed to fill specific labor shortages, with restrictions about transitioning between jobs/locations (although these restrictions are being relaxed) (Ozgen et al. 2019). Similarly, regarding high-skilled immigration, there are requirements to already have a job in place before arrival. Therefore, immigration may not trigger the kinds of economic threat viewed elsewhere.

Secondly, the immigrant share/contact link could also operate differently in Japan. Studies point out that certain lower-skilled migrant groups, particularly TITP status/Nikkei migrants, are more segregated from natives in the labor market/workplace, which could weaken immigrant share/contact links (Tian 2019). For example, migrants may be concentrated in company housing, or particular occupations, with fewer chances for informal interaction with natives (Korekawa 2009). Yet, other low-skilled migrants (e.g., in the “service industry”) tend to be less segregated, while high-skilled migrants work in integrated environments with small numbers of other migrants (Hollbrow and Nagayoshi 2018). Thus, whether immigrant share provides opportunities for contact across workplaces may depend on the immigrant group in question. However, language barriers may also make contact more difficult, and experiences of discrimination may disincentivize migrants to develop language proficiency, preventing them from communicating more intimately with natives (Takenoshita 2013). As such, immigration may be less likely to foster optimal contact.

Taken together, contact/threat, stemming from immigration, could operate similarly or differently in Japan. Few studies directly explore how immigration in Japan affects immigration attitudes. Examining six regional blocks, Green and Kadoya (2015) demonstrate larger foreign-born populations are associated
with greater anti-immigrant sentiment. Nagayoshi (2009) demonstrates that prefectures with a larger share of foreigners (in particular, Chinese) report more anti-immigrant sentiment. Similarly analyzing prefecture foreign-born size, Nukaga (2006) demonstrates greater hostility where their share is higher, but somewhat lower hostility in prefectures with a larger Korean share. Concurrently, conflicting evidence using self-reported measures of “seeing foreigners around in neighborhoods” shows positive immigration effects, potentially tapping contact effects in local environments (Ohtsuki 2003). Generally, Japanese research thus suggests threat processes likely prevail, especially at larger spatial scales. However, such work takes cross-sectional approaches, does not explicitly model perceived threat, and does not explore whether contact processes may be occurring simultaneously alongside threat processes.

Summary

To develop our understanding of how immigration affects immigration attitudes, we address these three interrelated areas by applying longitudinal methods, while undertaking explicit testing of contact/threat mechanisms, to explore the dynamics of how/why immigration affects immigration attitudes in Japan. These areas have been addressed in separate studies, such as longitudinal analyses (Weber 2018), or examining immigration effects outside of Western contexts (Nagayoshi 2009). However, simultaneously addressing these areas should yield a more complete picture of the processes occurring in a unique, newer immigrant-destination society.

Data and Methods

Data

This study mobilizes two datasets. The first is the 2007–2016 Japanese Life Course Panel Survey (JLPS). The initial sample contained nationally representative random samples of young people (aged 20–34) and middle-aged individuals (35–40). Wave 1 response was 37% for the youth sample (n = 3,367 respondents) and 40% for the middle-aged sample (n = 1,433 respondents). In 2011, two refreshment samples were introduced. Given the availability of our outcome across different years, we use the 2008, 2010, 2012, and 2014 waves. Between the first and final wave under analysis, the response rate was 62%.

The advantage of the JLPS is its panel nature, allowing us to apply robust modeling. However, JLPS respondents can only be matched to their prefecture of residence. These are relatively large areas (average population: 2.7 million). European/American studies demonstrate immigrant share at equivalent area sizes matters. However, linking such scales to residents’ everyday experiences of immigration (important to the group threat/contact hypotheses) is more difficult. Furthermore, JLPS does not contain measures of our contact/perceived threat, and the sampling frame means it is representative of 20- to 40-year-olds.
To explore relationships among a more representative sample, examine contact/threat processes, and investigate how far any prefecture-level immigration effects are related to exposure in residents’ more immediate spatial environments, we use the 2017 Public Survey on Political Participation of Citizens and Internationalization (PSPP). PSPP is a cross-sectional dataset of 3,880 respondents (44.5% response rate). A two-stage stratified random-sampling approach was taken: 60 municipalities were randomly selected, and then 150 residents (18–79) randomly selected from each municipality. Critically, PSPP data allow us to link residents to their municipality of residence. These are local administrative areas (average population: 66,000). PSPP also contains extensive measures of perceived threat/contact. All analyses are restricted to Japanese nationals.

Outcomes and Mediating Variables

Our key outcome of interest is individuals’ attitudes toward immigrants/immigration. JLPS respondents were presented with the statement: “It would be good to have more foreigners coming to Japan to settle down” [translated], responding using a 5-option Likert scale of (1) “Strongly Agree” to (5) “Strongly Disagree”—reverse coded so that higher values equal more agreement (University of Tokyo 2008). PSPP respondents were asked: “Are you for or against the increase of the following foreigners in the area where you live?” [translated] (Tanabe 2019). They were then asked to respond (on a 4-option Likert scale of: (1) Against, to (4) For, toward the following groups: Americans, Chinese, Koreans, Germans, Filipinos, and Japanese-Brazilians. To create a PSPP outcome comparable to the JLPS, we averaged scores across these six groups. Average attitudes toward these groups do differ among respondents, ranging from 2.84 toward US immigrants and 1.87 toward Chinese immigrants. This hierarchy is consistent with previous findings (Igarashi 2015). However, individuals’ responses across each group have strong correlations, that is, negative attitudes toward one group are strongly related to negative attitudes to other groups (minimum $r=.5$).

As noted, measures of contact/threat are only available in PSPP. To capture perceptions of threat, respondents were asked: “What do you think will happen if the number of foreigners living in Japan increases?” They were then presented with statements and asked their opinion on a 5-option Likert scale of (1) “Agree” to (5) “Disagree” (where (3) “neither agree nor disagree” formed the mid-point). These statements tap various forms of perceived threat, including whether immigrants: (a) positively contribute to Japanese society, (b) undermine Japanese culture (reverse coded), (c) disturb security and order of Japanese society (reverse coded), (d) positively contribute to the Japanese economy, (e) take jobs away from Japanese (reverse coded), (f) increase social security costs (reverse coded), (g) diversify Japanese culture, and (h) increase crime (reverse coded). In theory, these statements cover constructs of economic-, cultural- and crime-/safety-related threat. To explore whether the measures correspond to these theoretical constructs, we performed an exploratory factor analysis (varimax rotation), given little work tests whether such constructs are apparent in Japan (table 1).

The first factor analysis, including all perceived-threat variables (Factor Analysis 1, table 1), identifies two latent constructs (with loadings over .4 and
Table 1. Factor Analysis of Perceived Threat Items

| Variable: What do you think will happen if the number of foreigners living in Japan increases… | Factor Analysis 1 (all variables) | Factor Analysis 2: Index of fears associated with immigrants’ impact on Japanese society ((b), (c), (f), and (h)) | Factor Analysis 3: Index of attitudes toward whether immigrants will positively contribute to economic/social aspects of society ((a) and (d)) |
|-----------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Factor 1                                                                                       | Factor 2                          | Factor 3                                                                                       | Factor 1                                                                                       | Factor 1                                                                                       |
| a. Positively contribute to Japanese society                                                  | 0.18                              | 0.75                                                                                           | 0.04                                                                                           | n/i                                                                                           | 0.73                                                                                           |
| b. Undermine Japanese culture (reversed)                                                       | 0.52                              | 0.14                                                                                           | 0.18                                                                                           | 0.55                                                                                           | n/i                                                                                           |
| c. Disturb security and order of Japanese society (reversed)                                  | 0.74                              | 0.08                                                                                           | 0.04                                                                                           | 0.76                                                                                           | n/i                                                                                           |
| d. Positively contribute to the Japanese economy                                               | 0.04                              | 0.74                                                                                           | 0.04                                                                                           | n/i                                                                                           | 0.73                                                                                           |
| e. Take jobs away from Japanese (reversed)                                                     | 0.33                              | 0.11                                                                                           | 0.37                                                                                           | n/i                                                                                           | n/i                                                                                           |
| f. Increase social security costs (reversed)                                                   | 0.52                              | 0.11                                                                                           | 0.35                                                                                           | 0.56                                                                                           | n/i                                                                                           |
| g. Diversify Japanese culture                                                                | −0.14                             | 0.35                                                                                           | −0.13                                                                                          | n/i                                                                                           | n/i                                                                                           |
| h. Increase crime (reversed)                                                                  | 0.71                              | 0.1                                                                              | 0.09                                                                                           | 0.73                                                                                           | n/i                                                                                           |
| Eigen value                                                                                   | 1.82                              | 1.31                                                                                           | 0.32                                                                                           | 1.72                                                                                           | 1.07                                                                                           |
| Alpha                                                                                         | 0.68                              |                                                                                                 |                                                                                                 | 0.76                                                                                           | 0.79                                                                                           |

Notes: varimax rotation; n/i = not included in factor analysis due to initial loading below 0.4 in factor analysis 1.
Eigen-values above 1). These include an index of fears associated with immigrants’ impact on Japanese society ((b), (c), (f), and (h)) and an index of attitudes toward whether immigrants will positively contribute to economic/social aspects of society ((a) and (d)). Separate factor analyses of these two constructs (Factor Analysis 2 and 3, table 1) demonstrate they fulfill the criteria to create two separate indices (with loadings above .4, an Eigen value above 1, and an Alpha coefficient above .7). Two threat measures ((e) and (g)) did not load strongly and are treated as distinct measures. Contrary to expectations, in Japan, negative dimensions of economic/cultural/crime-safety threat load together to form a single dimension of perceived immigration-related problems, while positively valanced perceptions (of contributions made to society/economy) load onto a separate factor. That perceptions that immigration will “take jobs away from Japanese” do not load strongly onto dimensions of “fears regrading immigration’s impact on society” is noteworthy and will be discussed later.

Lastly, frequency of immigrant contact is measured using the question: “How often do you meet foreigners face-to-face in the area where you live?” [Translated]. Measured on a 4-point Likert scale of (1) Often, (2) Sometimes, (3) not so often, and (4) not at all (reversed).

**Key Independent Variables**

Our main independent variable is the immigrant share in an area (defined as individuals who do not have Japanese nationality and have been in Japan more than three months). For JLPS longitudinal analysis, we use bi-annual statistics on the size of the foreign-born population in prefectures (2008–2014) (Ministry of Justice). For PSPP analysis, we use the 2015 proportion of foreigners in a respondent’s municipality (2015 Census) (Statistics Bureau).

**Covariates**

As our theoretical model (figure 1) and framework outlines, the immigrant share is predicted to shape one’s anti-immigrant sentiment, beyond individuals’ own characteristics. However, contextual immigrant share may be correlated with other individual-level characteristics/contextual features, predicting anti-immigrant sentiment, confounding models. We thus adjust for multiple individual-/contextual-level covariates.

At the individual level, we adjust for socio-economic status, given lower status generates perceived threat. This includes objective measures (employment status (including manual/non-manual classification)) and subjective measures (subjective social status; evaluation of standard of living) (see Supplementary Appendix S.1 and S.2 for data descriptives). Relatedly, we adjust for housing status, given majority group concerns over immigrants’ impact on housing prices/area quality. We adjust for age given its associations with exclusionary attitudes (Semyonov et al. 2004), alongside gender and marital status, given known patterns that females/married individuals are more tolerant (Nagayoshi 2009).
We also adjust for highest education level (most recent qualification), given it can affect cultural-threat perceptions. In JLPS analysis, we additionally control for year of survey (to adjust for common trend). PSPP analysis also includes whether a respondent has traveled to foreign countries/lived in a foreign country (1+ months), as intercultural experiences can reduce prejudice (Sparkman, Eidelman, and Blanchar 2016), and whether respondents live in the prefecture in which they were born/years lived in current area, as geographical rootedness can foster negative reactions to immigration (Lee, Morris, and Kemeny 2018).

At the prefectural level, we adjust for unemployment rate and a prefecture’s financial capability index (financial revenues divided by standard financial needs) to pick up regional economic conditions, which can also generate perceived threat (Nagayoshi 2009). In addition, we adjust for households assisted by livelihood protection per 1,000, social welfare spending per capita, and ratio of expenditure for livelihood protection. On one hand, greater proportions in receipt of state support/welfare spending may act as a protective effect, given majority groups may feel less threat if their status is protected through social security (van Oorschot and Uunk 2007). However, public narratives exist around immigrants are as a welfare burden, especially as a competition for scarce resources (Christian and Ian 2007). Thus, where welfare spending is higher/need greater, immigrants may be seen as resource competitors. Tests did not reveal multi-collinearity between measures; thus, we include them separately. For JLPS, these are measured at synchronous time-points as the JLPS waves. At the city level, fewer contextual-level covariates are available. However, for the PSPP analysis, we include, in addition to the above prefectural covariates, municipality level unemployment rate and proportion of youth not completing high school.

These contextual-level data are taken from the Statistics Bureau (2015/2016)5.

Methodology and Analytical Approach

The first analytical stage draws on the four waves of JLPS panel data. We begin by running a pooled-regression model, using all four waves of data. This approach essentially treats the panel data like any other cross-sectional data, ignoring its time dimension. With three levels of clustering (observations in individuals in prefectures), multi-level linear regression will correctly estimate standard errors (we apply linear regressions to model the ordinal outcome given limitations of applying fixed-effects ordered logistic regression; however, we also transformed the outcome into a binary variable and tested fixed-effects logistic regression, which yielded substantively similar findings6). This initial pooled-regression approach aims to replicate the approach of current cross-sectional research, which tests the association between levels of immigrant share and levels of anti-immigrant attitudes. This allows us to, first, examine how the level of immigration attitudes varies over the level of immigrant share; however, we can also compare these findings to subsequent, more causally robust models, utilizing the panel element, to observe potential bias within cross-sectional approaches.

To more robustly test the posited causal impact of immigration, we then apply fixed-effects models (a Hausman test indicates endogeneity likely biases
random-effects estimates; thus, we focus on fixed-effects estimates\textsuperscript{7}). The advantage of fixed-effects panel methods is that they adjust estimates for omitted variables potentially correlated with our outcome/explanatory variables, particularly those that do not (or are not expected to) vary over time, that is, time-invariant unobserved heterogeneity. This includes personality traits, IQ, parental characteristics (e.g., education and prejudice) or even prior immigration exposure, where their value at one time-point will be the same as at another time-point. Given these may be associated with both prefecture immigrant share (e.g., selection processes) and individuals’ anti-immigrant sentiment (e.g., personality traits), their absence from models might bias estimates. In fixed-effects panel data models, respondents serve as their own control to partial-out the effects of time-invariant unobserved heterogeneity through a process of “time-demeaning” variables, where the within-respondent means for each independent/dependent variable are subtracted from the observed values of each variable. Accordingly, for variables that do not change over time, the mean would be the same as the value at every time-period, dropping out of the model. This removes all between-respondent variability, leaving only within-person variability. Given such approaches only model within-person variability over time, then any variability solely emerges from changes in the variable over time, for example, immigrant share variability will only come from changes in immigrant share. Thus, such models test the association between changes in immigrant share/anti-immigrant sentiment.

To be sure, such models do not adjust for time-variant unobserved heterogeneity (variables correlated with both independent/dependent variables that change over time), for example, employment status. Accordingly, we adjust models for time-variant individual-/contextual-level covariates. As additional robustness tests, we examine restricting the sample to staying periods: 2+ periods where a respondent remained in the same prefecture. As outlined, fixed-effects models test the association between changes in dependent/independent variables. At the contextual level, changes in characteristics may stem from both changes occurring within a prefecture over time around an individual and also from an individual moving between two prefectures with different characteristics. In the latter case, the models do not account for time-invariant heterogeneity at the prefectural level, given individuals may be moving between prefectures with different unmeasured characteristics. By restricting samples to “staying periods,” we can be more certain any change in immigrant share stems from changes occurring around an individual, adjusting for time-invariant contextual-level unobserved heterogeneity (although prefecture transitions are low) (Laurence and Bentley 2016).

The second stage of analysis draws on the cross-sectional PSPP data for two aims. Firstly, it will explore whether any effects of prefectural immigration identified in JLPS are being driven by proximity to immigrants within one’s more immediate city/municipality. As Supplementary Appendix S.1 shows, prefectural percent foreigner in JLPS data ranges from 0.29 to 3.32 percent. The relatively large size of prefectures raises the question of what a difference of three
percentage points in immigrant share between prefectures means for exposure on the ground. However, as figure 3(a) and (b) demonstrates, prefectural immigrant share masks greater variation across smaller municipalities. In PSPP, municipality immigrant share ranges from 0.14 to 10.52 percent (Supplementary Appendix S.2). Therefore, a difference in prefectural percent foreign born of three percentage points may translate into larger municipality-level differences. Thus, we test whether any prefectural-level immigrant share/anti-immigrant sentiment relationship is driven by exposure to foreigners at the municipality level.

The second aim of the second analytical stage is to examine contact/threat mechanisms in understanding any municipality-level foreign-born/immigration attitudes relationship. Accordingly, PSPP analysis begins by replicating JLPS analysis (testing prefectural-level immigrant share on immigration attitudes). We then introduce city-level foreign born/covariates, before exploring how far measures of perceived threat/intergroup contact explain any observed immigrant share/immigration attitudes relationship.

Analysis of JLPS is complicated by missingness from attrition/the refreshment samples. Both can threaten external validity. Given the conservative nature of fixed-effects analyses, models are conducted on the full available JLPS sample to maximize n. However, we re-run all analyses excluding the refreshment sample as well as generating inverse-probability weights, using multiple known wave-1 predictors of attrition (e.g., parental education).

**Results**

**Descriptive Overview**

We begin with a descriptive overview of immigration attitudes across prefectures (see Nagayoshi (2009) for detailed prefecture characteristics). Figure 4 shows average immigration support across prefectures (derived from all JLPS waves), where lower scores indicate less immigration support. These range from lower-support areas, including Aichi (2.13), Yamaguchi (2.23), Shizuoka (2.32), and Tochigi (2.34), up to higher-support areas, such as Wakayama (2.92), Okinawa (2.87), and Ehime (2.82). In some ways, these descriptives fit threat predictions, with least support in areas with (relatively) high immigration, such as Aichi (2.83 percent foreigner), Tochigi (1.65 percent), and Shizuoka (2.33 percent), and higher support in areas with low immigration, such as Wakayama (0.61 percent), Okinawa (0.69 percent), and Ehime (0.65 percent). However, there are also low-immigration/lower-support prefectures (Yamaguchi, 0.98 percent), while Tokyo, with the highest immigrant share (3.15 percent), has average attitudes (2.5). These descriptives show indicative evidence that immigration may trigger anti-immigrant attitudes. However, as outlined, immigrant share may be correlated with other drivers of immigration attitudes. We thus apply multivariate modeling to analyze more robustly the immigrant share/immigration attitudes relationship.
Dynamics of Prefectural Immigrant Share and Anti-Immigration Sentiment

We next test how immigrant share in prefectures affects residents’ immigration attitudes, using JLPS data, via regression analyses (Table 2). As outlined, we first aim to closely replicate the approach taken among cross-sectional studies, testing a pooled-regression model of four waves of JLPS data (Model 1). This demonstrates that individuals in prefectures with a larger immigrant share report less support for immigration. Residents in prefectures with a higher rate of individuals on assisted livelihood also report more negative attitudes. Furthermore, we also observe the surprising finding that prefectural unemployment rate predicts positive immigration attitudes (e.g., Nagayoshi 2009) (see Supplementary Appendix S.3 for full individual-level results).

As outlined, however, such approaches may be biased by unobserved time-invariant heterogeneity. The next stage tests these findings more robustly through fixed-effects analysis (Model 2). As discussed, fixed-effects models focus on within-individual variability over time, exploring how changes in independent variables are associated with changes in anti-immigrant sentiment. Here, the coefficient for prefectural percent foreign born remains significant and becomes more negative. Prefectural Assisted Livelihood rate is also still significant. However, the unemployment rate turns negative (and non-significant).

Taken together, these results demonstrate strong evidence that increasing immigrant share in a prefecture undermines residents’ support for immigration. The pooled-regression model demonstrates that levels of support for immigration are lower in prefectures with a higher level of immigrant share. The
Table 2. Prefectural-Level Drivers of Attitudes toward Immigration (JLPS)

| Outcome | Model 1 | Model 2 | Model 3 |
|---------|---------|---------|---------|
| Model Type | Pooled Cross-sectional | Fixed-Effects | Fixed-Effects |
| Observations Sample | All | All | Prefecture Stayers |

### Financial Capability Index

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | 0.143 | 0.200 | 0.154 |
| | (0.118) | (0.192) | (0.216) |

### Unemployment Rate

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | 0.050* | −0.012 | −0.016 |
| | (0.025) | (0.037) | (0.039) |

### Assistance Livelihood Rate

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | −0.008* | −0.016* | −0.027** |
| | (0.003) | (0.007) | (0.009) |

### Social Welfare Spending per Capita

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | 0.004 | 0.006 | 0.003 |
| | (0.002) | (0.004) | (0.004) |

### Ratio of Expenditure for Livelihood Protection

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | −0.010 | 0.004 | −0.009 |
| | (0.036) | (0.082) | (0.101) |

### Percent Foreign Born

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | −0.074* | −0.140* | −0.145* |
| | (0.032) | (0.057) | (0.070) |

### Constant

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| | 2.149*** | 2.437*** | 2.672*** |
| | (0.161) | (0.265) | (0.317) |

**Notes:** significance levels: *0.05; **0.01; ***0.001; pooled cross-sectional regression and fixed-effects panel data regressions; models include all individual-level controls although not shown, including employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing status; age given its associations with exclusionary attitudes toward immigrants; gender; marital status; education level; year of survey.
fixed-effects approach demonstrates positive prefectural changes in immigrant share are associated with negative changes in immigration support. Figure 5 plots predicted immigration attitudes scores across prefectural immigrant share based on the fixed-effects approach (Model 2, table 2). This demonstrates that (predicted) immigration support decreases from 2.77 (on a 1 to 5-point scale) in the lowest percent foreign born (0.29-percent) to 2.35 in the highest (3.32 percent). This represents a non-trivial effect size relative to known predictors. The predicted difference in attitudes between the lowest/highest immigrant share prefectures is 0.42. This is larger than the gap in attitudes between middle/high school diplomas and graduate degrees (0.18), and larger than the difference between self-reporting being “poor” compared to “wealthy” (0.31) (derived from Model 2, table 2).

Undertaking additional robustness tests, Model 3 (table 2) restricted the sample to those individuals who did not move between prefectures (“stayers”), additionally adjusting for prefectural-level time-invariant unobserved heterogeneity. These results are consistent with those reported in Model 2 (although caution is advised against generalizing this restricted sample to all people). In addition, models excluding the refreshment sample and applying weights to adjust for attrition returned substantively similar conclusions (see Supplementary Appendix S.4).
Municipality Immigrant Share, Immigration Attitudes, and Mechanisms of Contact/Threat

We next aim to explore in more detail the negative link between prefectural-level immigrant share and immigration attitudes, using PSPP data. The first step examines whether the observed impact of prefecture-level percent foreign born on immigration attitudes is actually picking up proximity to immigrants in one’s more immediate environment, that is, their city/municipality. Model 1 (table 3) firstly tests the key JLPS panel finding—that prefecture immigrant share is associated with more negative immigration attitudes: we similarly observe that prefecture immigrant share is associated with negative immigration attitudes (see Supplementary Appendix S.5 for full individual-level results). In Model 2, we introduce our municipality-level predictors, observing that none are significant. Furthermore, prefecture-level immigrant share remains unchanged. However, Model 3 includes a quadratic-term for municipality-level percent foreign born. This is significant and positive. In addition, the coefficient for prefecture-level foreign born is reduced by 40% and rendered non-significant.

To investigate this finding further, figure 6 plots predicted immigration attitudes scores across the actual levels of municipality-level immigrant share present in the data (based on Model 3). Most municipalities in the data have levels of foreign born below 4 percent. As immigrant share increases up to this point, immigration attitudes become increasingly negative. However, after this point, the negative relationship weakens, such that attitudes in Taitō (7-percent foreign born) are similar to those in municipalities with an immigrant share of 4 percent. Beyond this, attitudes improve, such that some of the most positive immigration attitudes are found in the most diverse municipality (Shinjuku: 10.5 percent foreign born). Robustness checks demonstrated this non-linearity held for attitudes toward “Western” and “non-Western” (primarily Asian) migrant groups.

These findings raise several takeaways. Firstly, a large part of the relationship between prefecture-level immigrant share and immigration attitudes comes through residents of more diverse prefectures experiencing greater immigration proximity in their more immediate municipalities. Secondly, however, the municipality-level immigrant share/immigrant attitudes relationship appears non-linear. A key question is how far this non-linearity is driven solely by Shinjuku (as an outlier). We examined this by replicating Models 1–3 but excluding Shinjuku from the sample (see Supplementary Appendix S.6 for full results). The findings show that prefecture-level immigrant share continues to predict more negative attitudes toward immigrants. However, when Shinjuku is excluded, the linear (not quadratic) municipality-level percent foreign-born coefficient is significant and negatively predicts attitudes, and this alone accounts for a key part of (and the significance of) prefectural-level foreign born. In sum, the non-linearity observed in Model 3 appears driven by Shinjuku. We will explore these issues further in the discussion. However, following good data practice, we do not exclude Shinjuku in forthcoming analyses (while continuing to explore whether its presence drives further observed non-linearity).
Table 3. Municipality- and Prefectural-Level Drivers of Attitudes toward Immigration (PSPP)

| Outcome                      | Model 1                  | Model 2                  | Model 3                  |
|------------------------------|--------------------------|--------------------------|--------------------------|
|                              | Attitudes toward immigrants | Attitudes toward immigrants | Attitudes toward immigrants |
| Sample                       | All                      | All                      | All                      |
| **Prefecture-level**         |                          |                          |                          |
| Financial capability index   | 0.248*                   | 0.219                    | 0.211*                   |
|                              | (0.126)                  | (0.123)                  | (0.108)                  |
| Unemployment Rate            | −0.073                   | −0.063                   | −0.067                   |
|                              | (0.050)                  | (0.048)                  | (0.039)                  |
| Assistance Livelihood Rate   | 0.003                    | 0.002                    | 0.002                    |
|                              | (0.004)                  | (0.004)                  | (0.004)                  |
| Social welfare spending per capita | 0.003                   | 0.003                    | 0.002                    |
|                              | (0.002)                  | (0.002)                  | (0.002)                  |
| Ratio of expenditure for livelihood protection | 0.013                   | 0.017                    | 0.010                    |
|                              | (0.023)                  | (0.025)                  | (0.026)                  |
| % foreign-born               | −0.068**                 | −0.064*                  | −0.045                   |
|                              | (0.025)                  | (0.025)                  | (0.027)                  |
| **Municipality-level**       |                          |                          |                          |
| % non-completed high school  | 0.012                    | 0.010                    |                          |
|                              | (0.013)                  | (0.011)                  |                          |
| % unemployed                 | −0.016                   | 0.002                    |                          |
|                              | (0.018)                  | (0.021)                  |                          |
| % foreign born               | 0.001                    | −0.064*                  |                          |
|                              | (0.008)                  | (0.025)                  |                          |
| % foreign born * % foreign born | 0.007***                |                          |                          |
|                              |                          | (0.002)                  |                          |
| Constant                     | 2.611***                 | 2.612***                 | 2.683***                 |
|                              | (0.211)                  | (0.204)                  | (0.189)                  |
| N (Individuals)              | 3,446                    | 3,446                    | 3,446                    |
| N (Municipalities)           | 60                       | 60                       | 60                       |
| N (Prefectures)              | 24                       | 24                       | 24                       |

Notes: significance levels: *0.05; **0.01; ***0.001; multi-level random-intercept linear regression; models include all individual-level controls although not shown, including employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing status; age given its associations with exclusionary attitudes toward immigrants; gender; marital status; education level; whether a respondent has traveled to foreign countries and lived in a foreign country (1+ months); whether respondents live in the prefecture in which they were born, and years lived in current area.
We next investigate how far mechanisms of intergroup contact/perceived threat account for the findings so far. Model 1 (table 4) first replicates the quadratic municipality-level percent immigrant/immigration attitudes relationship (as observed in Model 3, table 3). We begin by exploring the mediating role of intergroup contact. Firstly, analyses of PSPP data show immigrant share strongly predicts intergroup contact (see Supplementary Appendix S.7). This relationship is non-linear, increasing up to around 7 percent foreign born, before stabilizing (see Supplementary Appendix S.8 for graphed scores of this relationship). To test contact’s mediating role, Model 2 (table 4) includes the intergroup contact measure. Firstly, intergroup contact is associated with positive immigration attitudes. Secondly, on including contact, the strength of the quadratic term for city-level percent foreigner becomes stronger (a Wald test shows that the linear and quadratic immigrant share coefficients were significantly different in Model 2 compared to Model 1). This suggests that increasing contact in higher immigrant share environments suppresses the observed negative effect of percent immigrant on immigration attitudes. More specifically, the negative association between percent immigrant and immigration attitudes at lower levels of immigrant share (<4%) becomes more negative, while the positive association between immigrant share/immigration attitudes at higher levels (>7%) now decreases.

We next explore the mediating role of perceived threat. Firstly, we undertake analyses of PSPP data to test how municipality-level immigrant share predicts perceived threat (see Supplementary Appendix S.7). We first look at the index
Table 4. Mediating Role of Intergroup Contact and Perceived Threat in the Relationship between Immigrant Share and Attitudes toward Immigrants

|                          | Model 1 | Model 2 | Model 3 | Model 4 |
|--------------------------|---------|---------|---------|---------|
|                          | Attitudes toward immigrants | Attitudes toward immigrants | Attitudes toward immigrants | Attitudes toward immigrants |
| **Prefecture-level**     |         |         |         |         |
| Financial capability index | 0.211*  | 0.192   | 0.126   | 0.112   |
|                          | (0.108) | (0.101) | (0.081) | (0.077) |
| Unemployment Rate        | −0.067  | −0.071  | −0.058  | −0.061  |
|                          | (0.039) | (0.041) | (0.037) | (0.038) |
| Assistance Livelihood Rate | 0.002   | 0.002   | 0.002   | 0.001   |
|                          | (0.004) | (0.004) | (0.003) | (0.003) |
| Social welfare spending per capita | 0.002   | 0.002   | −0.000  | 0.000   |
|                          | (0.002) | (0.002) | (0.001) | (0.002) |
| Ratio of expenditure for livelihood protection | 0.010   | 0.011   | 0.009   | 0.009   |
|                          | (0.026) | (0.026) | (0.016) | (0.015) |
| % foreign born           | −0.045  | −0.038  | −0.033  | −0.027  |
|                          | (0.027) | (0.026) | (0.019) | (0.017) |
| **City-level**           |         |         |         |         |
| % non-completed high school | 0.010   | 0.010   | 0.009   | 0.009   |
|                          | (0.011) | (0.012) | (0.005) | (0.006) |
| % unemployed             | 0.002   | 0.008   | 0.008   | 0.014   |
|                          | (0.021) | (0.022) | (0.019) | (0.020) |
| % foreign born           | −0.064* | −0.098*** | −0.026  | −0.056** |
|                          | (0.025) | (0.028) | (0.016) | (0.019) |
| % foreign born * % foreign born | 0.007*** | 0.009*** | 0.003*  | 0.005** |
|                          | (0.002) | (0.002) | (0.001) | (0.002) |

Continued
|                   | Model 1 | Model 2 | Model 3 | Model 4 |
|-------------------|---------|---------|---------|---------|
|                   | Attitudes toward immigrants | Attitudes toward immigrants | Attitudes toward immigrants | Attitudes toward immigrants |
| **Individual-level Mechanisms** |         |         |         |         |
| Local Contact     | 0.089*** | 0.077*** |         |         |
|                   | (0.011)  | (0.012) |         |         |
| Threat—Problems   |         | -0.274*** | -0.279*** |         |
|                   |         | (0.011)  | (0.012) |         |
| Threat—not positively contribute |         | -0.312*** | -0.307*** |         |
|                   |         | (0.020)  | (0.020) |         |
| Threat—jobs       |         | -0.014   | -0.014   |         |
|                   |         | (0.014)  | (0.014) |         |
| Threat—cultural   |         | -0.055*** | -0.052*** |         |
|                   |         | (0.015)  | (0.015) |         |
| Constant          | 2.683*** | 2.546*** | 2.982*** | 2.855*** |
|                   | (0.189)  | (0.192)  | (0.170)  | (0.170)  |
| N (Individuals)   | 3,446    | 3,446    | 3,446    | 3,446    |
| N (Municipalities)| 60       | 60       | 60       | 60       |
| N (Prefectures)   | 24       | 24       | 24       | 24       |

**Notes:** significance levels: *0.05; **0.01; ***0.001; multi-level random-intercept linear regression; models include all individual-level controls although not shown, including employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing status; age given its associations with exclusionary attitudes toward immigrants; gender; marital status; education level; whether a respondent has traveled to foreign countries and lived in a foreign country (1+ months); whether respondents live in the prefecture in which they were born, and years lived in current area.
of fears (crime, welfare burdens, etc.) associated with immigrants’ impact on society (perceived “immigrant problems” index), and the index of beliefs that immigrants will “not positively contribute to” Japanese society. Both measures have a non-linear relationship with municipality-level immigrant share: up to around 4%, these threat perceptions increase, after which such negative attitudes stabilize (at 7%) before declining at the highest percent foreigner (~10%). We also observe that residents in municipalities with a higher immigrant share are less likely to believe immigrants deprive Japanese of jobs. Lastly, immigrant share has no relationship with perceptions that immigration will diversify Japanese culture (see Supplementary Appendix S.9–S.12 for graphed predicted scores).

We next explore whether perceived threat mediates the municipality-level immigrant share/immigration attitudes association. In Model 3 (table 4), we add perceived threat measures to our baseline model (excluding intergroup contact). Firstly, perceiving that immigrants pose societal problems, that they will not positively contribute to society, and not believing immigrants will diversify Japanese culture, are all associated with more negative immigration attitudes. Interestingly, jobs threat is not significant when controlling for other forms of threat. Secondly, comparing Model 3 to Model 1, including the measures of threat reduces the non-linear city-level immigrant term by nearly 60% (a Wald test shows that the linear and quadratic immigrant share coefficients were significantly different in Model 3 compared to Model 113). Thus, a substantial part of why municipality-level immigrant share affects immigration attitudes is accounted for by perceptions that immigrants cause societal problems and that immigrants do not positively contribute to Japanese society. More specifically, perceived threat accounts for the negative association between municipality-level percent immigrant and immigration attitudes at lower municipality immigrant share (<4%), while decreasing perceived threat also explains the positive association with attitudes at higher immigrant share (>7%).

Taken together, these findings suggest countervailing processes of intergroup contact and perceived threat may be at work as municipality-level percent immigrant increases. In lower immigrant share municipalities (up to 4%), increasing immigrant shares are associated with increasing perceived threat, which is related to more negative immigration attitudes. However, increasing immigrant share is also associated with intergroup contact, which is positively related to immigration attitudes. As such, as the immigrant share increases in municipalities (up to around 4%), contact suppresses a growing negative effect of immigration stemming from perceived threat. At higher levels of municipality-level percent immigrant (>7%), immigrant share is actually associated with declining perceived threat. At the same time, rates of contact change very little above 7% municipality-level immigrant share. As such, the positive upturn in immigration attitudes is driven primarily by declining perceived threat. When we account for both sets of (countervailing) contact/threat mechanisms (Model 4), the quadratic term is now only reduced by about 30%, remaining significant, compared to the baseline model (Model 1) (see Supplementary Appendix S.13 for individual-level results). We re-ran all analyses but omitting Shinjuku from
The Dynamics of Immigration and Anti-Immigrant Sentiment in Japan

Discussion

This paper demonstrates that increasing immigration across Japanese prefectures engenders less immigration support among natives. In prefectures with a higher immigrant share, immigration support is lower (pooled regression model). Observing these processes within individuals over time (fixed-effects modeling) provides evidence this relationship is not solely a product of time-invariant unobserved heterogeneity (and further robustness tests of causal ordering and degree of confounding from omitted time-variant variables provide additional confidence in the finding—see Supplementary Appendix S.16). What links prefectural immigrant share to people’s attitudes? This prefectural-level relationship appears driven by higher prefectural immigrant share translating into greater proximity to immigrants in individuals’ more immediate municipalities, and such municipality-level proximity is also associated with worsening immigration attitudes. However, this negative effect is concentrated in lower immigrant share municipalities (<7% immigrant). Above this, there is evidence that immigration attitudes appear more positive (a non-linear relationship) (discussed below). This immigrant share/immigration attitudes relationship can be partly explained by dual effects of immigration on intergroup contact and perceived threat, which exert countervailing effects as immigration increases to collectively drive the overall immigrant share/attitudes relationship. However, even accounting for these processes, a negative immigrant share/immigration attitudes relationship remains, suggesting other mechanisms may be at work.

These findings thus make key contributions to understanding how Japan is responding to immigration. However, they also provide insights for the international literature on how immigration shapes attitudes, alongside the applicability of models developed in Western contexts to non-Western destinations.

Firstly, fixed-effects modeling provides stronger evidence that negative immigrant share/immigration attitudes cross-sectional associations are unlikely to be solely driven by unobserved heterogeneity/selection. The paper also corroborates European/North American findings that this negative association is stronger at larger geographic scales (prefectural level) and more complex at the city level (e.g., Pottie-Sherman and Wilkes 2017). Secondly, the paper shows that both contact and threat theories are valid in the Japanese context, with rising immigrant share triggering positive effects from the former and negative effects from the latter. Therefore, despite potential societal differences, European/North American theories appear keenly salient for the Japanese context.

Thirdly, the paper highlights the necessity of explicitly modeling both contact and threat mechanisms. Solely modeling perceived threat would indicate threat processes predominate, yet we demonstrate that contact effects are also clearly at work. At the same time, solely modeling contact can inflate the role of perceived threat: when contact and threat are modeled together, a significant negative
association between immigrant share and attitudes remains unaccounted for by perceived threat.

Fourthly, findings raise the possibility that immigrant share has a non-linear relationship with immigration attitudes (at least at the municipality level), and that apparent non-effects (our linear municipality-level immigrant share term) may emerge from non-linearity. Non-linearity is not unknown in the literature (e.g., Rink, Phalet, and Swyngedouw 2008; Schneider 2008). Rink, Phalet, and Swyngedouw (2008) similarly observe the most positive relations in either homogeneous or highly diverse municipalities, positing thresholds of contact, or perceptions of immigrant share, as drivers. Drawing on the Japanese case, we posit another explanation: provisions for immigrant integration, which differ significantly across municipalities. With an apparent vacuum at the national level, much of the ground work for managing diversity has been taken up by municipal-governing structures, leading to significant spatial heterogeneity in integration policies (Kashiwazaki 2013; Nagai 2019). Some municipalities experiencing larger immigrant shares have put into place programs facilitating anti-discrimination laws, and education/health care access, which could foster greater integration, improving immigration attitudes (Nagai 2019). However, areas with lower immigrant shares (or where change occurred recently) may lag behind in integration infrastructure, leading to more pejorative views among local populations. As municipalities hit a certain threshold of immigrant share, managing integration may become a greater priority.

Potentially, however, the cases driving the observed non-linearity (Shinjuku and (to a lesser extent) Taitō) may represent outlier cases. Shinjuku and Taitō have longer histories of immigration and ethnic communities that grew post-World War II. Accordingly, this may foster acculturation in such areas, normalizing immigrants’ presence (Newman 2013). As demonstrated, when excluding Shinjuku, findings fit a linear negative immigrant share/attitudes relationship.

Taken together, our findings thus appear to substantiate, and also help further elucidate, models of immigration developed into Western contexts. However, differences do exist, pointing toward potential divergences. The first is that the survey measures of cultural-, economic- and crime/safety-perceived threat do not appear to tap distinct dimensions aligning with theoretical constructs of cultural/economic/crime threat. Instead, most dimensions of perceived immigration problems form a single construct of perceived threat, while a separate construct of positively valanced (society/economy) views of immigration emerges. This could suggest that Japanese may not experience separate forms of perceived threat, instead experiencing a generalized threat across all dimensions (although studies of Western contexts also show dimensions loading on to a single threat construct (e.g., Schneider 2008)).

The second difference is how immigrant share is associated with different dimensions of perceived threat. While immigrant share is associated with fears of immigrant-related problems (crime, welfare resources, etc.), it is also associated with viewing immigrants as less of a threat to job prospects. Several reasons may account for this. Firstly, Japan’s policies limiting immigration of lower-skilled workers, and the requirement that immigrants who do come already...
have a job in place to receive a professional work visa (Holbrow and Nagayoshi 2018; Liu-Farrer 2020), may reduce the saliency of economic-threat perceptions, especially among lower-skilled natives. Secondly, regarding the low-skilled immigration to Japan that does occur (e.g., TITP trainees), such workers are more temporary, or restricted to particular sectors/locations, potentially impeding perceived competition (Paul 2011; Tian 2019). This may explain why surveys show Japanese citizens are more positive about immigration when considering economic migrants than, say, refugees (Kato, Kuznetsova, and Round 2019). This suggests future studies applying the contact/threat framework may benefit from thinking about how different societal contexts influence how such processes operate.

The third potential Japan case difference is that, even accounting for perceived threat/contact, immigrant share continues to possess a negative association with immigration attitudes. It may be that models do not contain sufficient controls, or that measures of contact/threat are incomplete. However, we may also need to consider other drivers of immigration attitudes, beyond contact/threat. One possibility is that majority group norms may become less tolerant in areas where immigration increases. Such norms prescribe attitudes, values, and behaviors toward outgroup members, enabling the development of prejudice (Christ et al. 2014). Future work exploring such norms may shed light on what else connects immigrant share to attitudes.

One issue that does prevent us from making too full a comparison of the Japanese case to other societies is Japan’s lower immigration, ranging from 0.29 percent to 3.22 percent across prefectures. This raises the question of whether the same findings observed between 0 percent and 3 percent would hold for an increase of 10 to 13 percent. Potentially, effects could weaken with increases beyond a certain threshold. Thus, we should not extrapolate from the findings to assume subsequent increases in immigration across prefectures will lead to the same worsening of attitudes.

Despite these insights, this study has shortcomings. Although the fixed-effects analysis addresses bias from time-invariant unobserved heterogeneity, time-variant unobserved heterogeneity may continue to bias models if some other feature of prefectures changes alongside changes in immigration, which is actually the cause of the worsening attitudes, or if some prefectoral characteristic affects both changing immigration and attitudes. Alongside this, the municipality-level analysis remains cross-sectional and potentially more biased to unobserved heterogeneity. Similarly, the cross-sectional intergroup contact/pro-immigration relationship could equally be driven by more tolerant individuals seeking out contact. The analysis also focused on how immigrant share affects immigration attitudes in general. However, heterogeneity may exist between how proximity to different migrant groups affects immigration attitudes (Nagayoshi 2009). Another limitation is that our outcome measures ask about attitudes toward immigrants in general. However, immigration may have different effects on perceptions of specific types of immigration, for example, temporary labor migrants, naturalizing professional workers, refugees, etc. Future research will seek to address these limitations.
In sum, through longitudinal analysis, and explicit mechanism testing, this paper provides important insights into how immigration affects immigration attitudes in Japan. In doing so, it also provides compelling evidence for the generalizability of models developed in Western contexts to an NID. However, the paper raises questions for further analysis, particularly regarding the trajectory that dynamics of immigration/anti-immigrant sentiment will take in Japan, and how far it will follow Western societies. Several differences between contexts, such as possible non-linear relationships in immigrant share effects, or perceptions of immigrants as less of an economic threat, could suggest trajectories may diverge, not least depending on how local/national governments respond.

Notes
1. We conduct tests to examine whether relationships differ for “Western” and “non-Western” groups.
2. The Japanese question is: 日本社会が活性化する (Nihon shakaiga kasseikasuru). The direct translation of the word “活性化する (kasseikasuru)” is to “energise” or “activate.” We interpret the meaning of this to be “positively contribute to” Japanese society.
3. See previous endnote.
4. We examined income but its inclusion did not change the findings. High missingness meant we excluded it.
5. https://www.stat.go.jp/data/s-sugata/gaiyou.html.
6. We recoded immigration attitudes as 0 = “Strongly agree” to “Neither agree nor disagree” and 1 = “Somewhat agree” to “Strongly agree.” Substantive conclusions remained (results available on request).
7. Random-effects models are nearly identical to the pooled-regression modeling.
8. No evidence of non-linearity for prefectural-level immigration appeared.
9. Potentially, several control variables included could be mediators of the effect of immigrant share on attitudes, for example, if immigration triggers unemployment, and unemployment affects attitudes. Accordingly, we re-ran models but excluding controls that might also act as mediators, including employment status (individual level), unemployment (contextual level), welfare spending (contextual level), livelihood protection rate (contextual level), as well as models omitting financial situation/subjective social status. The immigrant share coefficient changes between 0.11* and 0.13* yet remain broadly similar in all specifications. Thus, even under our potentially more conservative specifications immigrant share predicts anti-immigrant sentiment.
10. The within-person r-squared increases by 5 percent with the addition of immigrant share to an otherwise fully controlled model. We observe a decline in the AIC/BIC between a fully controlled model without immigrant share (AIC: 18352.52/BIC: 18636.88) and with immigrant share (AIC: 18334.3/BIC: 18615.95).
11. We created an average score of attitudes toward non-Western groups (Brazilians/Filipinos/Koreans/Chinese), and an average score of attitudes toward Western groups (USA/Germans). For both measures, municipality-level immigrant share exhibited the same quadratic relationship. However, the relationship was stronger for non-Western groups.

12. Given the effect of immigrant share on contact is non-linear, specifying a mediation model within an SEM framework to test whether the indirect effect of immigrant share on anti-immigrant sentiment via contact is difficult (in part, given the linearity assumption). The Wald test goes some way toward demonstrating the mediating role of contact by showing the coefficients for immigrant share change significantly between before/after adjusting models for contact.

13. See previous endnote.

Supplementary Material

Supplementary material is available at Social Forces online, http://sf.oxfordjournals.org/.

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### JLPS data

| Individual-level variables                                                                 | Obs.   | Mean   | Std. Dev. | Min | Max |
|-------------------------------------------------------------------------------------------|--------|--------|-----------|-----|-----|
| **Attitudes towards immigrants**                                                          | 13,620 | 2.57   | 1.04      | 1   | 5   |
| **Qualifications**                                                                        |        |        |           |     |     |
| Middle/High School                                                                       | 22,948 | 0.31   | 0.04      | 0   | 1   |
| Technical/Two-year College                                                                 | 22,948 | 0.33   | 0.03      | 0   | 1   |
| Four-year/Graduate Degree                                                                  | 22,948 | 0.36   | 0.02      | 0   | 1   |
| **Tenure**                                                                                |        |        |           |     |     |
| Owned house                                                                               | 14,664 | 0.65   | 0.10      | 0   | 1   |
| Rental house (private)                                                                    | 14,664 | 0.21   | 0.04      | 0   | 1   |
| Rental house (public housing)                                                             | 14,664 | 0.1    | 0.02      | 0   | 1   |
| Other - Please specify                                                                     | 14,664 | 0.04   | 0.01      | 0   | 1   |
| **Employment Status**                                                                     |        |        |           |     |     |
| Employed (non-manual)                                                                     | 14,709 | 0.62   | 0.17      | 0   | 1   |
| Employed (manual)                                                                         | 14,709 | 0.21   | 0.06      | 0   | 1   |
| Employed (other)                                                                          | 14,709 | 0.01   | 0.01      | 0   | 1   |
| Non-employed (unemployed)                                                                  | 14,709 | 0.04   | 0.01      | 0   | 1   |
| Non-emp (in education)                                                                    | 14,709 | 0.01   | 0.01      | 0   | 1   |
| Non-emp (domestic work)                                                                    | 14,709 | 0.1    | 0.1       | 0   | 1   |
| Non-emp (other)                                                                            | 14,709 | 0.01   | 0.01      | 0   | 1   |
| **Age**                                    |        |        |           |     |     |
| 21-25                                      | 23,052 | 0.06   | 0.02      | 0   | 5   |
| 26-29                                      | 23,052 | 0.15   | 0.06      | 0   | 5   |
| 30-34                                      | 23,052 | 0.23   | 0.07      | 0   | 5   |
| 35-39                                      | 23,052 | 0.26   | 0.06      | 0   | 5   |
| 40-44                                      | 23,052 | 0.23   | 0.05      | 0   | 5   |
| 45+                                        | 23,052 | 0.07   | 0.02      | 0   | 5   |
| **Sex**                                    |        |        |           |     |     |
| Male                                        | 23,052 | 0.48   | 0.21      | 0   | 1   |
| Female                                      | 23,052 | 0.52   | 0.24      | 0   | 1   |
| **Marital Status**                                                                       |        |        |           |     |     |
| Married                                     | 14,745 | 0.59   | 0.33      | 0   | 1   |
| Unmarried (never married)                                                                | 14,745 | 0.37   | 0.10      | 0   | 1   |
| Other (divorced, widowed)                   | 14,745 | 0.04   | 0.01      | 0   | 1   |
| Subjective Social Status placement          | 14,541 | 5.02   | 1.63      | 1   | 10  |
| **City Size**                              |        |        |           |     |     |
| Towns or villages                           | 14,739 | 0.08   | 0.01      | 0   | 1   |
| Cities with less than 200,000 residents     | 14,739 | 0.34   | 0.12      | 0   | 1   |
| Cities with equal or more than 200,000 residents | 14,739 | 0.24   | 0.09      | 0   | 1   |
| 16 largest cities                           | 14,739 | 0.34   | 0.12      | 0   | 1   |
| **Evaluation of household standard of living**                                          |        |        |           |     |     |
| Poor                                        | 14,648 | 0.04   | 0.02      | 0   | 1   |
| Somewhat poor                               | 14,648 | 0.15   | 0.07      | 0   | 1   |
| Average                                     | 14,648 | 0.61   | 0.34      | 0   | 1   |
| Somewhat wealthy                            | 14,648 | 0.17   | 0.08      | 0   | 1   |
| Wealthy                                     | 14,648 | 0.03   | 0.01      | 0   | 1   |
### Prefectural-level variables

| Variable                           | 12,079 | 0.65   | 0.24   | 0.22   | 1.16   |
|------------------------------------|--------|--------|--------|--------|--------|
| financial capability index         |        |        |        |        |        |
| Unemployment Rate                  | 12,079 | 4.12   | 0.96   | 2.1    | 7.5    |
| Assistance Livelihood Rate         | 12,079 | 15.04  | 7.67   | 2.37   | 34.2   |
| social welfare spending per capita | 12,079 | 49.31  | 10.09  | 31.2   | 89     |
| ratio of expenditure for livelihood protection | 12,079 | 0.52   | 0.47   | 0.05   | 2.48   |
| Percent Foreign-born               | 12,079 | 1.76   | 0.88   | 0.29   | 3.22   |
Supplementary Appendix S.2 – Descriptive Statistics – PSPP data

| PSPP data                                      | Obs.  | Mean  | Std. Dev. | Min | Max |
|-----------------------------------------------|-------|-------|-----------|-----|-----|
| **Individual-level data**                     |       |       |           |     |     |
| Immigration attitudes                         | 3,688 | 2.57  | 0.7       | 1   | 4   |
| Local Contact                                 | 3,849 | 1.8   | 0.92      | 0   | 3   |
| Threat - culture impaired                     | 3,784 | 2.88  | 1.12      | 1   | 5   |
| Threat - disturbed order                      | 3,788 | 3.68  | 1.02      | 1   | 5   |
| Threat - jobs deprived                        | 3,780 | 2.94  | 1.07      | 1   | 5   |
| Threat - welfare costs                        | 3,775 | 3.42  | 1.08      | 1   | 5   |
| Threat - crime                                | 3,799 | 3.88  | 0.98      | 1   | 5   |
| Threat - do not contribute to society         | 3,776 | 2.73  | 1.06      | 1   | 5   |
| Threat - do not contribute to economy         | 3,777 | 2.64  | 0.99      | 1   | 5   |
| Threat - diversified culture                  | 3,777 | 2.29  | 0.96      | 1   | 5   |
| Sex                                           |       |       |           |     |     |
| Male                                          | 3,859 | 0.47  | 0         | 0   | 1   |
| Female                                        | 3,859 | 0.53  | 0         | 0   | 1   |
| Travelled to foreign countries                |       |       |           |     |     |
| No                                            | 3,854 | 0.33  | 0         | 0   | 1   |
| Yes                                           | 3,854 | 0.67  | 0         | 0   | 1   |
| Lived in foreign countries (more than 1 month)| |       |           |     |     |
| No                                            | 3,846 | 0.93  | 0         | 0   | 1   |
| Yes                                           | 3,846 | 0.07  | 0         | 0   | 1   |
| Live in the prefecture you were born?         |       |       |           |     |     |
| No                                            | 3,853 | 0.35  | 0         | 0   | 1   |
| Yes                                           | 3,853 | 0.65  | 0         | 0   | 1   |
| Marital Status                                |       |       |           |     |     |
| Married                                       | 3,837 | 0.69  | 0         | 0   | 1   |
| Unmarried (never married)                     | 3,837 | 0.18  | 0         | 0   | 1   |
| Separation/Bereaved/Other                     | 3,837 | 0.12  | 0         | 0   | 1   |
| Employment Status                             |       |       |           |     |     |
| Working                                       | 3,726 | 0.66  | 0         | 0   | 1   |
| Student                                       | 3,726 | 0.03  | 0         | 0   | 1   |
| Unemployed                                    | 3,726 | 0.04  | 0         | 0   | 1   |
| Not in work                                   | 3,726 | 0.27  | 0         | 0   | 1   |
| Qualifications                                |       |       |           |     |     |
| Junior High School                            | 3,830 | 0.13  | 0         | 0   | 1   |
| Including high school                         | 3,830 | 0.48  | 0         | 0   | 1   |
| Junior technical college                      | 3,830 | 0.13  | 0         | 0   | 1   |
| University                                    | 3,830 | 0.25  | 0         | 0   | 1   |
| Age                                           | 3,880 | 55.54 | 16.41     | 18  | 99  |
| Subjective Social Status Placement            | 3,780 | 3.07  | 0.84      | 1   | 5   |
| Years in area                                 | 3,880 | 42.77 | 20.83     | 0   | 99  |
| **Prefectural-level variables**               |       |       |           |     |     |
| financial capability index                    | 3,857 | 0.65  | 0.21      | 0.3 | 1   |
| Unemployment Rate                             | 3,857 | 2.99  | 0.49      | 1.9 | 4   |
| Assistance Livelihood Rate                    | 3,857 | 17.07 | 7.86      | 5.27| 33.79|
| social welfare spending per capita            | 3,857 | 60.21 | 9.47      | 47.9| 77.5 |
| ratio of expenditure for livelihood protection| 3,857 | 0.55  | 0.51      | 0.07| 2.25 |
| % foreign-born                                | 3,857 | 1.88  | 0.93      | 0.37| 3.68 |
City-level variables

|                        | Mean | Std Dev | Median | Min | Max |
|------------------------|------|---------|--------|-----|-----|
| % non-completed high school | 3,857 | 2.53    | 1.12   | 0   | 6.09 |
| % unemployed           | 3,857 | 2.14    | 0.46   | 1.17| 3.46 |
| % foreign-born         | 3,857 | 1.38    | 1.51   | 0.14| 10.52 |
Supplementary Appendix S.3 – Individual- and Prefectural-level drivers of Attitudes towards Immigration (JLPS)

| Outcome | Model 1 | Model 2 | Model 3 |
|---------|---------|---------|---------|
|         | Attitudes towards immigrants | Fixed-Effects | Fixed-Effects |
|         | Random-Effects | to | to Prefecture Stayers |
| Model Type | | | |
| Time (t) independent variables are measured | | | |
| Observations Sample | All | All | Prefecture Stayers |

**Individual-level Variables**

Year (cf. 2008)
- Year (2010): -0.053 (0.031), -0.003 (0.046), 0.042 (0.052)
- Year (2012): 0.081* (0.036), 0.053 (0.054), 0.117 (0.064)
- Year (2014): 0.229*** (0.039), 0.122 (0.071), 0.201* (0.082)

Qualifications (cf. Middle/High School)
- Technical/Two-year College: 0.084* (0.034), - (0.035), - (0.038)
- Four-year/Graduate Degree: 0.167*** (0.035), - (0.044), - (0.046)

Tenure (cf. Owned house)
- Rental house (private): 0.065* (0.026), 0.070* (0.035), 0.074* (0.038)
- Rental house (public housing): 0.135*** (0.032), 0.146*** (0.044), 0.141** (0.046)
- Other: -0.006 (0.049), -0.025 (0.067), 0.004 (0.075)

Employment status (cf. Employed non-manual)
- Employed (manual): -0.077* (0.031), -0.001 (0.049), -0.018 (0.051)
- Employed (other): 0.075 (0.098), 0.268 (0.150), 0.247 (0.161)
- Non-employed (unemployed): -0.032 (0.047), 0.007 (0.056), 0.016 (0.058)
- Non-emp (in education): -0.126 (0.113), -0.014 (0.140), 0.075 (0.159)
- Non-emp (domestic work): -0.065 (0.038), -0.081 (0.052), -0.095 (0.055)
- Non-emp (other): -0.047 (0.104), -0.013 (0.133), -0.061 (0.139)

Age (cf. 21-25)
- 26-29: -0.116** (0.044), -0.045 (0.058), -0.019 (0.063)
- 30-34: -0.164*** (0.046), -0.059 (0.081), 0.012 (0.086)
- 35-39: -0.130** (0.048), 0.055 (0.107), 0.110 (0.112)
- 40-44: -0.168** (0.052), 0.086 (0.132), 0.137 (0.137)
| Variable                                                                 | Coefficient | Standard Error | p-value |
|-------------------------------------------------------------------------|-------------|----------------|---------|
| 45+                                                                     | -0.181**    | 0.114          | 0.167   |
| (0.063)                                                                 |             |                |         |
| Sex (cf. Male)                                                          |             |                |         |
| Female                                                                  | -0.048      | -              | -       |
| (0.029)                                                                 |             |                |         |
| Marital Status (cf. Married)                                            |             |                |         |
| Unmarried (never married)                                               | -0.027      | 0.044          | 0.052   |
| (0.028)                                                                 |             |                |         |
| Other (divorced, widowed)                                               | -0.037      | -0.033         | -0.039  |
| (0.057)                                                                 |             |                |         |
| Subjective Social Status placement                                      | 0.015*      | 0.005          | 0.010   |
| (0.007)                                                                 |             |                |         |
| City size (cf. towns or villages)                                       |             |                |         |
| Cities with less than 200,000 residents                                  | -0.028      | -0.039         | -0.090  |
| (0.046)                                                                 |             |                |         |
| Cities with equal or more than 200,000 residents                        | -0.022      | -0.013         | -0.053  |
| (0.048)                                                                 |             |                |         |
| 16 largest cities                                                       | -0.035      | -0.001         | 0.028   |
| (0.050)                                                                 |             |                |         |
| Evaluation of household standard of living (cf. Poor)                   |             |                |         |
| Somewhat poor                                                           | 0.100       | 0.055          | 0.065   |
| (0.054)                                                                 |             |                |         |
| Average                                                                 | 0.164**     | 0.116          | 0.128   |
| (0.054)                                                                 |             |                |         |
| Somewhat wealthy                                                        | 0.179**     | 0.135          | 0.147   |
| (0.060)                                                                 |             |                |         |
| Wealthy                                                                 | 0.309***    | 0.305**        | 0.259*  |
| (0.076)                                                                 |             |                |         |
| Prefectural-level Variables                                             |             |                |         |
| financial capability index                                              | 0.088       | 0.200          | 0.154   |
| (0.109)                                                                 |             |                |         |
| Unemployment Rate                                                       | 0.051*      | -0.012         | -0.016  |
| (0.024)                                                                 |             |                |         |
| Assistance Livelihood Rate                                              | -0.007*     | -0.016*        | -0.027**|
| (0.003)                                                                 |             |                |         |
| Social welfare spending per capita                                       | 0.003       | 0.006          | 0.003   |
| (0.002)                                                                 |             |                |         |
| Ratio of expenditure for livelihood protection                           | -0.017      | 0.004          | -0.009  |
| (0.032)                                                                 |             |                |         |
| Percent Foreign-born                                                    | -0.072*     | -0.140*        | -0.145* |
| (0.029)                                                                 |             |                |         |
| Constant                                                                | 2.203***    | 2.437***       | 2.672***|
| (0.149)                                                                 |             |                |         |

**Notes:** Significance levels: * 0.05; ** 0.01; *** 0.001; pooled cross-sectional, random- and fixed-effects panel data regression; JLPS data
Supplementary Appendix S.4 – JLSP Analysis omitting top-up sample and applying Inverse Probability Weights

|                | Model 1 Attitudes towards immigrants | Model 2 Attitudes towards immigrants |
|----------------|-------------------------------------|-------------------------------------|
|                | Fixed-Effects                       | Fixed-Effects                       |
| Model Type     | Stayers (without top-up)            | Stayers (without top-up and with attrition weights) |
| Sample         |                                     |                                     |

**Prefectural-level Variables**

| Variable                                | Model 1 | Model 2 |
|-----------------------------------------|---------|---------|
| financial capability index              | 0.103   | -0.014  |
|                                         | (0.219) | (0.238) |
| Unemployment Rate                       | -0.013  | -0.009  |
|                                         | (0.040) | (0.048) |
| Assistance Livelihood Rate              | -0.025**| -0.021* |
|                                         | (0.009) | (0.010) |
| Social welfare spending per capita      | 0.004   | -0.001  |
|                                         | (0.004) | (0.006) |
| Ratio of expenditure for livelihood protection | -0.006 | -0.035  |
|                                         | (0.103) | (0.110) |
| Percent Foreign-born                    | -0.142* | -0.166* |
|                                         | (0.070) | (0.082) |
| Constant                                | 2.624***| 2.833***|
|                                         | (0.321) | (0.410) |

N of observations: 8445, 7226
N of individuals: 2942, 2380
N of prefectures: 47, 47

Notes: Significance levels: * 0.05; ** 0.01; *** 0.001; fixed-effects panel data regression; models include all individual-level controls although not shown, including: employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing-status; age given its associations with exclusionary attitudes towards immigrants; gender; marital status; education-level; year of survey.
### Supplementary Appendix S.5 – Individual-, Municipality- and Prefectural-level drivers of Attitudes towards Immigration (PSPP)

| Outcome                                                                 | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|-------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|
| **Individual-level**                                                    | All     | All     | All     | Excluding Shinjuku | Excluding Shinjuku | Excluding Shinjuku |
| Age                                                                     | -0.005** (0.001) | -0.005** (0.001) | -0.005** (0.002) | -0.004** (0.002) | -0.004** (0.002) | -0.004** (0.002) |
| Sex (cf. Male)                                                          |         |         |         |         |         |         |
| Female                                                                  | -0.014 (0.021) | -0.014 (0.021) | -0.015 (0.021) | -0.019 (0.022) | -0.019 (0.022) | -0.019 (0.022) |
| Travelled to foreign countries (cf. No)                                 |         |         |         |         |         |         |
| Yes                                                                     | 0.135*** (0.027) | 0.135*** (0.027) | 0.138*** (0.027) | 0.139*** (0.027) | 0.141*** (0.027) | 0.141*** (0.027) |
| Lived in foreign countries (more than 1 month) (cf. No)                 |         |         |         |         |         |         |
| Yes                                                                     | 0.131*** (0.039) | 0.131*** (0.039) | 0.126** (0.039) | 0.125* (0.040) | 0.126** (0.040) | 0.125** (0.040) |
| Live in the prefecture you were born? (cf. No)                           |         |         |         |         |         |         |
| Yes                                                                     | -0.066* (0.032) | -0.065* (0.033) | -0.071* (0.033) | -0.063* (0.032) | -0.062* (0.030) | -0.063* (0.031) |
| Subjective social status placement                                       | 0.002 (0.018) | 0.003 (0.017) | 0.004 (0.018) | 0.005 (0.019) | 0.005 (0.018) | 0.005 (0.018) |
| Marital Status (cf. Married)                                            |         |         |         |         |         |         |
| Unmarried (never married)                                               | 0.086* (0.034) | 0.085* (0.033) | 0.082* (0.032) | 0.072* (0.034) | 0.072* (0.033) | 0.072* (0.033) |
| Separated/Bereaved/Other                                                 | -0.010 (0.043) | -0.010 (0.044) | -0.011 (0.044) | -0.012 (0.044) | -0.013 (0.045) | -0.013 (0.045) |
| Employment Status (cf. working)                                          |         |         |         |         |         |         |
| Student                                                                 | 0.140* (0.063) | 0.141* (0.063) | 0.135* (0.064) | 0.164* (0.069) | 0.162* (0.070) | 0.162* (0.070) |
| Unemployed                                                              | 0.047 (0.075) | 0.047 (0.074) | 0.045 (0.073) | 0.055 (0.075) | 0.051 (0.074) | 0.051 (0.074) |
|                          |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Not in work              | -0.028 | -0.028 | -0.027 | -0.032 | -0.033 | -0.033 |
|                          | (0.028) | (0.029) | (0.029) | (0.028) | (0.028) | (0.028) |
| Qualifications (cf. Junior High School) including high school | 0.106 | 0.102 | 0.102 | 0.105 | 0.099 | 0.099 |
|                          | (0.057) | (0.059) | (0.059) | (0.058) | (0.059) | (0.059) |
| Junior technical college | 0.125* | 0.122* | 0.124* | 0.130* | 0.126* | 0.126* |
|                          | (0.051) | (0.053) | (0.053) | (0.052) | (0.054) | (0.054) |
| University               | 0.108 | 0.103 | 0.104 | 0.104 | 0.098 | 0.099 |
|                          | (0.055) | (0.058) | (0.058) | (0.056) | (0.059) | (0.058) |
| Years in area            | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 |
|                          | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| **Prefecture-level**     |      |      |      |      |      |      |
| Financial capability index | 0.248* | 0.219 | 0.211* | 0.24* | 0.234* | 0.230* |
|                          | (0.126) | (0.123) | (0.108) | (0.121) | (0.113) | (0.114) |
| Unemployment Rate        | -0.073 | -0.063 | -0.067 | -0.083 | -0.065 | -0.065 |
|                          | (0.050) | (0.048) | (0.039) | (0.046) | (0.043) | (0.042) |
| Assistance Livelihood Rate | 0.003 | 0.002 | 0.002 | 0.004 | 0.002 | 0.002 |
|                          | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) |
| Social welfare spending per capita | 0.003 | 0.003 | 0.002 | 0.002 | 0.003 | 0.003 |
|                          | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Ratio of expenditure for livelihood protection | 0.013 | 0.017 | 0.010 | 0.011 | 0.012 | 0.011 |
|                          | (0.023) | (0.025) | (0.026) | (0.023) | (0.026) | (0.027) |
| % foreign-born           | -0.068** | -0.064* | -0.045 | -0.072** | -0.049 | -0.051 |
|                          | (0.025) | (0.025) | (0.027) | (0.024) | (0.025) | (0.028) |

**City-level**

|                          |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| % non-completed high school | 0.012 | 0.010 | 0.011 | 0.011 |      |      |
|                          | (0.013) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| % unemployed             | -0.016 | 0.002 | 0.001 | 0.001 | 0.002 | 0.002 |
|                          | (0.018) | (0.021) | (0.019) | (0.021) | (0.019) | (0.021) |
| % foreign-born           | 0.001 | -0.064* | -0.028** | -0.038 |      |      |
|                          | (0.008) | (0.025) | (0.009) | (0.029) | (0.009) | (0.029) |
| % foreign-born * % foreign-born | 0.007*** |      |      |      |      |      |
|                          | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
|                  | Constant | 2.611*** | 2.612*** | 2.683*** | 2.707*** | 2.590*** | 2.610*** |
|------------------|----------|----------|----------|----------|----------|----------|----------|
|                  | (0.211)  | (0.204)  | (0.189)  | (0.215)  | (0.189)  | (0.210)  |
| N (Individuals)  | 3446     | 3446     | 3446     | 3397     | 3397     | 3397     |
| N (Municipalities)| 60       | 60       | 60       | 59       | 59       | 59       |
| N (Prefectures)  | 24       | 24       | 24       | 24       | 24       | 24       |

Notes: Significance levels: * 0.05; ** 0.01; *** 0.001; multi-level random-intercept linear regression; PSPP data
### Supplementary Appendix S.6 – Individual-, Municipality- and Prefectural-level drivers of Attitudes towards Immigration; excluding Shinjuku (PSPP)

| Outcome                                      | Model 1 | Model 2 | Model 3 |
|----------------------------------------------|---------|---------|---------|
| **Sample**                                   |         |         |         |
| Attitudes towards immigrants                 |         |         |         |
| Excluding Shinjuku                           |         |         |         |
| Prefecture-level                             |         |         |         |
| Financial capability index                   | 0.240*  | 0.234*  | 0.230*  |
|                                         | (0.121) | (0.113) | (0.114) |
| Unemployment Rate                            | -0.083  | -0.065  | -0.065  |
|                                         | (0.046) | (0.043) | (0.042) |
| Assistance Livelihood Rate                   | 0.004   | 0.002   | 0.002   |
|                                         | (0.004) | (0.004) | (0.004) |
| Social welfare spending per capita           | 0.002   | 0.003   | 0.003   |
|                                         | (0.002) | (0.002) | (0.002) |
| Ratio of expenditure for livelihood protection | 0.011   | 0.012   | 0.011   |
|                                         | (0.023) | (0.026) | (0.027) |
| % foreign-born                               | -0.072**| -0.049  | -0.051  |
|                                         | (0.024) | (0.025) | (0.028) |
| City-level                                   |         |         |         |
| % non-completed high school                  | 0.011   | 0.011   |         |
|                                         | (0.011) | (0.011) |         |
| % unemployed                                 | 0.001   | 0.002   |         |
|                                         | (0.019) | (0.021) |         |
| % foreign-born                               | -0.028**| -0.038  |         |
|                                         | (0.009) | (0.029) |         |
| % foreign-born * % foreign-born               |         |         | 0.002   |
|                                         |         |         | (0.004) |
| Constant                                    | 2.707***| 2.590***| 2.610***|
|                                         | (0.215) | (0.189) | (0.210) |

| N (Individuals)  | 3397 | 3397 | 3397 |
| N (Municipalities)| 59  | 59  | 59  |
| N (Prefectures)  | 24  | 24  | 24  |

**Notes:** Significance levels: * 0.05; ** 0.01; *** 0.001; multi-level random-intercept linear regression; models contain all individual-level controls; models include all individual-level controls although not shown, including: employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing-status; age given its associations with exclusionary attitudes towards immigrants; gender; marital status; education-level; whether a respondent has travelled to foreign countries and lived in a foreign country (1+ months); whether respondent live in the prefecture in which they were born, and years lived in current area.
Supplementary Appendix S.7 – Relationship between Municipality-level Immigrant-share and Putative Mechanisms of Contact and Threat

| Outcome                          | Model 1      | Model 2      | Model 3      | Model 4      | Model 5      | Model 6      | Model 7      | Model 8      | Model 9      | Model 10     |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                                 | Local Contact| Local Contact| Threat - Problems | Threat - Problems | Threat – not positively contribute | Threat – not positively contribute | Threat - jobs | Threat - jobs | Threat - cultural | Threat - cultural |
| City-level Immigrant-share term | linear All   | quadratic All| linear All   | quadratic All| linear All   | quadratic All| linear All   | quadratic All| linear All   | quadratic All|
| Sample                          |              |              |              |              |              |              |              |              |              |              |
| Prefecture-level                |              |              |              |              |              |              |              |              |              |              |
| Financial capability index      | 0.186        | 0.212        | 0.078        | 0.086        | -0.321*      | -0.315*      | -0.297       | -0.298       | -0.096       | -0.091       |
|                                 | (0.374)      | (0.394)      | (0.205)      | (0.205)      | (0.152)      | (0.138)      | (0.283)      | (0.281)      | (0.265)      | (0.250)      |
| Unemployment Rate               | 0.042        | 0.055        | 0.013        | 0.018        | 0.027        | 0.031        | 0.107        | 0.108        | -0.127       | -0.123       |
|                                 | (0.113)      | (0.130)      | (0.070)      | (0.079)      | (0.065)      | (0.058)      | (0.109)      | (0.106)      | (0.109)      | (0.102)      |
| Assistance Livelihood Rate      | 0.009        | 0.010        | -0.001       | -0.001       | -0.003       | -0.003       | -0.111       | -0.111       | -0.010       | 0.010        |
|                                 | (0.009)      | (0.009)      | (0.006)      | (0.007)      | (0.004)      | (0.004)      | (0.009)      | (0.009)      | (0.007)      | (0.007)      |
| social welfare spending per capita | -0.007       | -0.004       | -0.002       | -0.001       | -0.005*      | -0.005*      | -0.003       | -0.006       | -0.006       | -0.005       |
|                                 | (0.005)      | (0.004)      | (0.003)      | (0.003)      | (0.002)      | (0.002)      | (0.004)      | (0.004)      | (0.004)      | (0.004)      |
| Ratio of expenditure for livelihood protection | -0.038        | -0.010       | -0.059       | -0.052       | 0.019        | 0.024        | -0.001       | 0.001        | 0.105**      | 0.111**      |
|                                 | (0.047)      | (0.041)      | (0.044)      | (0.047)      | (0.030)      | (0.030)      | (0.049)      | (0.050)      | (0.040)      | (0.040)      |
| % foreign-born                  | -0.005       | -0.078       | -0.006       | -0.027       | 0.076*       | 0.061        | 0.058        | 0.052        | 0.021        | 0.005        |
|                                 | (0.084)      | (0.084)      | (0.049)      | (0.053)      | (0.034)      | (0.033)      | (0.062)      | (0.064)      | (0.053)      | (0.051)      |
| Municipality-level              |              |              |              |              |              |              |              |              |              |              |
| % non-completed high school     | -0.010       | -0.001       | 0.008        | 0.010        | -0.021       | -0.019       | 0.017        | 0.018        | 0.028        | 0.030*       |
|                                 | (0.030)      | (0.019)      | (0.020)      | (0.017)      | (0.015)      | (0.014)      | (0.019)      | (0.021)      | (0.016)      | (0.015)      |
| % unemployed                    | -0.022       | -0.082       | 0.015        | -0.003       | 0.036        | 0.023        | 0.066        | 0.060        | 0.001        | -0.014       |
|                                 | (0.084)      | (0.082)      | (0.034)      | (0.041)      | (0.028)      | (0.029)      | (0.046)      | (0.050)      | (0.042)      | (0.042)      |
| % foreign-born                  | 0.150***      | 0.388***     | 0.010        | 0.081*       | -0.007       | 0.042        | -0.024*      | -0.000       | 0.003        | 0.057        |
|                                 | (0.030)      | (0.034)      | (0.010)      | (0.036)      | (0.008)      | (0.025)      | (0.010)      | (0.046)      | (0.006)      | (0.035)      |
| % foreign-born * % foreign-born  | -0.025***     | -0.008*      | 0.005*       | -0.002       | 0.002        | -0.002       | -0.002       | 0.006        | (0.003)      | (0.03)       |
|                                 | (0.003)      | (0.003)      | (0.002)      | (0.004)      | (0.004)      | (0.004)      | (0.004)      | (0.003)      | (0.003)      | (0.003)      |
| Constant      | 1.764*** (0.533) | 1.525** (0.497) | 0.397 (0.374) | 0.326 (0.375) | 0.136 (0.143) | 0.083 (0.147) | 2.234*** (0.435) | 2.207*** (0.430) | 2.697*** (0.382) | 2.637*** (0.376) |
|---------------|------------------|-----------------|---------------|---------------|---------------|---------------|------------------|------------------|------------------|------------------|
| N (Individuals) | 3346             | 3346            | 3346          | 3346          | 3346          | 3346          | 3346             | 3346             | 3346             | 3346             |
| N (Municipalities) | 60               | 60              | 60            | 60            | 60            | 60            | 60               | 60               | 60               | 60               |
| N (Prefectures)   | 24               | 24              | 24            | 24            | 24            | 24            | 24               | 24               | 24               | 24               |

Notes: Significance levels: * 0.05; ** 0.01; *** 0.001; multi-level random-intercept linear regression; models contain all individual-level controls; models include all individual-level controls although not shown, including: employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing-status; age given its associations with exclusionary attitudes towards immigrants; gender; marital status; education-level; whether a respondent has travelled to foreign countries and lived in a foreign country (1+ months); whether respondent live in the prefecture in which they were born, and years lived in current area.
Supplementary Appendix S.8 - Predicted intergroup contact scores across Municipality-level immigrant-share (PSPP)
Supplementary Appendix S.9 - Predicted ‘perceived ‘immigrant-problems’ index’ scores across Municipality-level immigrant-share (PSPP)
Supplementary Appendix S.10 - Predicted ‘immigrants ‘not positively contribute to Japanese society’ scores across Municipality-level immigrant-share (PSPP)
Supplementary Appendix S.11 - Predicted ‘immigration deprives Japanese of employment’ scores across Municipality-level immigrant-share (PSPP)
Supplementary Appendix S.12 - Predicted ‘perceptions that immigration will diversify Japanese culture’ scores across Municipality-level immigrant-share (PSPP)
Supplementary Appendix S.13 – Mediating role of intergroup contact and perceived-threat in the relationship between immigrant-share and attitudes towards immigrants (PSPP)

| Individual-level | Model 1 | Model 2 | Model 3 | Model 4 |
|------------------|---------|---------|---------|---------|
| | Attitudes towards immigrants | Attitudes towards immigrants | Attitudes towards immigrants | Attitudes towards immigrants |
| **Age** | -0.005** | -0.005*** | -0.003** | -0.003** |
| | (0.002) | (0.001) | (0.001) | (0.001) |
| **Sex (cf. Male)** | | | | |
| Female | -0.015 | -0.022 | -0.012 | -0.018 |
| | (0.021) | (0.021) | (0.017) | (0.017) |
| **Travelled to foreign countries (cf. No)** | | | | |
| Yes | 0.138*** | 0.133*** | 0.072*** | 0.069*** |
| | (0.027) | (0.027) | (0.021) | (0.020) |
| **Lived in foreign countries (more than 1 month) (cf. No)** | | | | |
| Yes | 0.126** | 0.116** | 0.106** | 0.098** |
| | (0.039) | (0.039) | (0.035) | (0.036) |
| **Live in the prefecture you were born? (cf. No)** | | | | |
| Yes | -0.071* | -0.067 | -0.051* | -0.048* |
| | (0.033) | (0.034) | (0.022) | (0.023) |
| **Subjective social status placement** | | | | |
| | 0.004 | 0.005 | 0.018 | 0.018 |
| | (0.018) | (0.018) | (0.010) | (0.010) |
| **Marital Status (cf. Married)** | | | | |
| Unmarried (never married) | 0.082* | 0.090** | 0.053 | 0.059* |
| | (0.032) | (0.032) | (0.030) | (0.030) |
| Separated/Bereaved/Other | -0.011 | -0.012 | 0.002 | 0.001 |
| | (0.044) | (0.044) | (0.033) | (0.033) |
| **Employment Status (cf. working)** | | | | |
| Student | 0.135* | 0.131* | 0.071 | 0.066 |
| | (0.064) | (0.063) | (0.058) | (0.058) |
| Unemployed | 0.045 | 0.057 | 0.031 | 0.042 |
| | (0.073) | (0.075) | (0.065) | (0.066) |
| Not in work | -0.027 | -0.003 | -0.033 | -0.012 |
| | (0.029) | (0.029) | (0.028) | (0.028) |
| **Qualifications (cf. Junior High School ) including high school** | | | | |
| | 0.102 | 0.090 | 0.085 | 0.075 |
| | (0.059) | (0.058) | (0.047) | (0.046) |
| Junior technical college | 0.124* | 0.104 | 0.109* | 0.092* |
| | (0.053) | (0.054) | (0.043) | (0.043) |
| University | 0.104 | 0.089 | 0.036 | 0.024 |
| | (0.058) | (0.058) | (0.046) | (0.046) |
| Years in area | -0.001 | -0.001 | -0.001 | -0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| **Prefecture-level** | | | | |
| Financial capability index | 0.211* | 0.192 | 0.126 | 0.112 |
| | (0.108) | (0.101) | (0.081) | (0.077) |
| Unemployment Rate | -0.067 | -0.071 | -0.058 | -0.061 |
| | (0.039) | (0.041) | (0.037) | (0.038) |
### Assistance Livelihood Rate

|                     | Estimate | Std. Error | Estimate | Std. Error |
|---------------------|----------|------------|----------|------------|
|                     | 0.002    | 0.004      | 0.002    | 0.003      |
|                     | (0.003)  | (0.003)    | (0.002)  | (0.002)    |
| Social welfare spending per capita | 0.002 | 0.002 | -0.000 | 0.000 |
|                     | (0.002) | (0.002)    | (0.001)  | (0.002)    |
| Ratio of expenditure for livelihood protection | 0.010 | 0.011 | 0.009 | 0.009 |
|                     | (0.026) | (0.026)    | (0.016)  | (0.015)    |
| % foreign-born      | -0.045   | -0.038     | -0.033   | -0.027     |
|                     | (0.027) | (0.026)    | (0.019)  | (0.017)    |

### City-level

|                     | Estimate | Std. Error | Estimate | Std. Error |
|---------------------|----------|------------|----------|------------|
| % non-completed high school | 0.010 | 0.010 | 0.009 | 0.009 |
|                     | (0.011) | (0.012)    | (0.005)  | (0.006)    |
| % unemployed        | 0.002    | 0.008      | 0.008    | 0.014      |
|                     | (0.021) | (0.022)    | (0.019)  | (0.020)    |
| % foreign-born       | -0.064*  | -0.098***  | -0.026   | -0.056**   |
|                     | (0.025) | (0.028)    | (0.016)  | (0.019)    |
| % foreign-born * % foreign-born | 0.007*** | 0.009*** | 0.003* | 0.005** |
|                     | (0.002) | (0.002)    | (0.001)  | (0.002)    |

### Individual-level Mechanisms

|                     | Estimate | Std. Error | Estimate | Std. Error |
|---------------------|----------|------------|----------|------------|
| Local Contact       | 0.089*** | (0.011)    | 0.077*** | (0.012)    |
| Threat - Problems   | -0.274*** | (0.011)    | -0.279*** | (0.012)    |
| Threat – not positively contribute | -0.312*** | (0.020)    | -0.307*** | (0.020)    |
| Threat - jobs       | -0.014   | (0.014)    | -0.014   | (0.014)    |
| Threat - cultural   | -0.055*** | (0.015)    | -0.052*** | (0.015)    |
| Constant            | 2.683*** | (0.189)    | 2.546*** | (0.192)    |
|                     | 2.982*** | (0.170)    | 2.855*** | (0.170)    |

| N (Individuals)     | 3446     | 3446       | 3446     | 3446       |
|                     | 60       | 60         | 60       | 60         |
| N (Prefectures)     | 24       | 24         | 24       | 24         |

**Notes**: Significance levels: * 0.05; ** 0.01; *** 0.001; multi-level random-intercept linear regression; PSPP data
## Supplementary Appendix S.14 – Relationship between City-level Immigrant-share and Putative Mechanisms of Contact and Threat; excluding Shinjuku (PSPP)

| Outcome                  | Model 1            | Model 2            | Model 3            | Model 4            | Model 5            | Model 6            | Model 7            | Model 8            | Model 9            | Model 10           |
|--------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                          | Local Contact      | Local Contact      | Threat - Problems  | Threat - Problems  | Threat – not positively contribute | Threat – not positively contribute | Threat - jobs  | Threat - jobs  | Threat - cultural | Threat - cultural |
| City-level Immigrant-share term | linear             | quadratic          | linear             | quadratic          | linear             | quadratic          | linear             | quadratic          | linear             | quadratic          |
| Sample                   | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     | Excl. Shinjuku     |

### Prefecture-level

|                          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| financial capability index | 0.148             | 0.220             | 0.060             | 0.056             | -0.330*           | -0.319*           | -0.310            | -0.318            | -0.109            | -0.081            |
|                         | (0.375)           | (0.398)           | (0.206)           | (0.210)           | (0.144)           | (0.141)           | (0.281)           | (0.278)           | (0.262)           | (0.252)           |
| Unemployment Rate        | 0.046             | 0.056             | 0.014             | 0.014             | 0.025             | 0.027             | 0.109             | 0.108             | 0.125             | 0.121             |
|                         | (0.118)           | (0.131)           | (0.077)           | (0.076)           | (0.061)           | (0.058)           | (0.106)           | (0.106)           | (0.107)           | (0.099)           |
| Assistance Livelihood Rate | 0.011             | 0.010             | -0.001            | -0.001            | -0.002            | -0.002            | -0.010            | -0.010            | 0.011             | 0.010             |
|                         | (0.009)           | (0.009)           | (0.006)           | (0.006)           | (0.004)           | (0.004)           | (0.009)           | (0.009)           | (0.007)           | (0.007)           |
| Social welfare spending per capita | -0.007            | -0.004            | -0.002            | -0.002            | -0.005*           | -0.005*           | 0.003             | 0.002             | -0.006            | -0.005            |
|                         | (0.004)           | (0.004)           | (0.003)           | (0.003)           | (0.002)           | (0.002)           | (0.004)           | (0.004)           | (0.004)           | (0.004)           |
| Ratio of expenditure for livelihood protection | -0.023            | -0.009            | -0.054            | -0.055            | 0.022             | 0.024             | 0.002             | -0.000            | 0.108**           | 0.113**           |
|                         | (0.043)           | (0.041)           | (0.047)           | (0.047)           | (0.030)           | (0.030)           | (0.049)           | (0.049)           | (0.040)           | (0.040)           |
| % foreign-born           | -0.040            | -0.081            | -0.021            | -0.019            | 0.067*            | 0.061             | 0.053             | 0.058             | 0.016             | 0.001             |
|                         | (0.083)           | (0.085)           | (0.050)           | (0.053)           | (0.033)           | (0.033)           | (0.062)           | (0.063)           | (0.052)           | (0.051)           |

### City-level

|                          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| % non-completed high school | -0.007            | -0.001            | 0.009             | 0.009             | -0.020            | -0.019            | 0.018             | 0.017             | 0.028             | 0.030             |
|                         | (0.023)           | (0.019)           | (0.018)           | (0.018)           | (0.014)           | (0.014)           | (0.020)           | (0.020)           | (0.015)           | (0.015)           |
| % unemployed            | -0.066            | -0.082            | -0.004            | -0.002            | 0.026             | 0.023             | 0.058             | 0.060             | -0.006            | -0.013            |
|                         | (0.081)           | (0.082)           | (0.039)           | (0.039)           | (0.029)           | (0.029)           | (0.049)           | (0.049)           | (0.042)           | (0.043)           |
| % foreign-born           | 0.235***          | 0.403***          | 0.046***          | 0.036             | 0.021*            | 0.037             | -0.009            | -0.033            | 0.017             | 0.081             |
|                         | (0.026)           | (0.048)           | (0.013)           | (0.036)           | (0.013)           | (0.034)           | (0.019)           | (0.061)           | (0.013)           | (0.049)           |
| % foreign-born * % foreign-born | -0.028***       | 0.020             | -0.004            | 0.004             | 0.004             | -0.011            |                   |                   |                   |                   |
|                         | (0.007)           | (0.004)           | (0.004)           | (0.008)           | (0.007)           |                   |                   |                   |                   |                   |
|                |   1.794*** |   1.485** |   0.380 |   0.400 |   0.059 |   0.009 |  2.307*** |  2.354*** |  2.697*** |  2.572*** |
|----------------|------------|------------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|
|                | (0.513)    | (0.506)    | (0.385) | (0.392) | (0.150) | (0.163) | (0.451)   | (0.439)   | (0.384)   | (0.382)   |
| N (Individuals)| 3297       | 3297       | 3297    | 3297    | 3297    | 3297    | 3297      | 3297      | 3297      | 3297      |
| N (Municipalities) | 59      | 59        | 59      | 59      | 59      | 59      | 59        | 59        | 59        | 59        |
| N (Prefectures)  | 24        | 24        | 24      | 24      | 24      | 24      | 24        | 24        | 24        | 24        |

Notes: Significance levels: * 0.05; ** 0.01; *** 0.001; multi-level random-intercept linear regression; models contain all individual-level controls; models include all individual-level controls although not shown, including: employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing-status; age given its associations with exclusionary attitudes towards immigrants; gender; marital status; education-level; whether a respondent has travelled to foreign countries and lived in a foreign country (1+ months); whether respondent live in the prefecture in which they were born, and years lived in current area.
Supplementary Appendix S.15 – Mediation analysis of contact and threat; excluding Shinjuku (PSPP)

| Outcome | Model 1 | Model 2 | Model 3 | Model 4 |
|---------|---------|---------|---------|---------|
|         | Attitudes towards immigrants | Attitudes towards immigrants | Attitudes towards immigrants | Attitudes towards immigrants |
| Sample  | Excl. Shinjuku | Excl. Shinjuku | Excl. Shinjuku | Excl. Shinjuku |
| Prefecture-level | | | | |
| financial capability index | 0.234* | 0.222* | 0.137 | 0.128 |
| Unemployment Rate | -0.065 | -0.067 | -0.058 | -0.060 |
| Assistance Livelihood Rate | 0.002 | 0.001 | 0.002 | 0.001 |
| social welfare spending per capita | 0.003 | 0.003 | 0.000 | 0.001 |
| ratio of expenditure for livelihood protection | 0.012 | 0.013 | 0.009 | 0.010 |
| % foreign-born | -0.049 | -0.048 | -0.037 | -0.034* |
| City-level | | | | |
| % non-completed high school | 0.011 | 0.012 | 0.009 | 0.010 |
| % unemployed | 0.001 | 0.006 | 0.009 | 0.013 |
| % foreign-born | -0.028** | -0.049*** | -0.011 | -0.029*** |
| Individual-level Mechanisms | | | | |
| Local Contact | 0.088*** | | 0.078*** |
| Threat - Problems | -0.278*** | -0.282*** | (0.011) | (0.012) |
| Threat – not positively contribute | -0.313*** | -0.307*** | (0.021) | (0.021) |
| Threat - jobs | -0.014 | -0.013 | (0.014) | (0.014) |
| Threat - cultural | -0.055*** | -0.052*** | (0.015) | (0.015) |
| Constant | 2.590*** | 2.429*** | 2.901*** | 2.751*** |
| N (Individuals) | 3297 | 3297 | 3297 | 3297 |
| N (Municipalities) | 59 | 59 | 59 | 59 |
| N (Prefectures) | 24 | 24 | 24 | 24 |

Notes: Significance levels: * 0.05; ** 0.01; *** 0.001; multi-level random-intercept linear regression; models contain all individual-level controls; models include all individual-level controls although not shown, including: employment status (including manual/non-manual classification); subjective social status; evaluation of household standard of living; housing-status; age given its associations with exclusionary attitudes towards
immigrants; gender; marital status; education-level; whether a respondent has travelled to foreign countries and lived in a foreign country (1+ months); whether respondent live in the prefecture in which they were born, and years lived in current area
Supplementary Appendix S.16 – Additional robustness tests of fixed-effects JLPS analysis, examining causal ordering (Arellano-Bond Estimator) and calculation of treatment effects and relative degree of selection under proportional selection of observables and unobservables

We examine the temporal ordering of the immigrant-share/immigrant-attitudes relationship, by testing whether lagged immigrant-share predicts present immigration-attitudes (and vice versa). For immigrant-share to causally affect anti-immigrant attitudes we would expect a change in the former to precede a change in the latter. To properly test this (especially under conditions of small $T$ large $N$, as in our case), we apply Arellano–Bond linear dynamic panel modelling, which uses the (second order) lags of our outcome as instruments in a first-difference model. This allows us to robustly explore causal ordering of effects but also further adjust our longitudinal models for lagged outcome-scores, helping address omitted variable bias and/or serial correlation (Arellano and Bond 1991, Torfason and Ingram 2010). To explore this, we first replicate our main model applying a fixed-effects approach but restricting the sample to stayers (see Model 3, Table 2 in the main text). We then replicate this model but apply Arellano-Bond linear dynamic panel modelling. This tests the association between lagged independent variables (at $t-2$, given our key variables are measured every two-years) and immigration-attitudes at time $t_0$, whilst also adjusting for immigration attitudes at $t-2ii$. We observe that lagged immigrant-share continues to positively predict current immigration attitudes, strengthening the causal identification.iii
| Outcome                                      | Model 1                                                                 | Model 2                                                                 |
|----------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Attitudes towards immigrants (t₀)            | Arellano–Bond linear dynamic panel model                                 |
| Model Type                                   | Fixed-Effects                                                           | Arellano–Bond linear dynamic panel model                                 |
| Time (t) independent variables are measured  | t₀ Prefecture Stayers                                                   | t₂ Prefecture Stayers                                                   |
| Observations Sample                          | Prefecture Stayers                                                     | Prefecture Stayers                                                     |
| Prefectural-level Variables                  |                                                                        |                                                                        |
| financial capability index                   | 0.154                                                                  | 0.364                                                                  |
|                                              | (0.216)                                                                | (0.322)                                                                |
| Unemployment Rate                            | -0.016                                                                 | -0.031                                                                 |
|                                              | (0.039)                                                                | (0.056)                                                                |
| Assistance Livelihood Rate                   | -0.027**                                                               | -0.003                                                                |
|                                              | (0.009)                                                                | (0.012)                                                                |
| Social welfare spending per capita           | 0.003                                                                  | 0.008                                                                 |
|                                              | (0.004)                                                                | (0.006)                                                                |
| Ratio of expenditure for livelihood protection| -0.009                                                                | -0.013                                                                 |
|                                              | (0.101)                                                                | (0.125)                                                                |
| Percent Foreign-born                         | -0.145*                                                                | -0.232*                                                               |
|                                              | (0.070)                                                                | (0.105)                                                                |
| Lagged Dependent Variable                    |                                                                        |                                                                        |
| Attitudes towards immigrants (t-2)           |                                                                        | 0.084**                                                               |
|                                              |                                                                        | (0.021)                                                                |
| Constant                                     | 2.672****                                                              | 2.642****                                                             |
|                                              | (0.317)                                                                | (0.447)                                                                |

| N of observations | 8859 | 3040 |
| N of individuals  | 3109 | 2329 |
| N of prefectures  | 47   | 47   |

Notes: Significance levels: * 0.05; ** 0.01; *** 0.001; random- and fixed-effects panel data regressions; t = time at which variable is measured; JLPS data

A second test which aims to strengthen causal identification is by attempting to adjust for potential confounding effects stemming from time-variant omitted variables (Oster 2019). As already mentioned, we adjust our fixed-effects models for potential confounders available in the data. However, these control variables do not necessarily guarantee that we obtain estimates robust to the omitted variables bias. To go some way towards dealing with this concern, we follow Oster (2019) is assuming the omitted variable bias is a function of R-squared after considering relevant omitted variables and the balance between the observable controls and unobserved ones. Her proposed method enables us to estimate the bound estimate of the effect of the variable of interest under the (hypothetical) condition that we ignore any relevant omitted
variables. To obtain the bound estimate, we specify two components (as part of the ‘psacalc’ package - Stata). One is the maximum R-squared in considering omitted variables, and the other is the balance between the observable controls and unobserved ones. Oster (2019) suggests the former is $R_{\text{max}}$ and the latter is $\delta$. $\delta = 1$, which means the observed and unobserved covariates have equal impacts on the bias (based on Oster’s (2019) recommendation). Ideally, $R_{\text{max}}$ should be 1 if we control all covariates relevant to the outcome. In non-random/survey data, however, this can rarely occur because there are any idiosyncratic errors. Oster (2019) proposes 1.3 times the estimated R-squared as a guideline (from analyzing published economics papers using the survey experiments with randomization). In our case, $1.3 \times R_{\text{within}}$ will be a possible upper bound of R-squared after adjusting the omitted variable bias. Our FE estimate and the estimated effect under the condition of $R_{\text{max}} = 1.3 \times R_{\text{within}}$ and $\delta = 1$ compose a bound estimate. On performing the test under these specifications we find that the bounded estimates exclude zero (% foreigner coefficient: -0.17) and lies within the 95% confidence intervals of the original, lower-bounded fixed-effects coefficient, providing greater confidence that our finding remain robust even in the presence of potentially omitted time-variant covariates. Findings also supported this conclusion under condition of $R_{\text{max}} = 2.2 \times R_{\text{within}}$.

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\footnote{In reported models, all covariates are treated as exogenous. However, testing specifications of endogenous covariates (including prefectural characteristics) did not change the substantive-findings.}

\footnote{Serial correlation structure tests show we reject no autocorrelation of order 1 and cannot reject autocorrelation of order 2. The Sargan test presents evidence in support of the null hypothesis that the over-identifying restrictions are valid. These provide evidence that the Arellano–Bond model assumptions are satisfied.}

\footnote{Lagged immigration attitudes did not predict present immigrant-share, suggesting negative changes in attitudes did not precede positive changes in immigrant-share.}