

Supplementary Information to “Who Should be Admitted? Conjoint Analysis of South Korean Attitudes toward Immigrants”

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I. APPENDIX A: DATA OVERVIEW

A. Panel Data

Table SI.1 shows the data from the panel data used in this research. The native South Korean sample was drawn from a nationally representative panel of online participants during the month of January 2019. Quotas were set in order to ensure representativeness by region, age, and gender, with a balanced mixed of education levels. The total number of participants equaled 1,008.

Table SI.1 South Korean Demographics

Gender	
Female	49.9%
Male	50.1%
Regions	
Seoul, Incheon/Gyeonggi	48.6%
Busan, Ulsan/Gyeongnam	16.1%
Daegu/Gyeongbuk	10.3%
Daejeon, Sejong/Chungcheong	10.9%
Gwangju/Cheolla	10.3%
Kangwon/Jeju	3.8%
Age	
18-29	17.1%
30-39	19.1%
40-49	21.0%
50-59	21.0%
60+	21.8%
Education	
Elementary school or lower	0.8%
Middle school	1.2%
High school	21.1%
Some college (including technical school)	8.0%
University	58.3%
Graduate school and above	10.5%

B. Wording for Conjoint and Primary Moderators

All survey questions were presented to respondents in Korean. Below is the English-language translation, done by the authors.

Conjoint introduction:

“This study considers immigration and who is permitted to come to the South Korea to live. For the next few minutes, we are going to ask you to act as if you were an immigration official. We will provide you with several pieces of information about people who might apply to move to South Korea. For each pair of people, please indicate which of the two immigrants you would personally prefer to see admitted to South Korea. This exercise is purely hypothetical. Even if you aren’t entirely sure, please indicate which of the two you prefer.”

Instructions about prospective immigrant profiles:

“Please read the descriptions of the potential immigrants carefully. Then, please indicate which of the two immigrants you would personally prefer to see admitted to South Korea.”

Immigrant Preferred selection wording:

Forced choice: “If you had to choose between them, which of these two immigrants should be given priority to come to South Korea to live?”

7-point scale: “On a scale from 1 to 7, where 1 indicates that South Korea should absolutely not admit the immigrant and 7 indicates that South Korea should definitely admit the immigrant, how would you rate Immigrant 1 (or Immigrant 2)?”

Education

What is the highest level of education you have achieved?

- Elementary school or lower
- Middle school
- High school
- Some college (including technical school)
- University
- Graduate school and above

National Identity

Going forward, what kind of country should South Korea be?

- An ethnically homogenous one
- A multicultural one
- Don’t know

Political Identification

How do you identify politically?

- Very progressive
- Somewhat progressive
- Centrist
- Somewhat conservative
- Very conservative
- Don't know

Self-monitoring

When you're with other people, how often do you put on a show to impress or entertain them?

- Always
- Most of the time
- About half of the time
- Once in a while
- Never

How good or bad of an actor would you be?

- Excellent
- Good
- Fair
- Poor
- Very poor

When you are in a group of people, how often are you the center of attention?

- Always
- Most of the time
- About half of the time
- Once in a while
- Never

II. APPENDIX B: ADDITIONAL RESULTS

A. Benchmark Regression Model

Table SI.2 details the full regression results for the benchmark OLS regression model used to compute the average marginal component effects (AMCEs). For the benchmark model, we use the dichotomous outcome variable from the forced choice option for preferred immigrant (1 = immigrant preferred, else 0). The response is regressed against seven categorical variables (immigrant attributes) with each randomly assigned level/value. The AMCEs are estimated as the weighted average of the effect of a single attribute level over all other levels. There are no restrictions on the possible combinations of attribute levels.

Table SI.2: Effect of Immigrant Attributes on the Probability of Immigrant Profile Selection

Attribute	Level/Value	Estimate	Std. Error	Z-score	P-value	Lower	Upper
Application	Claim asylum	-	-	-	-	-	-
Application	Resettle	0.019334	0.013488	1.433401	0.151743	-0.0071	0.04577
Application	Short-term work	-0.01221	0.013234	-0.92286	0.356081	-0.03815	0.013725
Application	Study	0.013881	0.013713	1.012238	0.311424	-0.013	0.040758
Country	United States	-	-	-	-	-	-
Country	North Korea	-0.0347	0.017329	-2.00274	0.045206	-0.06867	-0.00074
Country	Japan	-0.06806	0.01579	-4.31038	1.63E-05	-0.09901	-0.03711
Country	Vietnam	-0.12194	0.016048	-7.5983	3.00E-14	-0.15339	-0.09048
Country	China	-0.05773	0.015647	-3.68937	0.000225	-0.08839	-0.02706
Country	Yemen	-0.17677	0.016208	-10.9062	1.08E-27	-0.20853	-0.145
Language	Fluent Korean	-	-	-	-	-	-
Language	Broken Korean	-0.10502	0.012736	-8.24532	1.65E-16	-0.12998	-0.08005
Language	Tried Korean but unable	-0.16759	0.013178	-12.7167	4.77E-37	-0.19342	-0.14176
Language	Spoke via interpreter	-0.16301	0.013575	-12.0083	3.21E-33	-0.18962	-0.13641
Profession	Agricultural worker	-	-	-	-	-	-
Profession	Child care provider	-0.00304	0.017518	-0.17366	0.862135	-0.03738	0.031293
Profession	Nurse	0.037427	0.017389	2.152268	0.031376	0.003344	0.071509
Profession	Office worker	0.009776	0.017027	0.574111	0.565893	-0.0236	0.043149
Profession	Teacher (not professor)	0.001397	0.017506	0.079784	0.936409	-0.03291	0.035707
Profession	Research scientist	0.088315	0.018038	4.895946	9.78E-07	0.05296	0.123669
Profession	Computer programmer	0.052733	0.017578	2.999901	0.002701	0.01828	0.087186
Profession	Doctor	0.075057	0.018222	4.11908	3.80E-05	0.039343	0.110771
Employment	No plans to look for work	-	-	-	-	-	-
Employment	Will look for work after arrival	0.087737	0.012279	7.145432	8.97E-13	0.063671	0.111803
Employment	Job interviews only	0.162501	0.012731	12.76469	2.58E-37	0.13755	0.187452
Employment	Has contract w/ Korean employer	0.209514	0.01309	16.00622	1.16E-57	0.183859	0.235169
Gender	Male	-	-	-	-	-	-
Gender	Female	0.042883	0.008915	4.810038	1.51E-06	0.025409	0.060357
Ethnicity	Non-ethnic Korean	-	-	-	-	-	-
Ethnicity	Ethnic Korean	0.060139	0.009245	6.505173	7.76E-11	0.04202	0.078259

Note: The table presents the average component interactive effects of randomly generated attribute values with robust standard errors clustered by respondent. Reference categories are in bold.

B. *Additional Moderators*

Replicating the benchmark models for different groups lets us consider how certain respondent characteristics matter (or don't). In the main paper we found some limited but interesting evidence of interactions with respondents' background characteristics (e.g., political ideology). In this section, we consider additional moderators. These include the following:

- Respondents' age (Figure SI.1)

Age is often a significant predictor of political behavior and social attitudes, with a clear young/old divide in society. However, when the benchmark model is replicated across age cohorts, we find no evidence of differences in opinion by age.

- Respondents' gender (SI.2)

It stands to reason that males and females, having different life experiences and social expectations, would think differently about prospective newcomers and the effects they might have on their respective lives. Although female immigrants are preferred over male immigrants, there is no difference based on the gender of the respondent according to the gender model in SI.2.

- Respondents' income (SI.3)

In the main paper, we used education as a proxy for labor market and related economic positions in society (Figure 5). Income, sometimes used as a proxy for class, accomplishes a similar goal. High-income earners can be expected to show less support for highly skilled immigrants, and vice-versa for low-income earners. These groups might also have different overall expectations about incoming immigrants. High-income is defined as reporting household income greater than 6 million won per month; low-income is defined as those reporting less than 4.1 million won per month. Replicating the benchmark model for these groups yields no significant differences in opinions; although high-income earners, like the better educated, place more relative importance on employability.

- Respondents who live in immigrant rich areas vs. those who don't (SI.4)

An alternative way to test for effects due to economic self-interest is to consider whether native South Koreans who inhabit the same subnational geographic area as immigrants show higher levels of economic anxiety, as we might expect. Hainmueller and Hopkins (2014) use zip codes to identify respondents who live in lower-skill immigrant rich neighborhoods. We do something similar here, identifying those respondents who live in immigrant rich geographies, defined at the level of *gun* or *guni*.¹ Since most newcomers to South Korea are lower-skill, we need not worry about differentiating between skill levels of immigrants. SI.4 shows the estimated marginal effects when replicating our benchmark model for the subsamples of respondents living in immigrant rich and non-immigrant

¹ This administrative level is a close approximate of zip codes in the United States. We count those with immigrant populations greater than 5% of the total as being "immigrant rich." There is a total of 43 (out of 261 total) administrative districts with greater than 5% immigrants equaling 16% total (according to 2017 population data). The top five immigrant rich geographies include: Ansan city (special district), Gyeonggi Province (17.7%); Yongdeungpo-gu, Seoul (13.8%); Eumseong-gun, North Chungcheong Province (12.6%); Geumcheon-gu, Seoul (12.1%); Guro-gu, Seoul (11.4%); and Ansan city, Gyeonggi Province (11.2%).

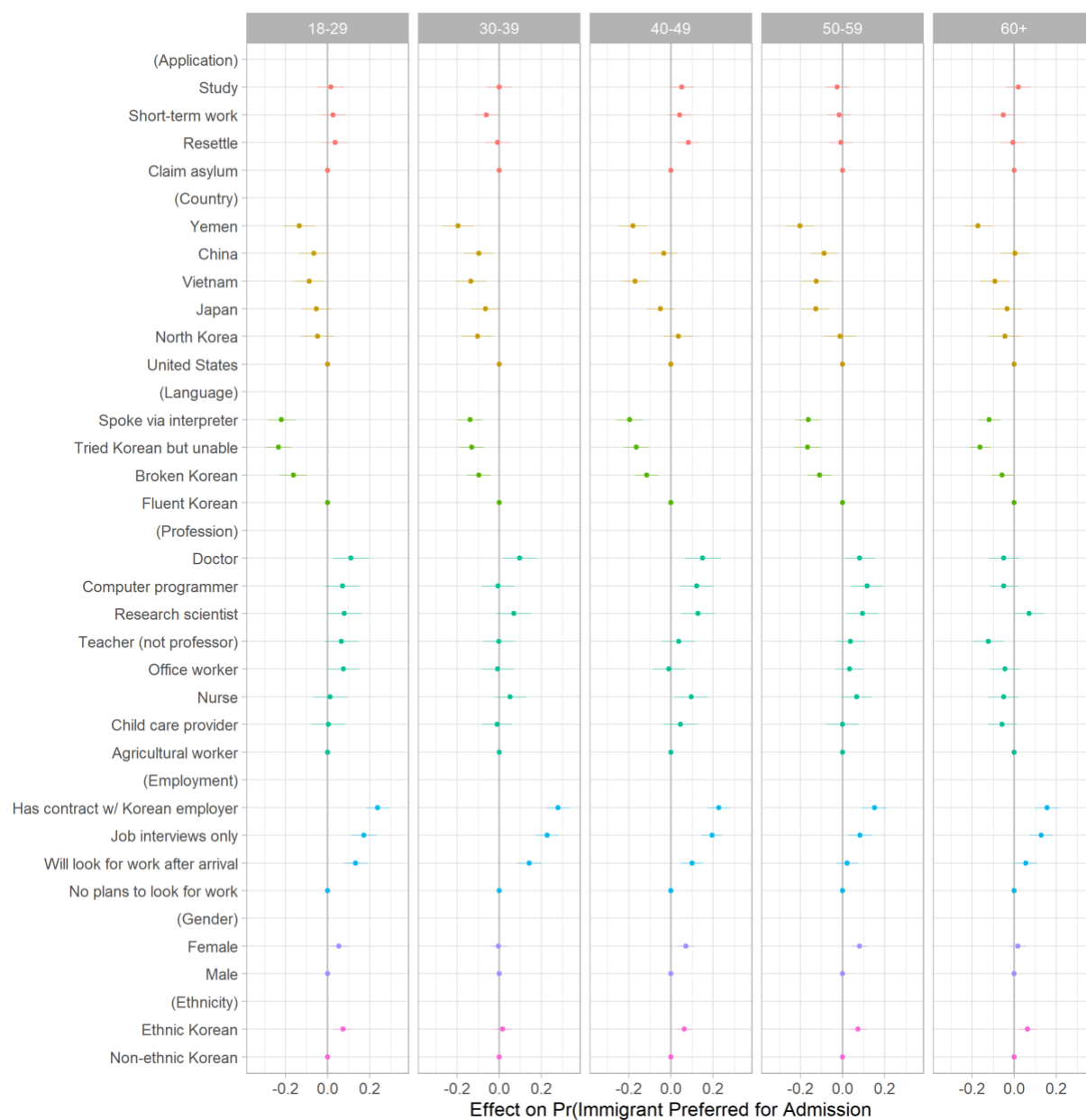
rich geographies. The results show that living among immigrants has effectively no effect on respondents' attitudes towards prospective immigrants.

- Democratic vs. pre-democratic generations (SI.5)

Another way to consider possible interactions with national identity is to look at responses by those who came of age in the democratic and pre-democratic periods; this is especially pertinent in South Korea as a new(er) democracy (democratic transition in 1987). The population can be divided between democratic and pre-democratic generations.² Those having come of age under democracy can be hypothesized to have different national identities and norms-based understanding of what makes one a productive member of the national community – one based on equal rights under law, as democratic theory holds (Kunovich, 2009; Nodia, 1992). Empirically, we find little difference in opinions between those who came of age before or during the democratic era in South Korea except, again, for employment plans. Those from the democratic generation show slightly greater preference for prospective immigrants who satisfy broader sociotropic concerns. The difference between the two generations is not great (<5pp), but the difference is statistically significant and not entirely unexpected. Growing up under a liberal democratic regime is bound to instill the idea of value and worth is determined by or through hard work, and this is best achieved through gainful employment. Otherwise, there is no substantive change in the responses.

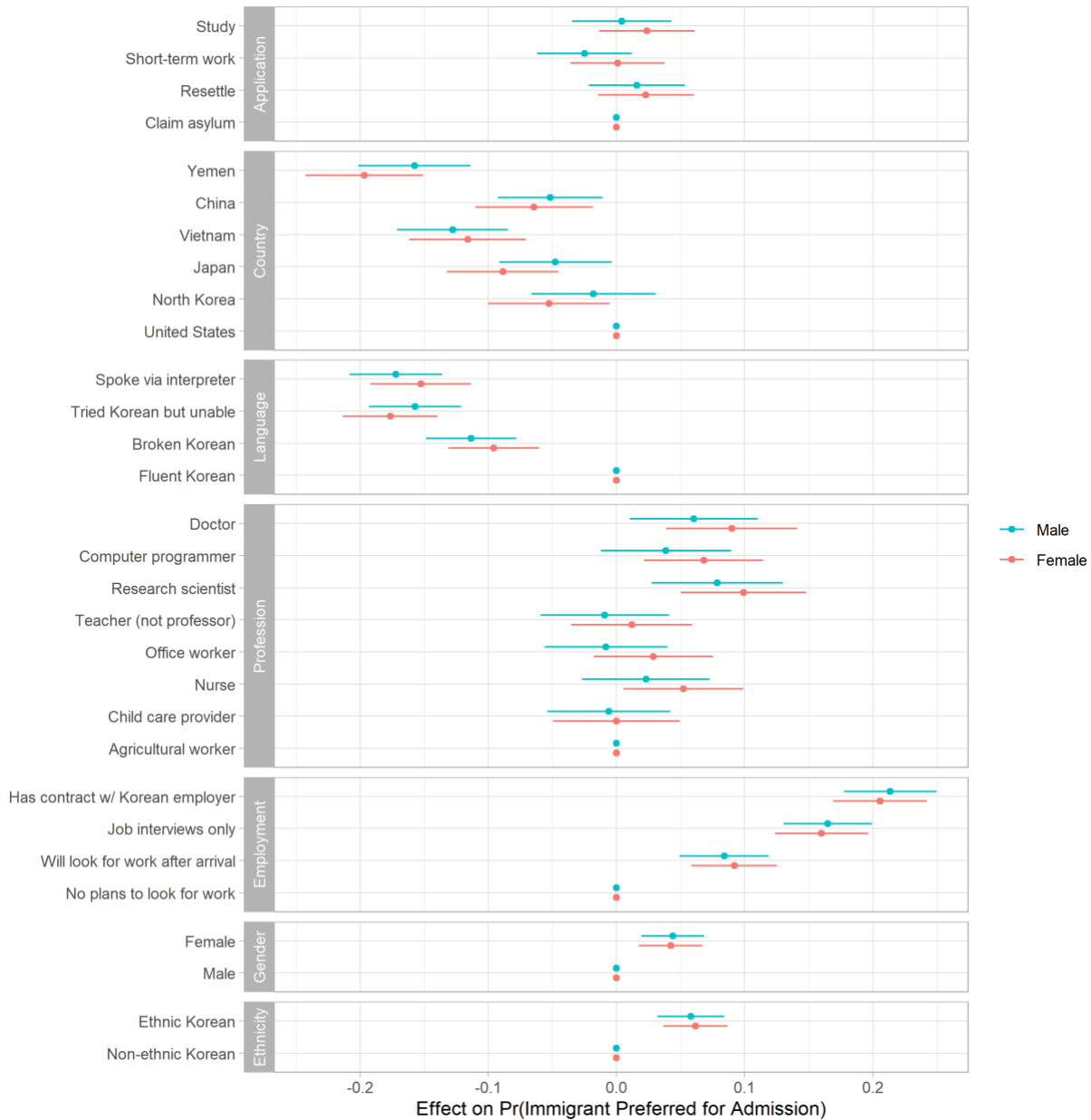
² We count “coming of age” as being politically socialized into a democratic or non-democratic political system. Those who spent the entirety of their formative years (ages 12-25) under a democratic political system are counted as belonging to the democratic generation; those who came of age entirely under a non-democratic system or not entirely under democracy (i.e., were between the ages of 12 and 25 at the time of transition) are counted as belonging to the pre-democratic generation.

Figure SI.1: Effects of Immigrant Attributes on Support for Admission by Age Cohorts



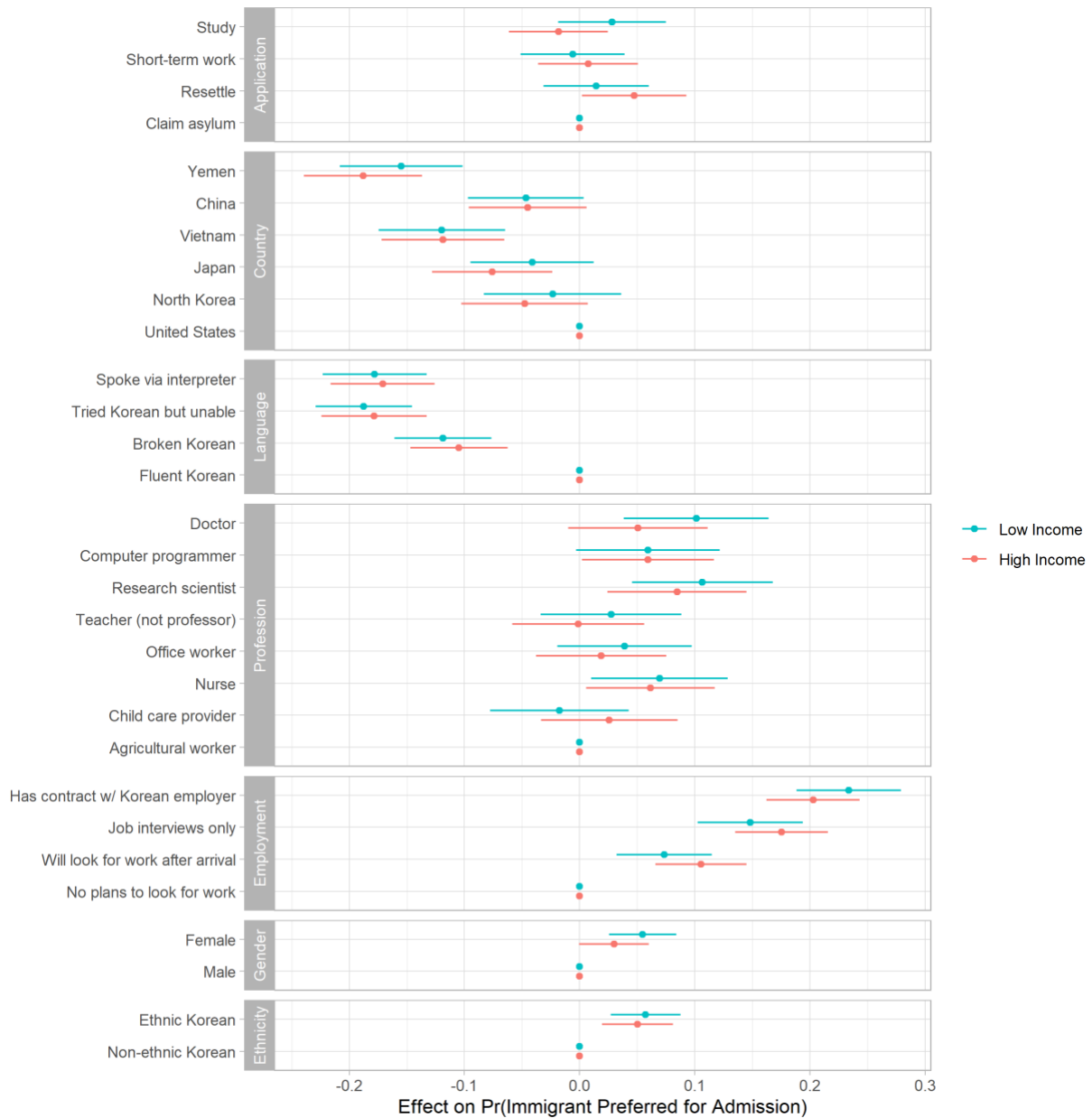
Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by gender. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

Figure SI.2: Effects of Immigrant Attributes on Support for Admission by Gender



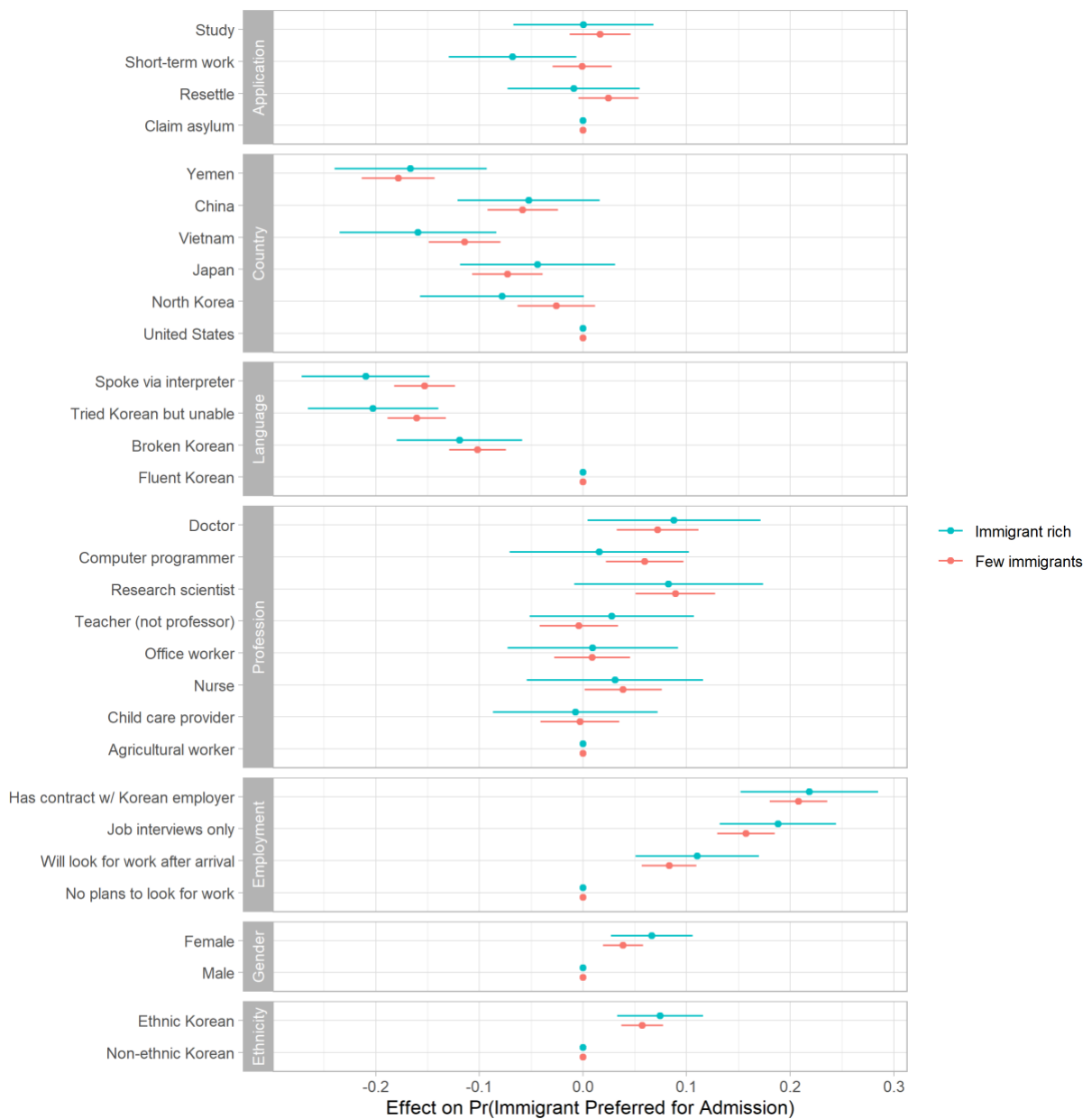
Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by gender. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

Figure SI.3: Effects of Immigrant Attributes on Support for Admission by Income



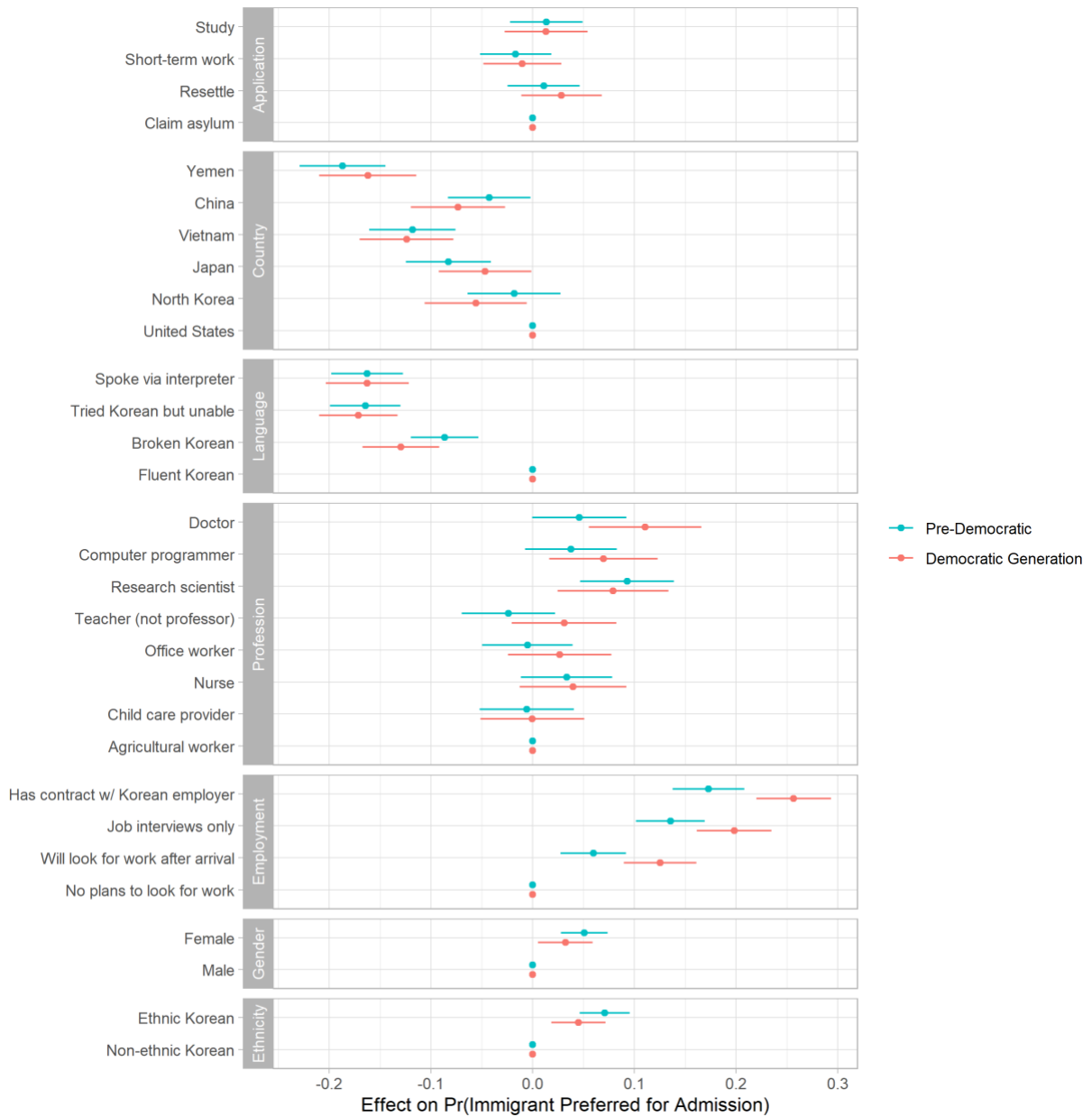
Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by income levels. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

Figure SI.4: Effects of Immigrant Attributes on Support for Admission by Immigrant Exposure



Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by exposure to immigrants. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

Figure SI.5: Effects of Immigrant Attributes on Support for Admission by Political Generation



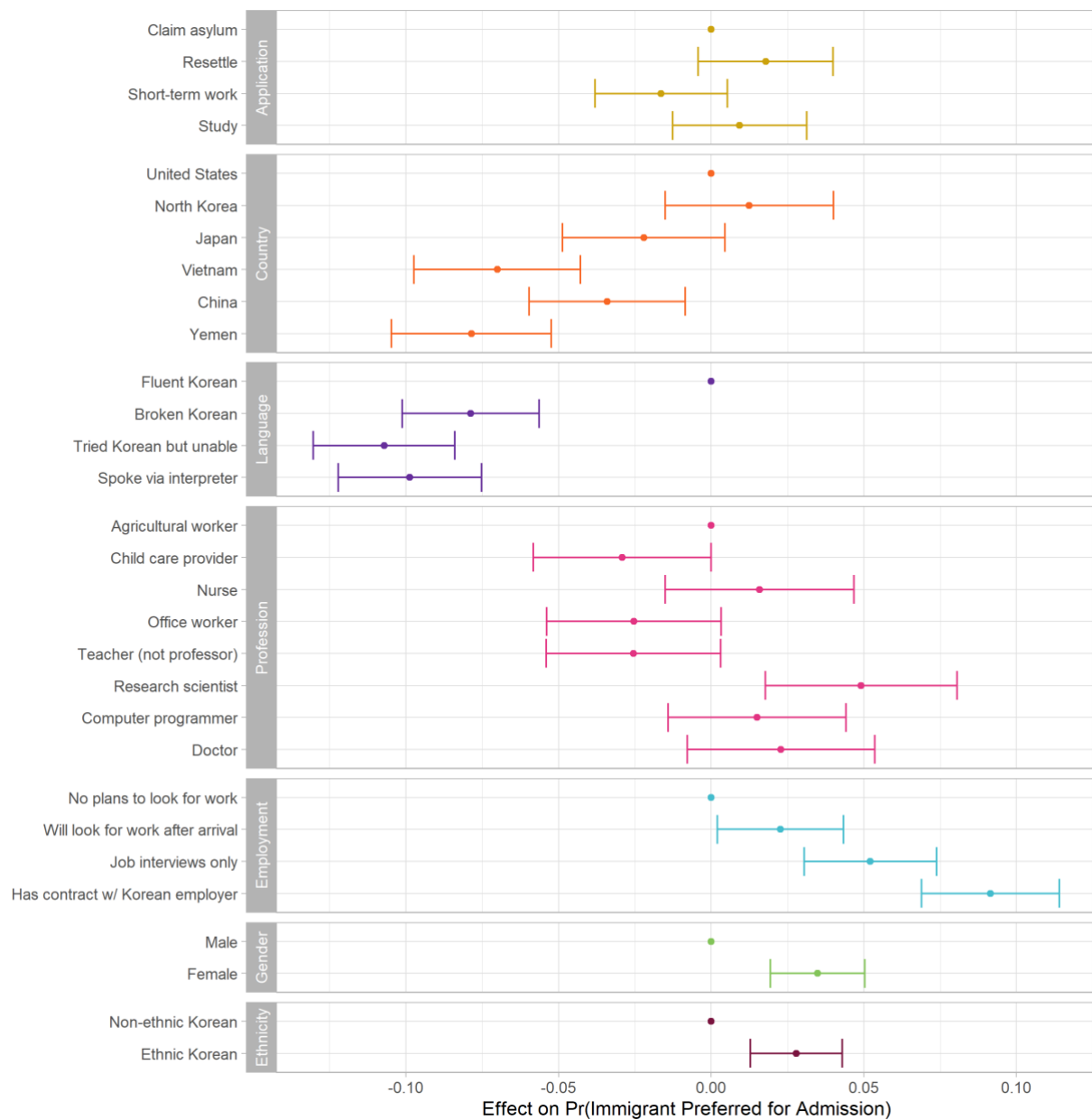
Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by generations. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

III. APPENDIX C: ROBUSTNESS CHECKS

A. 7-point scale vs. binary forced choice

The dependent variable primarily analyzed in this research was the outcome of a forced-choice – supporting immigrant A or B. How does this change if we consider ratings-based answers? After choosing which of the two prospective immigrants were preferred, respondents were asked to rate the two immigrants on a 7-point scale (1=absolutely not admit; 7=absolutely admit). It may have been the case that the immigrant chosen was only *preferred* to the other, but not *supported*. If the rating was greater than the median rating score it was coded as 1, else 0. Then the benchmark model was replicated in figure SI.6. The results are nearly identical to the baseline model based on the forced choice.

Figure SI.6: Effects on Immigrant Attributes on Support for Admission Based on 7-Point Scale

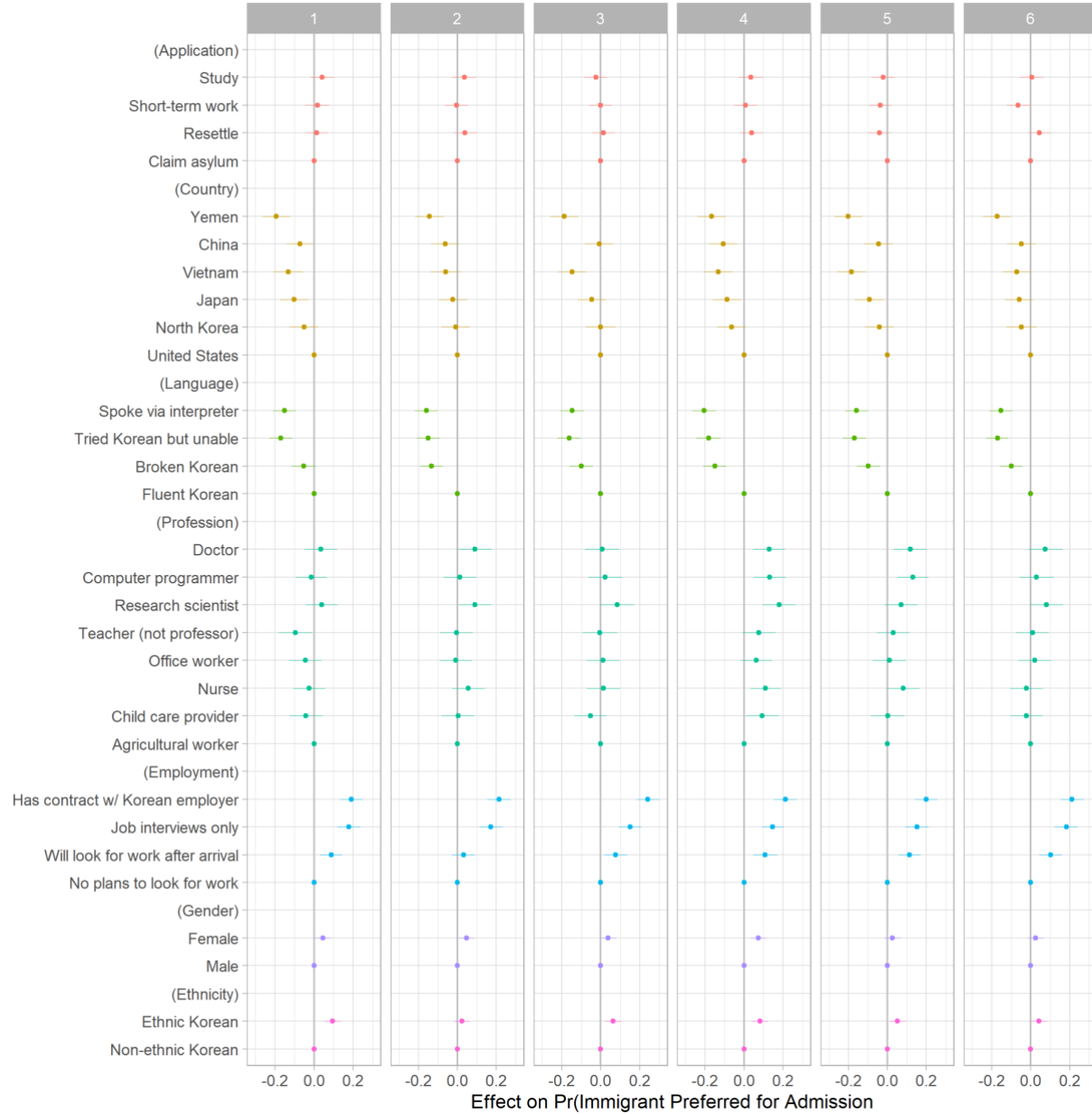


Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by choice (forced vs. rating). AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

B. Satisficing

One concern with repeatedly choosing between profiles is that respondents will satisfice after having viewed a few profiles; this would skew our estimates. Figure SI.7 considers whether respondents' answers change across profiles viewed. There are no significant differences in answers across the pairs viewed, indicating that satisficing or related behavior are absent.

Figure SI.7: Effects of Immigrant Attributes on Support for Admission by Profile Pairings

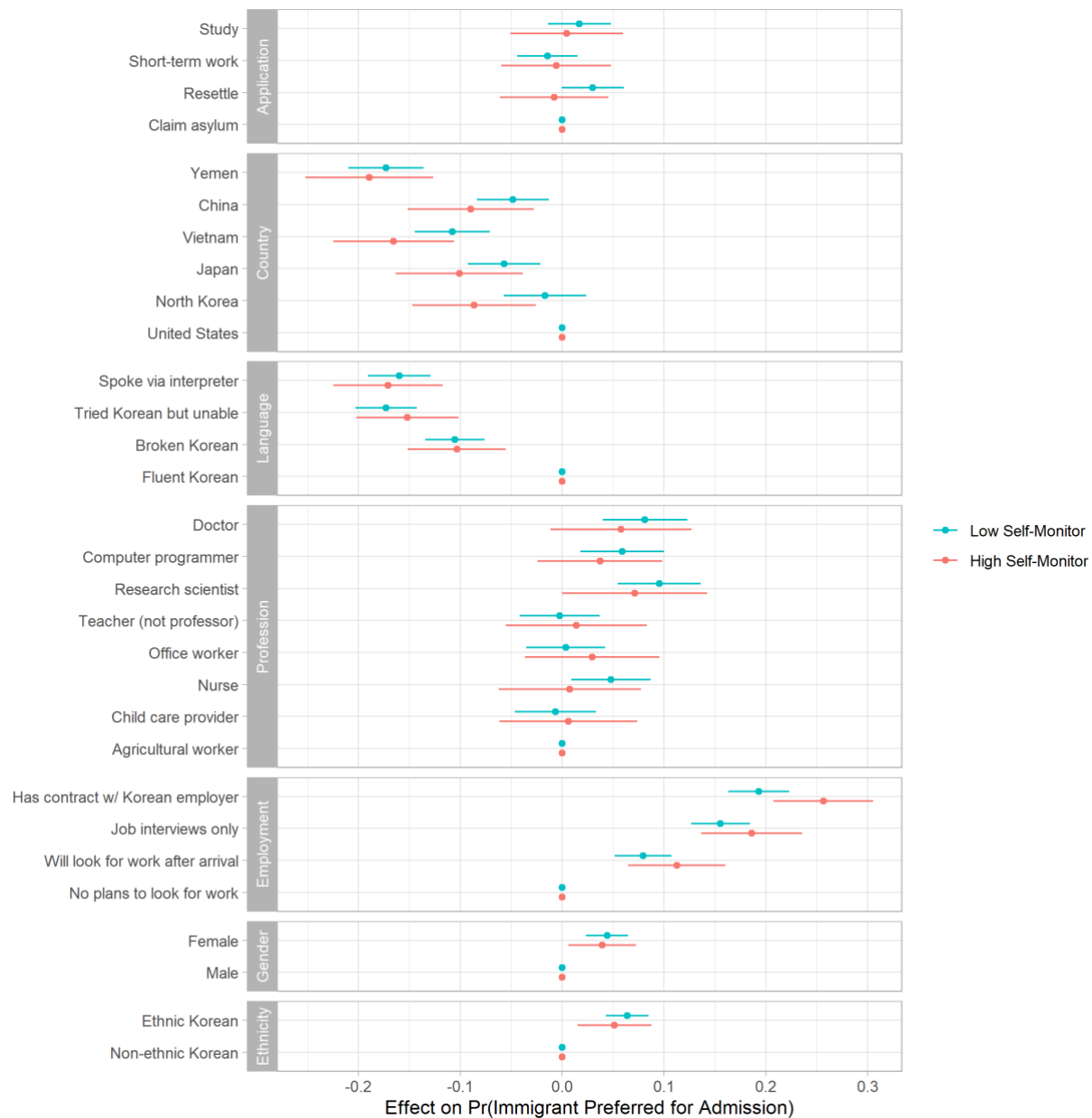


Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by profile pairings. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

C. Self-monitoring

Although choice-based conjoint designs do a better job mitigating social desirability effects, we cannot entirely rule this out. We can, however, use questions designed to capture social desirability effects (Berinsky and Lavine, 2011). Three wave-one questions were used to find respondents who self-monitor, a behavior that is associated with social desirability (i.e., wanting to be seen in an appealing way; see I.B above for question wording). Figure SI.8 shows a replication of the benchmark model for those with high or low self-monitoring. High self-monitoring respondents are those who answered “always” or “most of the time” (i.e., highly self-monitoring) to each of the three questions. There are no substantive differences between those with high or low self-monitoring.

Figure SI.8: Effects of Immigrant Attributes on Support for Admission by Self-Monitoring

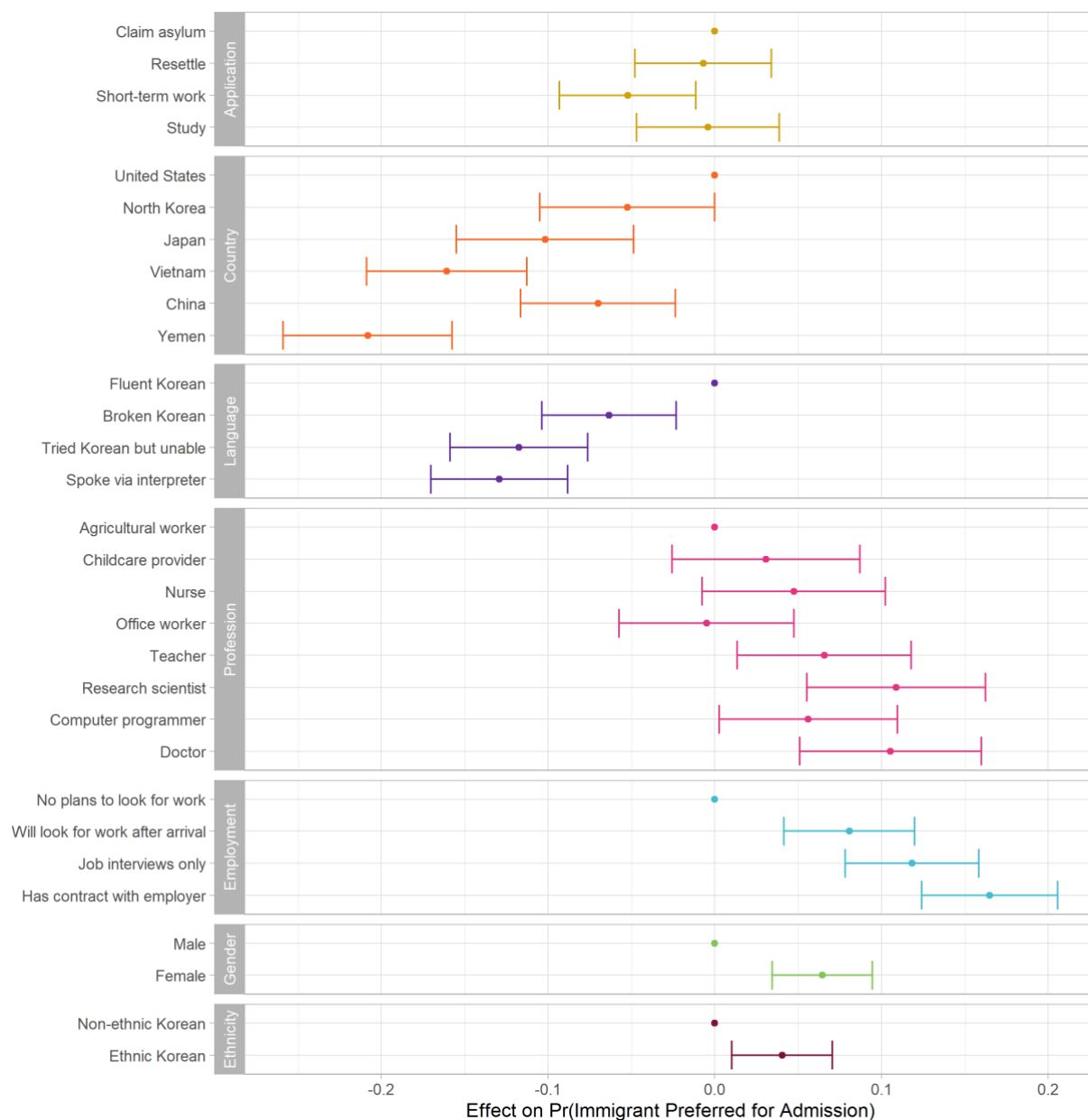


Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by profile pairings. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

D. Randomizing question order

It is common in experiments to randomize the order questions are presented so as to rule out the possible confounding effects of question order. Scholars using choice-based conjoint analysis often do this, although restraints are sometimes placed on which questions can be randomized, in order to present similar questions together and prevent confusion, and also to more closely approximate reality (i.e., how, say, immigrant attributes might be presented in an application read by an immigration official). In this study, we did both. The baseline model and additional subgroup analysis in this research did not permit question randomization. However, in a follow-up survey with 410 respondents during the month of May 2019, again with participants from Rakuten Insights' South Korean panel, we again administered the immigration conjoint. The new baseline model from this later panel is shown in Figure SI.9. The results are basically identical to the original baseline model, strongly suggesting that for this experiment, question order does not matter.

Figure SI.9: Effects of Immigrant Attributes on Support for Admission with Question Order Randomized



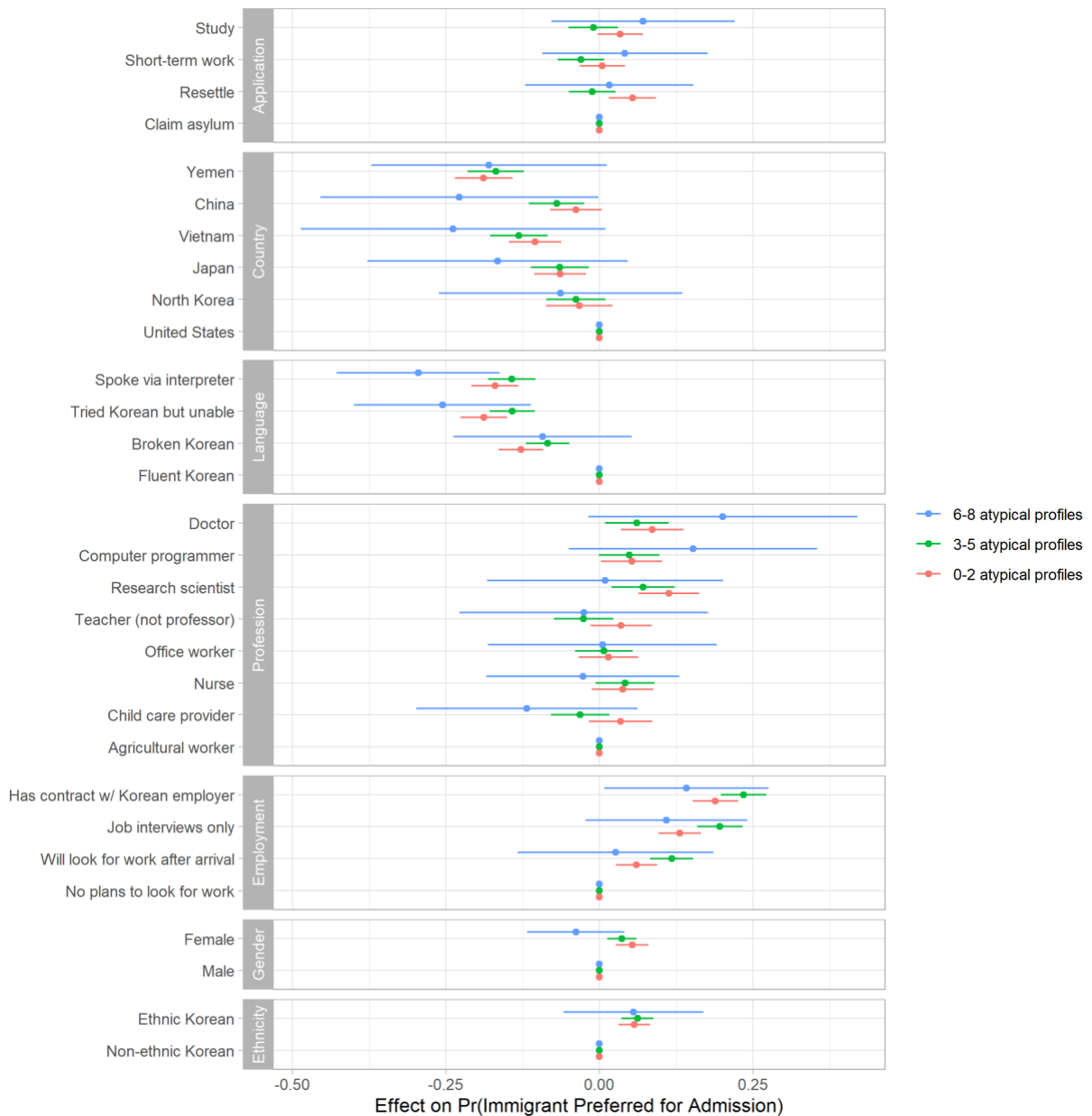
Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by profile pairings. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model (from the second panel) with standard clustered errors.

E. Atypical profiles viewed

One challenge with including multiple attributes and differing values is the generation of atypical profiles. Often, researchers will impose restrictions on the randomization of attribute values in order to limit or avoid altogether atypical profiles. But as Leeper, Hobolt and Tilley (2018) argue, placing restrictions on the conjoint design creates undesirable effects. We heed this warning and allow full randomization across attribute values. This, however, results in the generation of some atypical profiles. The concern then is that respondents who are exposed to these profiles will not take the experiment seriously. In order to determine whether this is the case, we replicate the benchmark model by exposure to atypical profiles: 0-2 atypical profiles which accounts for 48% of respondents; 3-5 atypical profiles (49%); and 6-8 atypical profiles (3%).³ Figure SI.10 shows that there are no significant differences in responses by exposure indicating that the presence of atypical profiles did not have undesirable effects.

³ Atypical profiles include: North Korea as country of origin and anything but speaking fluent Korean during admissions interview; North Korea as country of origin and non-ethnic Korean; and Yemen as country of origin and ethnic Korean.

Figure SI.10: Effects on Immigrant Attributes on Support for Admission by Atypical Profiles



Note: The average component marginal effect for the randomly generated attributes on the probability of being preferred for admission to South Korea by exposure to atypical profiles. AMCEs for values of attributes shown with 95% confidence intervals and based on the baseline OLS model with standard clustered errors.

F. Automated content analysis

For an additional robust check, we use Latent Dirichlet Allocation (Blei et al., 2003), a content analysis tool, to determine whether sociotropic, norms-based, and ethnocultural explanations hold up as explanations for immigrant attitudes in South Korea. After the third pair profiles (out of six total) considered, respondents were asked to explain why they chose the prospective immigrant that they did. This generated 1,008 open-ended responses. We translated these responses into English and then ran a six-cluster implementation of Latent Dirichlet Allocation fit using the LDA package in R. Each column in Table SI.3 is constituted by a cluster of words that tend to co-occur. The first term, which is most likely to occur, appears first. The six clusters based on the content analysis provide strong support for the primary method used for the conjoint data. Columns one, three, four, and six corroborate the sociotropic and norms-based explanations. Columns two and five support the origins-based/prejudice and co-ethnic effect hypotheses. Cluster one, for example, includes terms like “speak,” “fluent,” “Korean,” “occupation,” “ability,” “trustworthy,” and “society” are salient, indicating an association between an immigrant’s language capacity and employment plans and their trustworthiness and value to society.

Table SI.3: Automated Content Analysis

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6
1	country	person	employment	Korea	Korean	language
2	can	like	whether	work	ethnic	job
3	speak	someone	asylum	people	prefer	well
4	fluent	north	seeking	don’t	settle	chose
5	Korean	work	plans	reason	first	better
6	just	female	clear	able	doctor	helpful
7	seem	seems	contract	live	good	must
8	none	don’t	communicate	Koreans	skills	ability
9	adapt	candidate	adjust	nationality	etc	good
10	occupation	reason	objective	considered	ethnically	short-term
11	professional	seeking	activities	already	trust	education
12	ability	immigrating	also	immigration	need	resettlement
13	either	origin	efforts	little	workers	choice
14	trustworthy	special	know	Korean	image	Yemen
15	society	willingness	occupation	difficult	clear	entered

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