Supplementary Appendix S.1 – Descriptive Statistics – JLPS data

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

Prefectural-level variables

financial capability index	12,079	0.65	0.24	0.22	1.16
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	1
Female	3,859	0.53		0	1
Travelled to foreign countries					
No	3,854	0.33		0	1
Yes	3,854	0.67		0	1
Lived in foreign countries (more than 1 month)					
No	3,846	0.93		0	1
Yes	3,846	0.07		0	1
Live in the prefecture you were born?					
No	3,853	0.35		0	1
Yes	3,853	0.65		0	1
Marital Status					
Married	3,837	0.69		0	1
Unmarried (never married)	3,837	0.18		0	1
Separation/Bereaved/Other	3,837	0.12		0	1
Employment Status					
Working	3,726	0.66		0	1
Student	3,726	0.03		0	1
Unemployed	3,726	0.04		0	1
Not in work	3,726	0.27		0	1
Qualifications					
Junior High School	3,830	0.13		0	1
Including high school	3,830	0.48		0	1
Junior technical college	3,830	0.13		0	1
University	3,830	0.25		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

% 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)

	Model 1	Model 2	Model 3
Outcome	Attitudes towards immigrants	Attitudes towards immigrants	Attitudes towards immigrants
Model Type	Random-Effects	Fixed-Effects	Fixed-Effects
Time (t) independent variables are measured	t_0	t_0	t_0
Observations Sample	All	All	Prefecture Stayers
Individual-level Variables			
Year (cf. 2008)			
Year (2010)	-0.053	-0.003	0.042
	(0.031)	(0.046)	(0.052)
Year (2012)	0.081*	0.053	0.117
	(0.036)	(0.054)	(0.064)
Year (2014)	0.229***	0.122	0.201*
	(0.039)	(0.071)	(0.082)
Qualifications (cf. Middle/High School)			
Technical/Two-year College	0.084*	-	-
	(0.034)	-	-
Four-year/Graduate Degree	0.167***	-	-
	(0.035)	-	-
Tenure (cf. Owned house)			
Rental house (private)	0.065*	0.070*	0.074*
	(0.026)	(0.035)	(0.038)
Rental house (public housing)	0.135***	0.146***	0.141**
	(0.032)	(0.044)	(0.046)
Other	-0.006	-0.025	0.004
	(0.049)	(0.067)	(0.075)
Employment status (cf. Employed non-manual)			
Employed (manual)	-0.077*	-0.001	-0.018
	(0.031)	(0.049)	(0.051)
Employed (other)	0.075	0.268	0.247
	(0.098)	(0.150)	(0.161)
Non-employed (unemployed)	-0.032	0.007	0.016
	(0.047)	(0.056)	(0.058)
Non-emp (in education)	-0.126	-0.014	0.075
	(0.113)	(0.140)	(0.159)
Non-emp (domestic work)	-0.065	-0.081	-0.095
	(0.038)	(0.052)	(0.055)
Non-emp (other)	-0.047	-0.013	-0.061
	(0.104)	(0.133)	(0.139)
Age (cf. 21-25)			
26-29	-0.116**	-0.045	-0.019
	(0.044)	(0.058)	(0.063)
30-34	-0.164***	-0.059	0.012
	(0.046)	(0.081)	(0.086)
35-39	-0.130**	0.055	0.110
	(0.048)	(0.107)	(0.112)
40-44	-0.168**	0.086	0.137
	(0.052)	(0.132)	(0.137)

45+	-0.181**	0.114	0.167
	(0.063)	(0.157)	(0.163)
Sex (cf. Male)			
Female	-0.048	-	-
	(0.029)	-	-
Marital Status (cf. Married)			
Unmarried (never married)	-0.027	0.044	0.052
	(0.028)	(0.055)	(0.061)
Other (divorced, widowed)	-0.037	-0.033	-0.039
	(0.057)	(0.089)	(0.093)
Subjective Social Status placement	0.015*	0.005	0.010
	(0.007)	(0.009)	(0.010)
City size (cf. towns or villages)			
Cities with less than 200,000 residents	-0.028	-0.039	-0.090
	(0.046)	(0.093)	(0.104)
Cities with equal or more than 200,000 residents	-0.022	-0.013	-0.053
	(0.048)	(0.099)	(0.111)
16 largest cities	-0.035	-0.001	0.028
	(0.050)	(0.106)	(0.124)
Evaluation of household standard of living (cf. Poor)			
Somewhat poor	0.100	0.055	0.065
	(0.054)	(0.066)	(0.068)
Average	0.164**	0.116	0.128
	(0.054)	(0.070)	(0.072)
Somewhat wealthy	0.179**	0.135	0.147
	(0.060)	(0.077)	(0.079)
Wealthy	0.309***	0.305**	0.259*
	(0.076)	(0.098)	(0.103)
Prefectural-level Variables			
financial capability index	0.088	0.200	0.154
	(0.109)	(0.192)	(0.216)
Unemployment Rate	0.051*	-0.012	-0.016
	(0.024)	(0.037)	(0.039)
Assistance Livelihood Rate	-0.007*	-0.016*	-0.027**
	(0.003)	(0.007)	(0.009)
Social welfare spending per capita	0.003	0.006	0.003
	(0.002)	(0.004)	(0.004)
Ratio of expenditure for livelihood protection	-0.017	0.004	-0.009
	(0.032)	(0.082)	(0.101)
Percent Foreign-born	-0.072*	-0.140*	-0.145*
	(0.029)	(0.057)	(0.070)
Constant	2.203***	2.437***	2.672***
	(0.149)	(0.265)	(0.317)
N of observations	10843	10843	8859
N of individuals	4623	4623	3109
N of prefectures	47	47	47

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

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Outcome	Attitudes towards immigrants	Attitudes towards immigrants	Attitudes towards immigrants	Attitudes towards immigrants	Attitudes towards immigrants	Attitudes towards immigrants
Sample	All	All	All	Excluding Shinjuku	Excluding Shinjuku	Excluding Shinjuku
Individual-level						
Age	-0.005**	-0.005**	-0.005**	-0.004**	-0.004**	-0.004**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Sex (cf. Male)						
Female	-0.014	-0.014	-0.015	-0.019	-0.019	-0.019
	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.022)
Travelled to foreign countries (cf. No)						
Yes	0.135***	0.135***	0.138***	0.139***	0.141***	0.141***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Lived in foreign countries (more than 1 month) (cf. No)						
Yes	0.131***	0.131***	0.126**	0.125**	0.126**	0.125**
	(0.039)	(0.039)	(0.039)	(0.040)	(0.040)	(0.040)
Live in the prefecture you were born? (cf. No)						
Yes	-0.066*	-0.065*	-0.071*	-0.063*	-0.062*	-0.063*
	(0.032)	(0.033)	(0.033)	(0.032)	(0.030)	(0.031)
Subjective social status placement	0.002	0.003	0.004	0.005	0.005	0.005
	(0.018)	(0.017)	(0.018)	(0.019)	(0.018)	(0.018)
Marital Status (cf. Married)						
Unmarried (never married)	0.086*	0.085*	0.082*	0.072*	0.072*	0.072*
	(0.034)	(0.033)	(0.032)	(0.034)	(0.033)	(0.033)
Separated/Bereaved/Other	-0.010	-0.010	-0.011	-0.012	-0.013	-0.013
	(0.043)	(0.044)	(0.044)	(0.044)	(0.045)	(0.045)
Employment Status (cf. working)						
Student	0.140*	0.141*	0.135*	0.164*	0.162*	0.162*
	(0.063)	(0.063)	(0.064)	(0.069)	(0.070)	(0.070)
Unemployed	0.047	0.047	0.045	0.055	0.051	0.051
	(0.075)	(0.074)	(0.073)	(0.075)	(0.074)	(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)
% unemployed		-0.016	0.002		0.001	0.002
		(0.018)	(0.021)		(0.019)	(0.021)
% foreign-born		0.001	-0.064*		-0.028**	-0.038
		(0.008)	(0.025)		(0.009)	(0.029)
% foreign-born * % foreign-born			0.007***			0.002
			(0.002)			(0.004)

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)

	Model 1	Model 2	Model 3
Outcome	Attitudes towards immigrants	Attitudes towards immigrants	Attitudes towards immigrants
Sample	Excluding Shinjuku	Excluding Shinjuku	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

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Outcome	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	All	All	All	All	All	All	All	All	All	All
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	-0.011	-0.011	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	0.003	-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		-0.006
		(0.003)		(0.003)		(0.002)		(0.004)		(0.003)

|										
Constant	1.764***	1.525**	0.397	0.326	0.136	0.083	2.234***	2.207***	2.697***	2.637***
	(0.533)	(0.497)	(0.374)	(0.375)	(0.143)	(0.147)	(0.435)	(0.430)	(0.382)	(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)
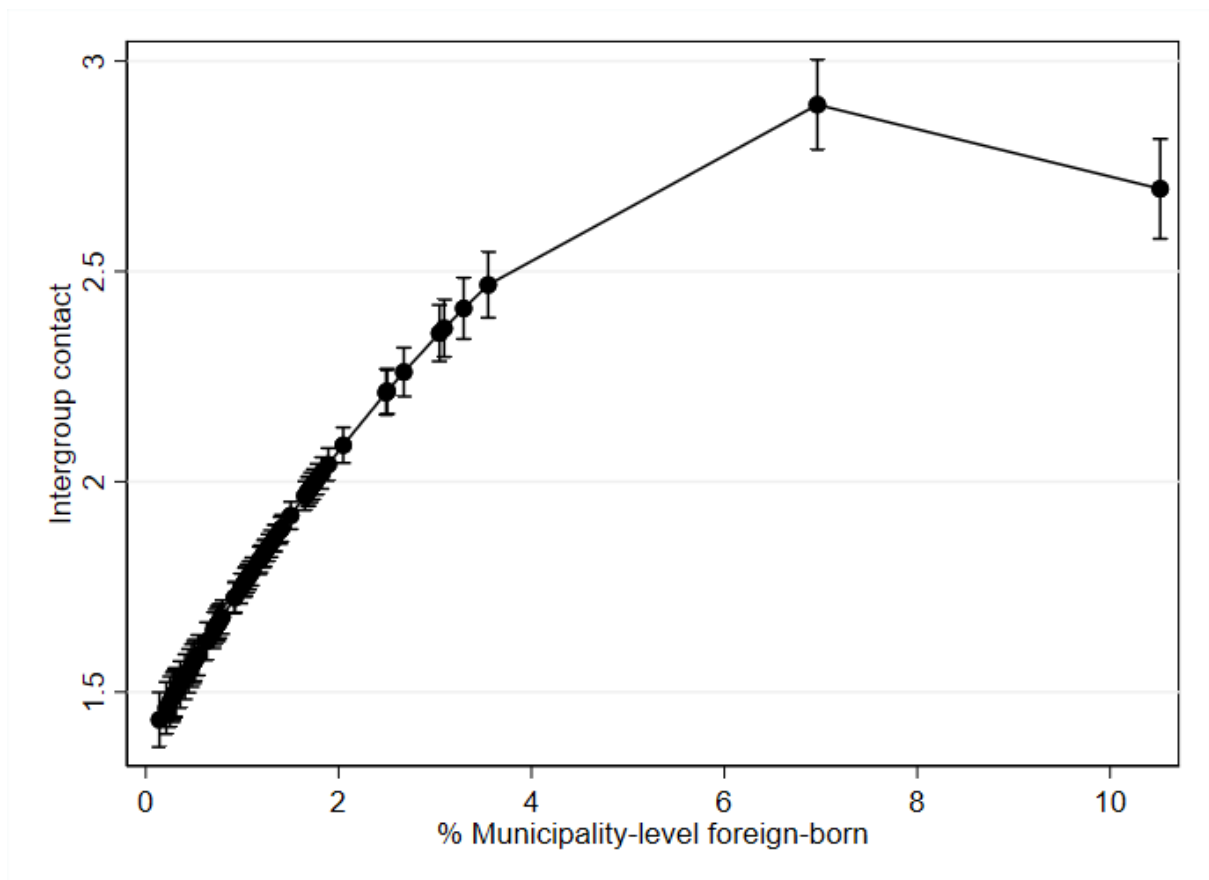
Supplementary Appendix S.9 - Predicted 'perceived 'immigrant-problems' index' scores across Municipality-level immigrant-share (PSPP)
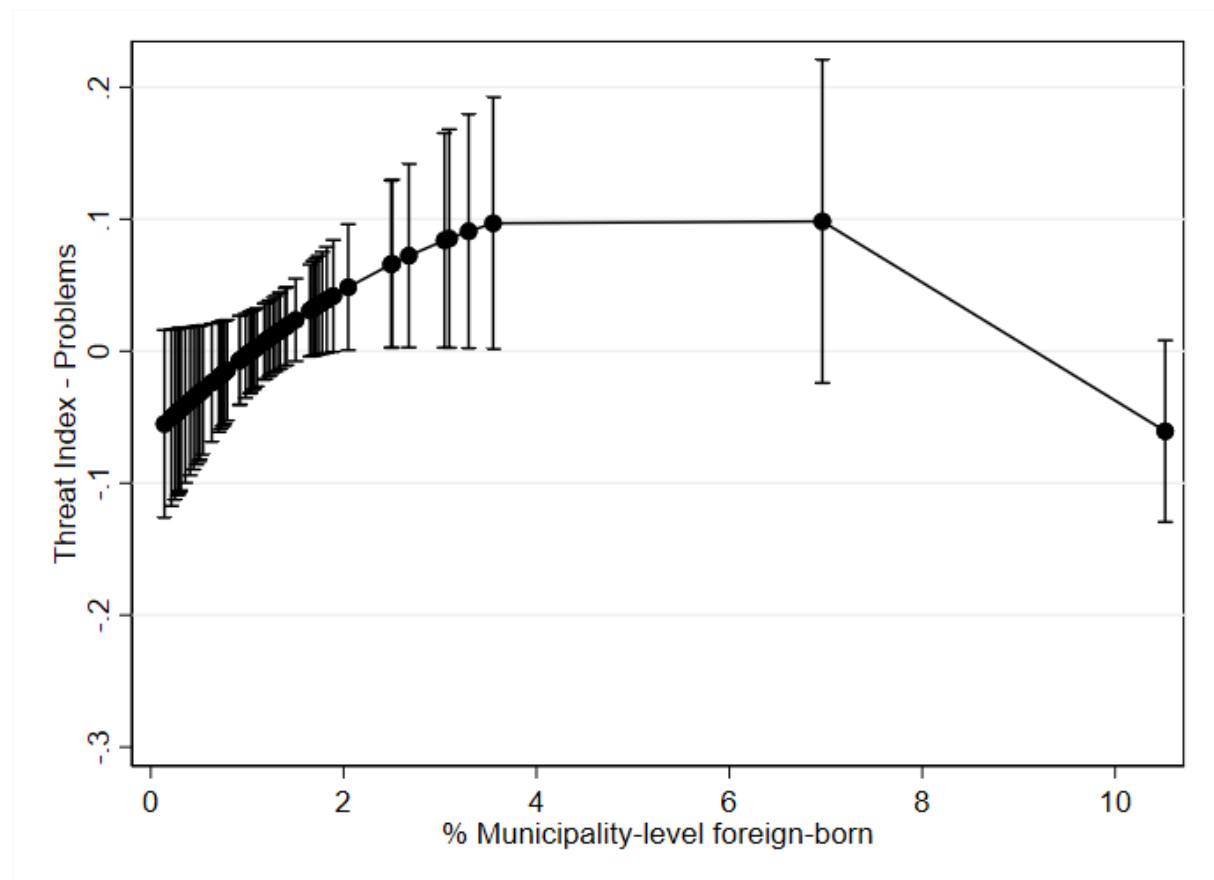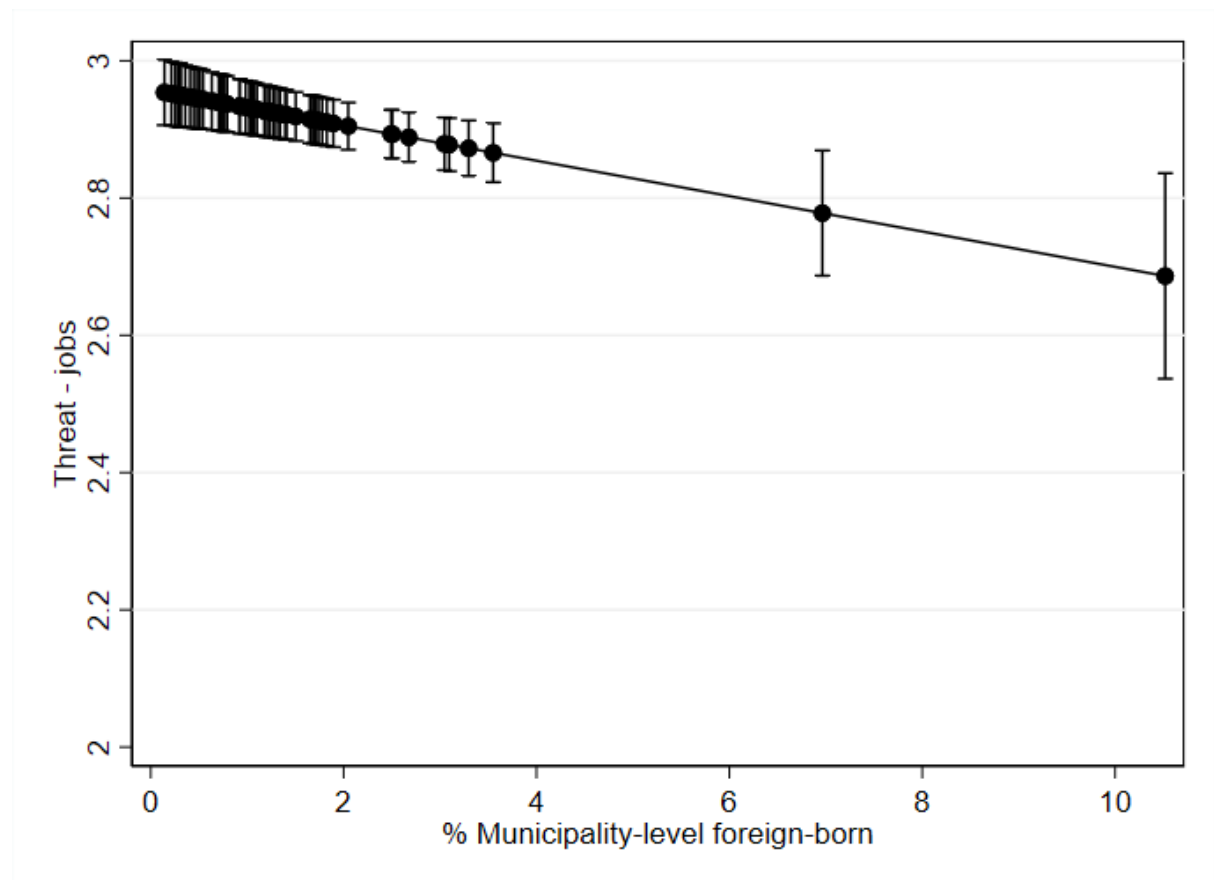
Supplementary Appendix S.10 - Predicted 'immigrants 'not positively contribute to Japanese society' scores across Municipality-level immigrant-share (PSPP)
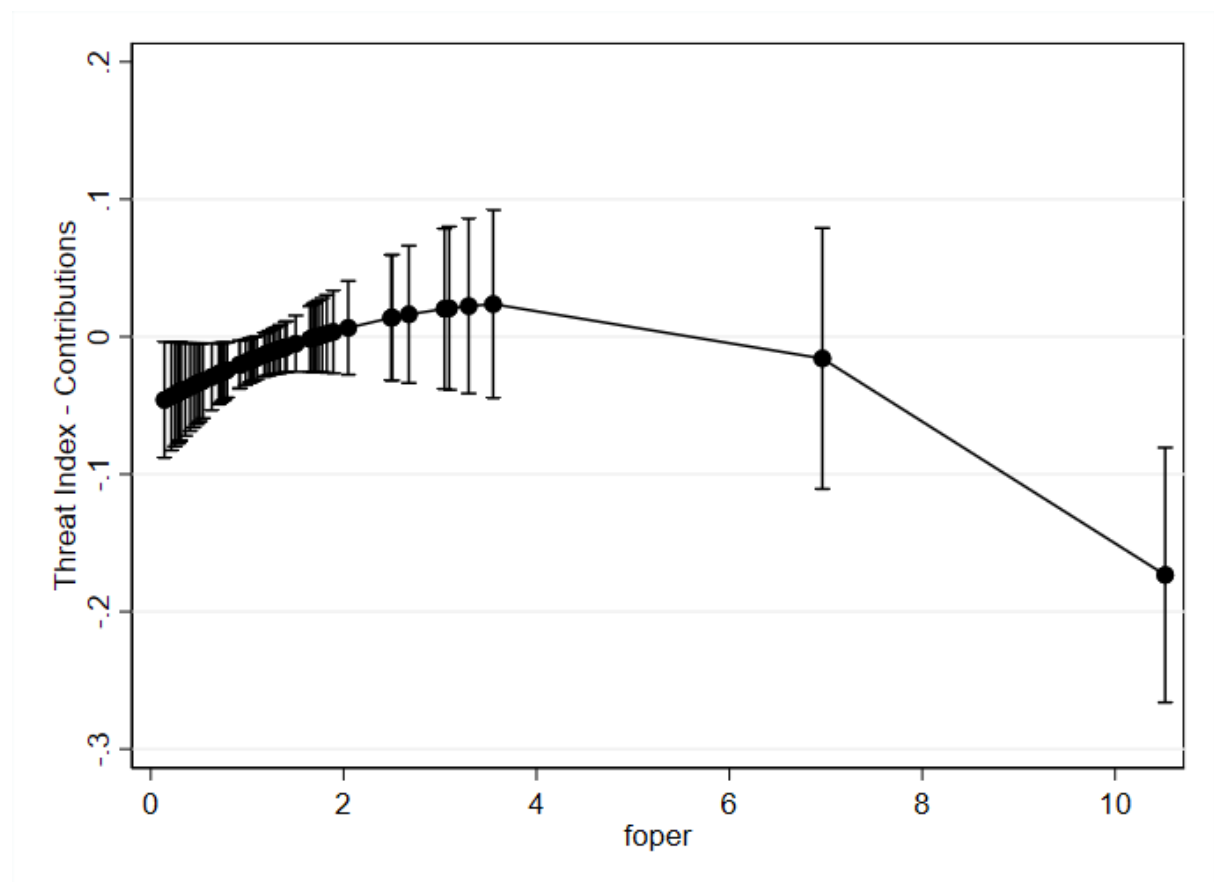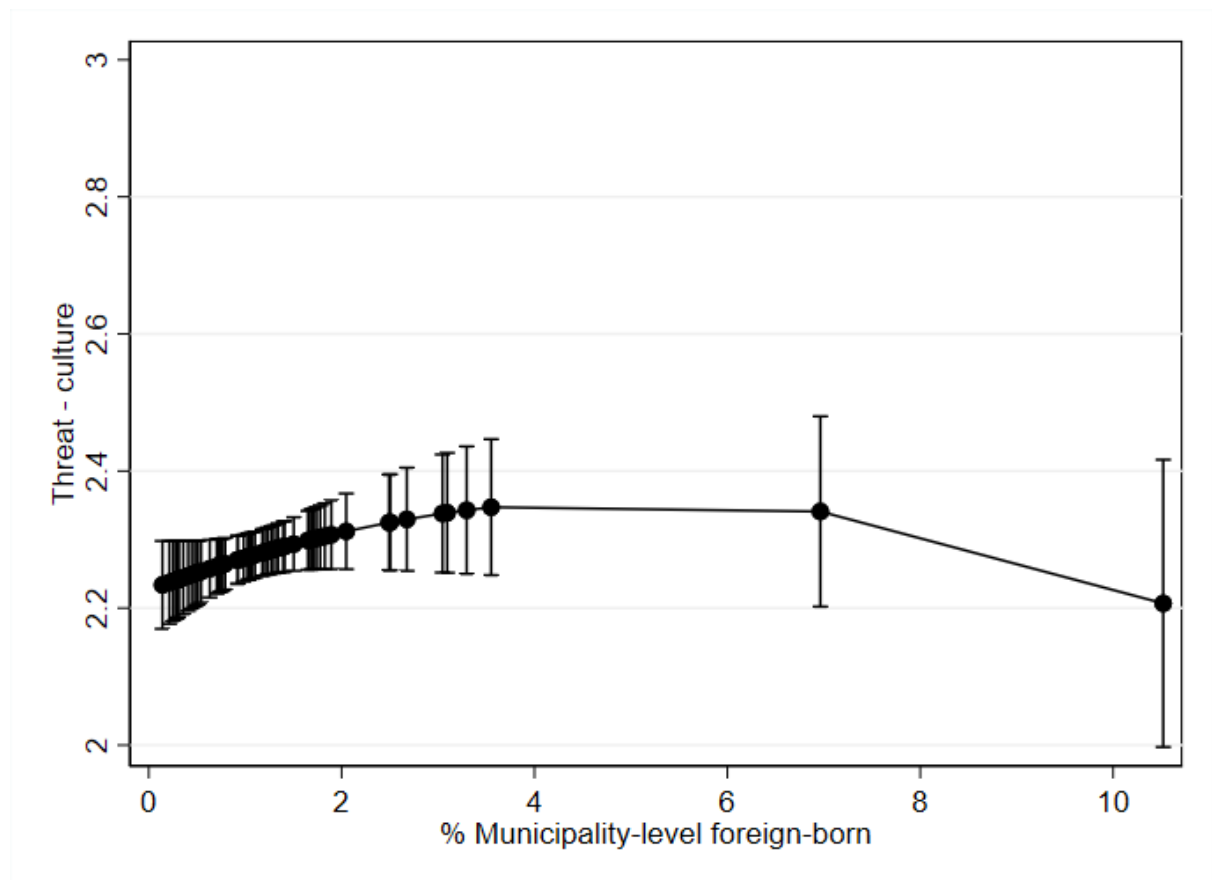
Supplementary Appendix S.11 - Predicted 'immigration deprives Japanese of employment' scores across Municipality-level immigrant-share (PSPP)

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)

	Model 1 Attitudes towards immigrants	Model 2 Attitudes towards immigrants	Model 3 Attitudes towards immigrants	Model 4 Attitudes towards immigrants
Individual-level				
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	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)
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)	3446	3446	3446	3446
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; PSPP data

Supplementary Appendix S.14 – Relationship between City-level Immigrant-share and Putative Mechanisms of Contact and Threat; excluding Shinjuku (PSPP)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Outcome	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***		0.002		-0.004		0.004		-0.011
		(0.007)		(0.004)		(0.004)		(0.008)		(0.007)

Constant	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 Attitudes towards immigrants	Model 2 Attitudes towards immigrants	Model 3 Attitudes towards immigrants	Model 4 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
	(0.113)	(0.107)	(0.083)	(0.080)
Unemployment Rate	-0.065	-0.067	-0.058	-0.060
	(0.043)	(0.046)	(0.039)	(0.040)
Assistance Livelihood Rate	0.002	0.001	0.002	0.001
	(0.004)	(0.004)	(0.003)	(0.003)
social welfare spending per capita	0.003	0.003	0.000	0.001
	(0.002)	(0.002)	(0.001)	(0.002)
ratio of expenditure for livelihood protection	0.012	0.013	0.009	0.010
	(0.026)	(0.025)	(0.016)	(0.014)
% foreign-born	-0.049	-0.048	-0.037	-0.034*
	(0.025)	(0.025)	(0.019)	(0.017)
City-level				
% non-completed high school	0.011	0.012	0.009	0.010
	(0.011)	(0.013)	(0.005)	(0.006)
% unemployed	0.001	0.006	0.009	0.013
	(0.019)	(0.020)	(0.019)	(0.020)
% foreign-born	-0.028**	-0.049***	-0.011	-0.029***
	(0.009)	(0.010)	(0.006)	(0.007)
Individual-level Mechanisms				
Local Contact		0.088***		0.078***
		(0.011)		(0.012)
Threat - Problems			-0.278***	-0.282***
			(0.010)	(0.011)
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***
	(0.189)	(0.198)	(0.161)	(0.167)
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[i]. 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_{-2}[ii]. We observe that lagged immigrant-share continues to positively predict current immigration attitudes, strengthening the causal identification[iii].

Arellano-Bond Estimator testing lagged immigrant-share (JLPS)

	Model 1	Model 2
Outcome	Attitudes towards immigrants (t_0)	Attitudes towards immigrants (t_0)
Model Type	Fixed-Effects	Arellano–Bond linear dynamic panel model
Time (t) independent variables are measured	t_0	t_{-2}
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_{max} and the latter is δ. $\delta = 1$, which means the observed and unobserved covariates have equal impacts on the bias (based on Oster's (2019) recommendation). Ideally, R_{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, $1.3 \times R_{within}$ 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 $R_{max} = 1.3 \times R_{within}$ 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 $R_{max} = 2.2 \times R_{within}$.

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

[ii] 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.

[iii] Lagged immigration attitudes did not predict present immigrant-share, suggesting negative changes in attitudes did not precede positive changes in immigrant-share.