Appendix

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A1 Observational analyses using the SOCON data

Figure A.1: Distributions of perceived threats from minorities in the three largest cities of the Netherlands (SOCON 2005)
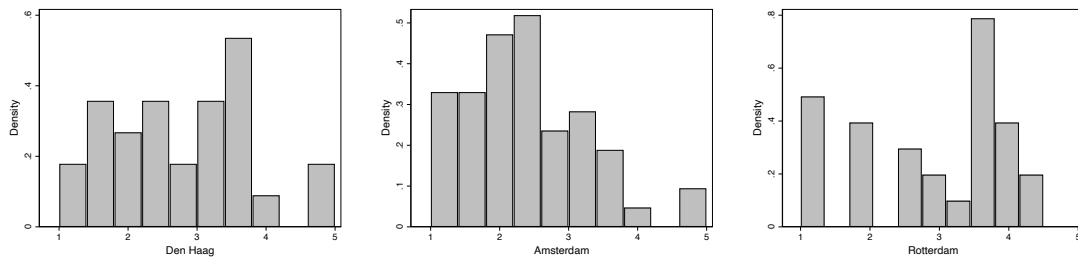
[Note] The figures use the same data (the 2005 Social and Cultural Developments in the Netherlands survey as Savelkoul et al. (2010). Perceived threats are measured using four 5-point Likert items ranging from "Agree entirely" to "Do not agree at all": 1) Minorities come before Dutch people on the housing market; 2) The education of minorities comes at the expense of Dutch children; 3) Dutch people are fired because of minorities; and 4) Minorities are a threat to our own culture. I take an average of the four items. Higher values indicate higher perceived threat.

Figure A.2: Distributions of perceived threats from minorities in the rest of the Netherlands (SOCON 2005)
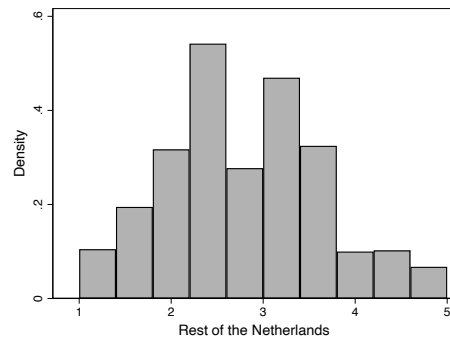
[Note] The figure uses the same data (the 2005 Social and Cultural Developments in the Netherlands survey) as Savelkoul et al. (2010). Perceived threats are measured using four 5-point Likert items ranging from "Agree entirely" to "Do not agree at all": 1) Minorities come before Dutch people on the housing market; 2) The education of minorities comes at the expense of Dutch children; 3) Dutch people are fired because of minorities; and 4) Minorities are a threat to our own culture. I take an average of the four items. Higher values indicate higher perceived threat.

A2 Questionnaire for field quasi-experiment

Dependent variable: Attitudes Towards Muslim (13 items)

[Dutch version]

Mensen hebben verschillende opvattingen over etnische minderheden, met name over moslims. Hieronder volgen een aantal stellingen die kunnen voorkomen in het maatschappelijk debat. Geef alstublieft aan in hoeverre u het eens of oneens bent met de volgende stellingen.

- Moslima's die een hoofddoek dragen, passen zich niet aan aan onze samenleving

- Moslims zijn gevaarlijk fanatiek

- Moslims gebruiken religie voor politieke doeleinden

- Moslims nemen gemakkelijk hun toevlucht tot geweld

- Moslimmannen onderdrukken hun vrouwen

- Moslims voeden hun kinderen op een autoritaire manier op

- Moslims plaatsen zichzelf buiten de Nederlandse samenleving

- Moslimouders hebben buitenshuis geen gezag over hun kinderen

- De meeste moslims hebben geen respect voor homoseksuelen

- Minderheden krijgen eerder een woning dan Nederlanders

- Onderwijs voor minderheden gaat ten koste van Nederlandse kinderen

- Nederlanders worden ontslagen vanwege minderheden

- Minderheden vormen een bedreiging voor onze eigen cultuur

[English translation]

People have different views about Muslim population. Please say to what extent you agree or disagree with the following statement.

- Muslim women who wear a scarf do not adapt to our society

- Muslims are dangerously fanatic

- Muslims use religion for political aims

- Muslims easily resort to violence

- Muslim husbands dominate their wives

- Muslims raise their children in authoritarian way

- Muslims lock themselves out of Dutch society

- Muslim parents have no authority over their children outdoors

- Most Muslims have no respect for homosexuals

- Minorities get turn before Dutch people at the housing market

- Education minorities at expense Dutch children

- Minorities are threat to our own culture

- Dutch people fired because of minorities

A3 Summary of field intervention for field quasi-experiment

General procedure

All confederates arrived at the study site by train. Each pair of two confederates was then asked to go to the designated location on foot, without walking through the city center to reduce contamination effects. The Muslim confederates were asked to put on a headscarf shortly before they arrived at the designated households.

Each group was assigned a list of addresses (about 60 households for each group) and visited all households on the list for two consecutive weeks. To not intimidate residents, only one confederate was asked to talk to residents, while the other remained 10 steps away (the residents were able to see the confederate, who was introduced by the one who initiated the conversation).

The confederates were asked to introduce themselves and to explain the purpose of their visit: a petition to increase social diversity in Dutch universities. They explained that Dutch universities are currently dominated by students from cities and under-represent students from rural areas. They also discussed the wider implications of limited social diversity outside universities. The intervention was to demonstrate that the confederates care about the future of the Netherlands.

They were asked to talk to each resident as long as they could. If residents wanted to talk about other subjects including ethnic/religious diversity, they were allowed to do so. But they were asked not to initiate conversation unrelated to the petition.

Some households were expected to be absent on initial visits. After going down the list of households, they were asked to return to the absent household and then hang around the neighborhood (to ensure their presence was noticed by neighbors).

Summary of conversation script (translated)

We are now trying to increase social diversity at Dutch universities because we realize that Dutch universities are dominated by students from urban areas and students from rural areas are under-represented. Today, we are stopping by each household of XXX to

ask support for this cause. Is it possible to talk to you for a few minutes?

If not, say goodbye.

If yes, explain the objective of the visit:

1. A Dutch university should include students from both rural and urban areas.

2. It is possible that university graduates will represent their urban hometowns more than rural areas. For example, politicians who graduate from universities may have policies that implicitly benefit urban areas.

3. Having more rural students at universities can socialize urban students in the short term, and in the long-term, lead to the more equitable urban/rural development of the Netherlands.

Feel free to have other casual conversation if residents want to talk more.

A4 Summary statistics for field quasi-experiment

Table A.1: Balancing table (Field quasi-experiment)

	Exposure to White confederates	Exposure to Muslim confederates	Interaction with White confederates	Interaction with Muslim confederates	p-value
Age	58.061	56.638	61.000	57.000	0.777
	(1.26)	(1.28)	(2.86)	(3.65)	
Gender	0.551	0.550	0.000	0.250	0.010
	(0.05)	(0.04)	(0.00)	(0.16)	
Education	2.122	2.225	2.500	2.500	0.362
	(0.08)	(0.06)	(0.18)	(0.18)	
Household income	4.204	4.475	4.250	3.250	0.027
	(0.12)	(0.09)	(0.55)	(0.67)	

[Note] Standard errors in parentheses.

Table A.2: Attrition rates (Field quasi-experiment)

	Wave 1 completes (A)	Wave 2 completes (B)	Wave 1&2 completes (C)	Attrition rate (A / C)
Exposure to White confederates	91	53	49	53.8%
Exposure to Muslim confederates	137	86	80	58.3%
Interaction with White confederates	7	10	4	57.1%
Interaction with Muslim confederates	12	8	4	33.3%

Table A.3: Summary of dependent variables (Field quasi-experiment)

	Immigration		Social cohesion	
	Wave 1	Wave 2	Wave 1	Wave 2
Exposure to White confederates	3.44	3.40	2.25	2.37
	(0.80)	(0.78)	(0.56)	(0.52)
Exposure to Muslim confederates	3.44	3.42	2.25	2.24
	(0.76)	(0.83)	(0.50)	(0.52)
Interaction with White confederates	3.65	3.28	2.11	2.29
	(0.90)	(0.94)	(0.29)	(0.26)
Interaction with Muslim confederates	3.38	3.09	2.90	2.72
	(1.18)	(1.02)	(0.28)	(0.38)

[Note] Standard errors in parentheses.

Figure A.3: Distribution of dependent variables (Field quasi-experiment)
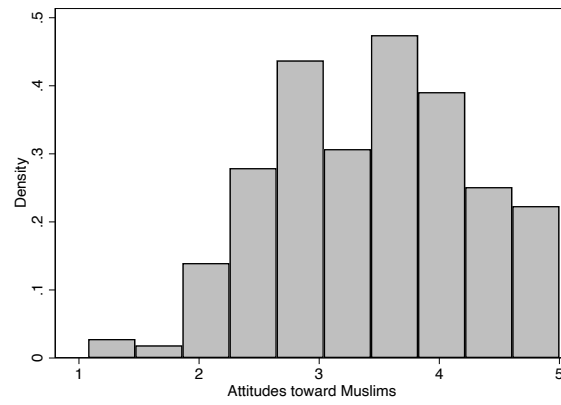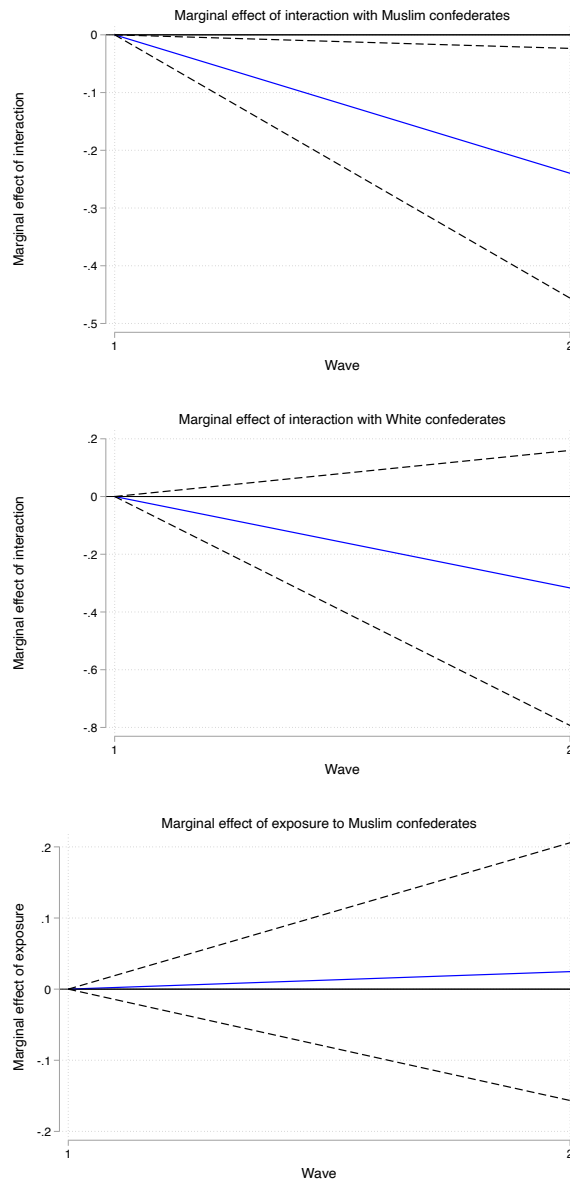
A5 Additional analyses for field quasi-experiment

Table A.4: Spatial impacts of interaction (full model)

	(1) Attitudes toward Muslims
Interaction with Muslim confederates × Wave 2	-0.240** (0.109)
Interaction with White confederates × Wave 2	-0.317 (0.241)
Exposure to Muslim confederates × Wave 2	0.024 (0.091)
Wave 2	-0.048 (0.067)
Interaction with Muslim confederates	-0.208 (0.620)
Interaction with White confederates	0.032 (0.458)
Exposure to Muslim confederates	-0.076 (0.126)
Woman	-0.107 (0.139)
Non-binary	0.939** (0.343)
Age	-0.008 (0.005)
General sec. education to pre-uni education	0.989*** (0.255)
Intermediate to higher vocational training	1.128*** (0.230)
University	1.448*** (0.248)
Other	0.142 (0.297)
Household income	0.025 (0.066)
Duration Residence	0.001 (0.000)
Distance to relevant Petition	-0.078 (0.333)
Constant	2.728*** (0.340)
Observations	274
Adjusted R^2	0.149

[Note] Standard errors in parentheses.

** $p < 0.05$, *** $p < 0.01$

Figure A.4: Marginal effects of contact and exposure

Marginal effect of interaction with Muslim confederates

Marginal effect of interaction with White confederates

Marginal effect of exposure to Muslim confederates

[Note] Dashed lines denote 95% confidence interval.

Table A.5: Spatial impacts of interaction (including the initial attitude)

	(1) Attitudes toward Muslim
Interaction with Muslim confederates × Wave 2	-0.240*
	(0.110)
Interaction with White confederates × Wave 2	-0.317
	(0.241)
Exposure to Muslim confederates × Wave 2	0.0246
	(0.0918)
Wave 2	-0.0487
	(0.0673)
Interaction with Muslim confederates	0.0170
	(0.116)
Interaction with White confederates	0.00896
	(0.0827)
Exposure to contact Muslim confederates	-0.0193
	(0.0192)
Woman	-0.0220
	(0.0468)
Non-binary	0.141
	(0.0919)
Age	-0.00190
	(0.00199)
General sec. education to pre-uni education	-0.0433
	(0.115)
Intermediate to higher vocational training	-0.0619
	(0.114)
University	0.0129
	(0.119)
Other	0.0700
	(0.0373)
Household income	0.0327
	(0.0174)
Duration Residence	0.000659
	(0.00161)
Distance to relevant Petition	-0.00662
	(0.154)
Initial attitudes towards Muslim	0.893***
	(0.0279)
Constant	0.368*
	(0.158)
Observations	274
Adjusted R^2	0.805

[Note] Standard errors in parentheses.

** $p < 0.05$, *** $p < 0.01$

Table A.6: Spatial impacts of interaction (including the friend/colleague variables)

	(1)	(2)
	Attitudes toward Muslims	
Interaction with Muslim confederates × Wave 2	-0.240*	-0.240*
	(0.110)	(0.110)
Interaction with White confederates × Wave 2	-0.317	-0.317
	(0.241)	(0.241)
Exposure to Muslim confederates × Wave 2	0.0246	0.0246
	(0.0918)	(0.0918)
Wave 2	-0.0487	-0.0487
	(0.0673)	(0.0673)
Interaction with Muslim confederates	-0.173	-0.213
	(0.642)	(0.631)
Interaction with White confederates	0.0625	0.0469
	(0.461)	(0.457)
Exposure to Muslim confederates	-0.0699	-0.0737
	(0.125)	(0.125)
Woman	-0.0893	-0.107
	(0.140)	(0.139)
Non-binary	0.861*	0.902*
	(0.360)	(0.346)
Age	-0.00823	-0.00788
	(0.00517)	(0.00550)
General sec. education to pre-uni education	0.940***	0.967***
	(0.266)	(0.249)
Intermediate to higher vocational training	1.084***	1.111***
	(0.235)	(0.225)
University	1.416***	1.438***
	(0.242)	(0.241)
Other	0.107	0.167
	(0.296)	(0.308)
Household income	0.0213	0.0218
	(0.0667)	(0.0662)
Duration Residence	0.00101	0.00117
	(0.00416)	(0.00416)
Distance to relevant Petition	-0.0572	-0.0660
	(0.331)	(0.335)
Friends with ethnic minorities	0.0555	
	(0.0850)	
Colleagues with ethnic minorities		0.0384
		(0.0743)
Constant	2.616***	2.614***
	(0.366)	(0.417)
Observations	274	274
Adjusted R^2	0.148	0.147

[Note] Standard errors in parentheses.

** $p < 0.05$, *** $p < 0.01$

A-14

Table A.7: Spatial impacts of interaction (DV=Social cohesion)

	(1) Social cohesion
Interaction with Muslim confederates × Wave 2	-0.302*
	(0.127)
Interaction with White confederates × Wave 2	0.0612
	(0.0977)
Exposure to Muslim confederates × Wave 2	-0.127
	(0.0678)
Wave 2	0.121*
	(0.0538)
Interaction with Muslim confederates	0.634**
	(0.209)
Interaction with White confederates	-0.105
	(0.184)
Exposure to Muslim confederates	0.00419
	(0.0954)
Woman	0.0386
	(0.0925)
Non-binary	1.553***
	(0.193)
Age	0.00282
	(0.00352)
General sec. education to pre-uni education	-0.464*
	(0.232)
Intermediate to higher vocational training	-0.586**
	(0.223)
University	-0.523*
	(0.221)
Other	0.170
	(0.315)
Household income	-0.0373
	(0.0313)
Duration Residence	-0.00214
	(0.00258)
Distance to relevant Petition	-0.0573
	(0.244)
Constant	2.813***
	(0.303)
Observations	274
Adjusted R^2	0.119

[Note] Standard errors in parentheses.

** $p < 0.05$, *** $p < 0.01$

A6 Questionnaire for online survey

Dependent variables

[Dutch version]

Beantwoord de volgende vraag op basis van de foto die u hier ziet.

- Op basis van haar uiterlijk, hoe vriendelijk denkt u dat ze is?

- Op basis van haar uiterlijk, hoe betrouwbaar denkt u dat ze is?

- Op basis van haar uiterlijk, denkt u dat zij thuishoort in de Nederlandse samenleving?

- Het meisje in de foto is een bijzonder goede buitenlandse student aan een universiteit in Nederland en zou graag voorgoed in Nederland willen wonen. Als de keus aan u was, zou u haar dan een permanente verblijfsstatus verlenen?

[English translation]

Please answer the following question based on the picture you see now.

- Looking at her appearance, how friendly do you think she is?

- Looking at her appearance, how reliable do you think she is?

- Looking at her appearance, do you think that she belongs to the Dutch society?

- The girl in the photo is a promising foreign student at a university in the Netherlands and would like to stay in the Netherlands. If it was up to you, would you grant her a permanent residence permit?

A6.1 Survey design for Follow-up survey

Table A.8: Survey design (Follow-up survey)

	Headscarf arm	Smiling arm
Condition 1	Headscarf	No smile
Condition 2	No headscarf	No smile
Condition 3	Headscarf	Smile

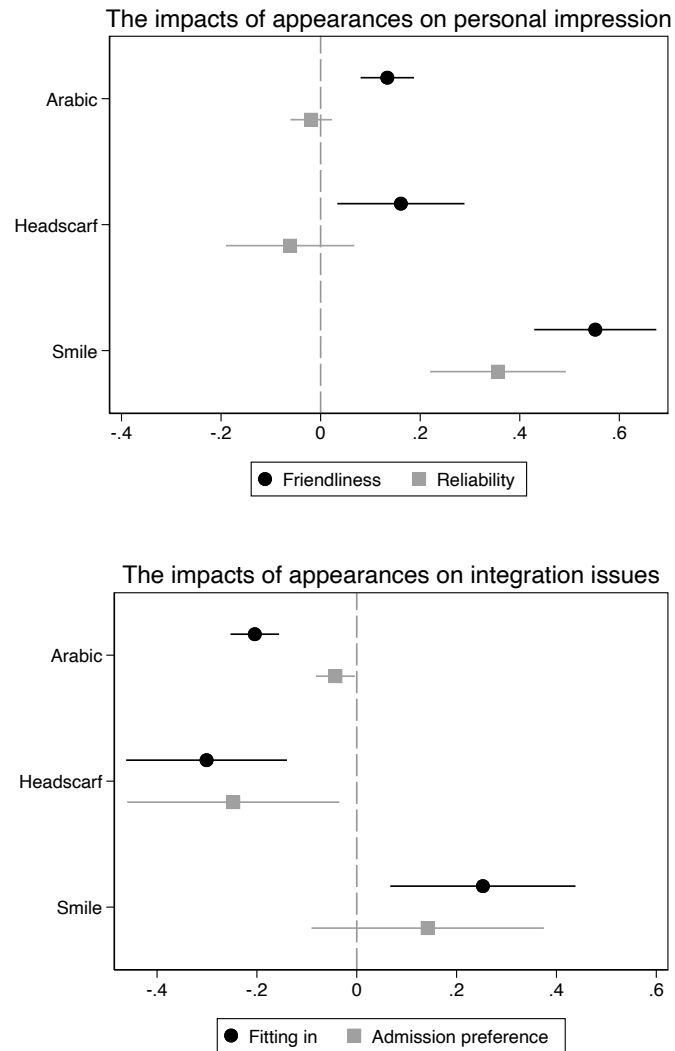[Note] The order of presenting the four photos within each condition is randomized.

A7 Summary statistics for online survey

Figure A.5: Distribution of dependent variables (Follow-up survey)

(a) Friendliness

(b) Reliability

(c) Fitting in

(d) Admission preference
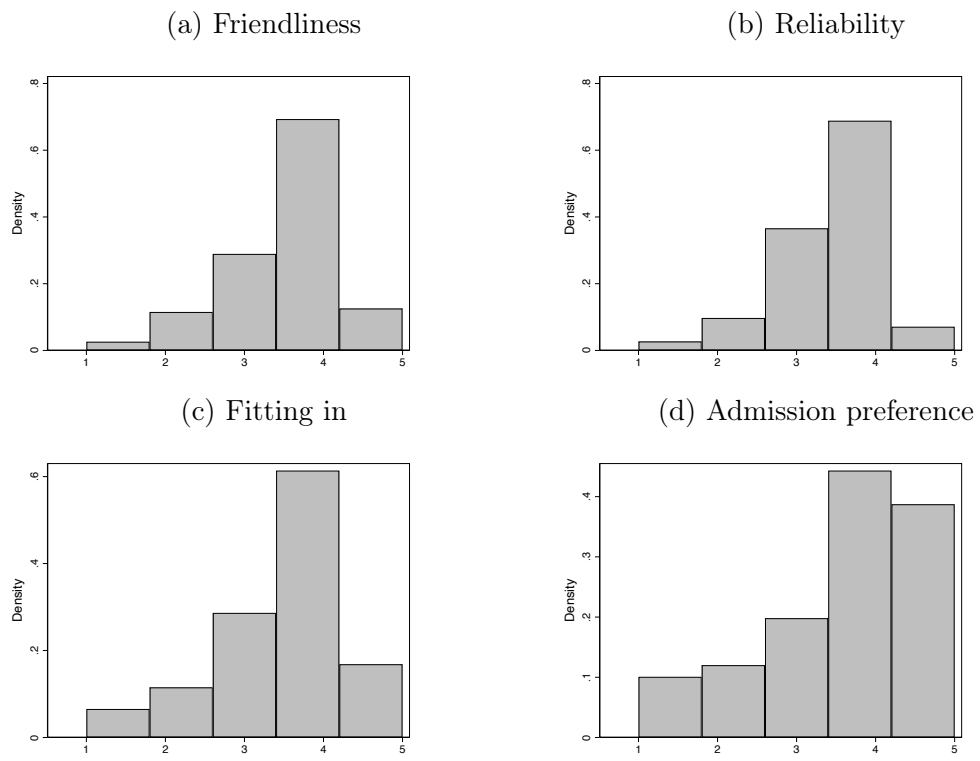
A8 Additional analyses for Follow-up survey

Figure A.6: The impacts of physical appearances on attitudes (controlling for the order effect)

The impacts of appearances on personal impression

● Friendliness   ■ Reliability

The impacts of appearances on integration issues

● Fitting in   ■ Admission preference

[Note] Horizontal lines denote 90% confidence interval. N=1,652.

Figure A.7: The impacts of physical appearances on attitudes (only the first photo seen by respondents)

The impacts of appearances on personal impression

The impacts of appearances on integration issues
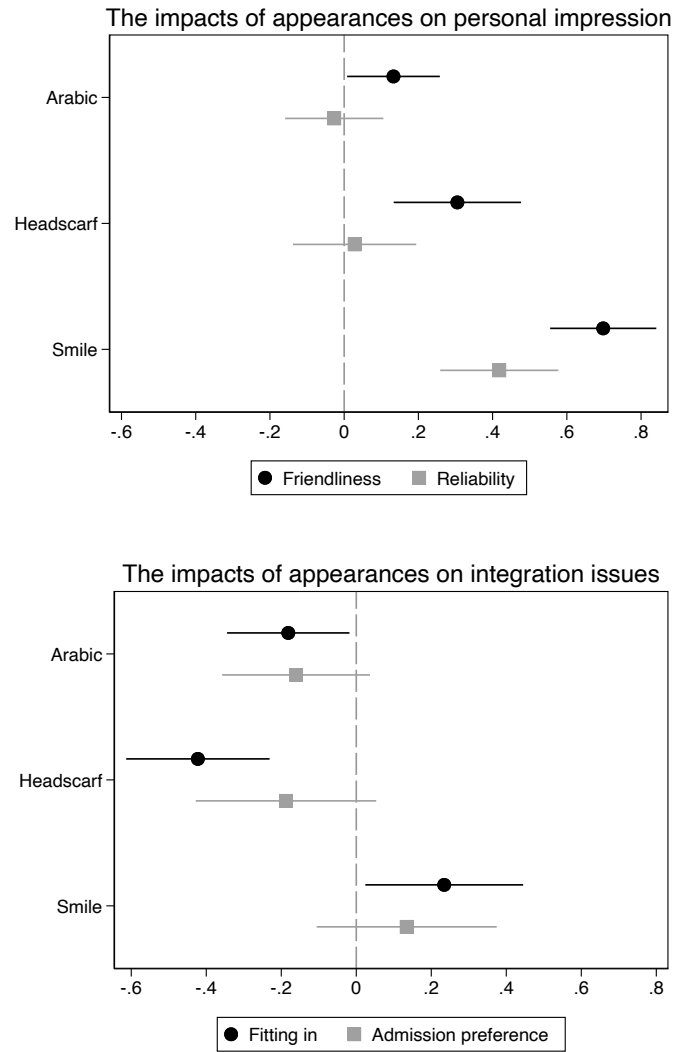
[Note] Horizontal lines denote 90% confidence interval. N=420.

Figure A.8: The impacts of physical appearances on attitudes (with ordered logit models)

The impacts of appearances on personal impression

The impacts of appearances on integration issues
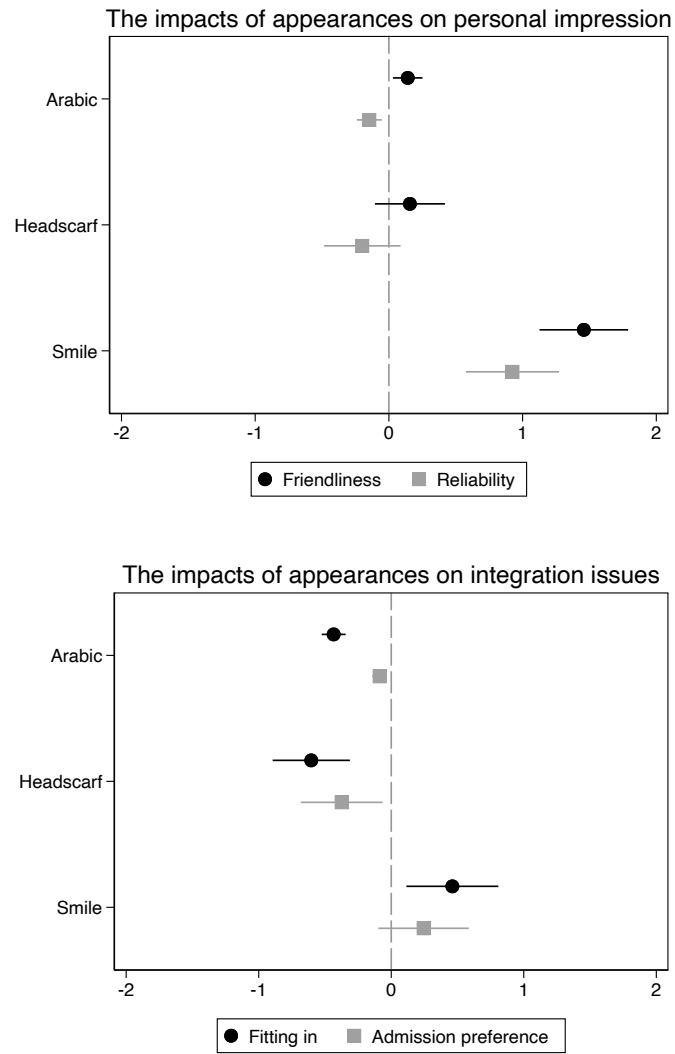
[Note] Horizontal lines denote 90% confidence interval. N=1,810.

A9 Baseline survey

A9.1 Analysis

I collected an online survey data from a representative sample of 994 respondents in December 2018.[23] The sample was drawn from an online panel of *Dynata* (previously known as *Research Now/SSI*). After asking demographic questions, I embedded a vignette experiment.

In the experiment, respondents read a fictional scenario stating that "Today, several news sources reported that the Dutch government decided to give residence permits to 500 Syrian refugees." Respondents were then assigned to either of the following three conditions: (1) control; (2) short distance; and (3) long distance. In the control group, respondents received no further information on where the refugees would be located. In the short distance group, respondents read that the refugees would be located in the respondent's municipality. To be realistic, I inserted the actual municipality where each respondent lived (automatically taken from a previous demographic question and inserted in the vignette experiment). Respondents in the long-distance group read that the refugees were located 100km away from the respondent's municipality. I am aware that refugees are not the same as settled Muslims, but the term "refugees" is the least far-fetched option that allows me to randomly assign the threat of Muslim populations spatially. Although not all Syrian refugees are Muslim, previous research shows that the categories of Arab and Muslim are often conflated (e.g., Naber 1996). I have little reason to expect this would be different in the case of the Dutch context.

After reading the scenario, respondents indicated on a 5-point Likert scale to what extent they agreed with the government's decision to give residence permits to 500 refugees (1 = strongly agree, 5 = strongly disagree). Higher values indicate stronger opposition to out-groups.

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[23]I dropped non-Dutch and non-White respondents from the original sample of 1,174. While it is not a probability sample, I attempted to approximate the general population along the lines of age, gender, educational level, and residential location. See Table A.10 for a comparison between the sample and the Dutch population.

Figure A.9: Average opposition answer
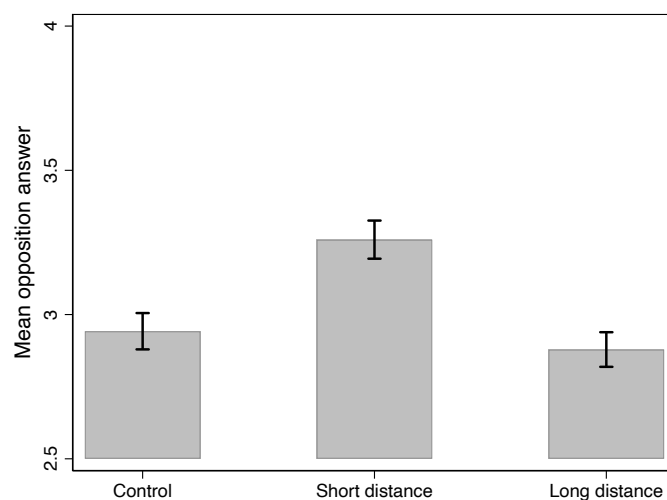
[Note] The figure uses the full sample. N=994.

Figure A.9 reports treatment groups' mean scores for opposition to out-groups. It shows that the short-distance group is most opposed to Syrian refugees (μ = 3.25, σ = 1.20, N = 335), while the control and long-distance groups show similar results (μ = 2.94, σ = 1.14, N = 329, and μ = 2.87, σ = 1.09, N = 330, respectively). The difference between the short-distance and the other two groups is statistically significant at the 1% level (CI[-0.492;-0.142] for the control and short-distance treatments comparison; CI[-0.555;-0.206] for the the short-distance and long-distance treatments comparison). This suggests that respondents perceived Muslims (more accurately refugees) in close proximity to be the most threatening, and that perceptions of threat diminish with distance.

The spatial effect may be over- or under-estimated as the psychological impact of the arrival of 500 refugees may differ depending on the size of the municipality. Figure A.10 excludes the possibility of the heterogeneous treatment effect by excluding large cities with populations over 100,000 (28 cities, about 8% of all municipalities) from the sample, and confirms that results are similar for respondents living in larger and smaller municipalities. Overall, the finding is consistent with not-in-my-backyard (NIMBY) attitudes found elsewhere (e.g., Ferwerda, Flynn and Horiuchi 2017).

Figure A.10: Average opposition answer (excluding respondents living in large cities)
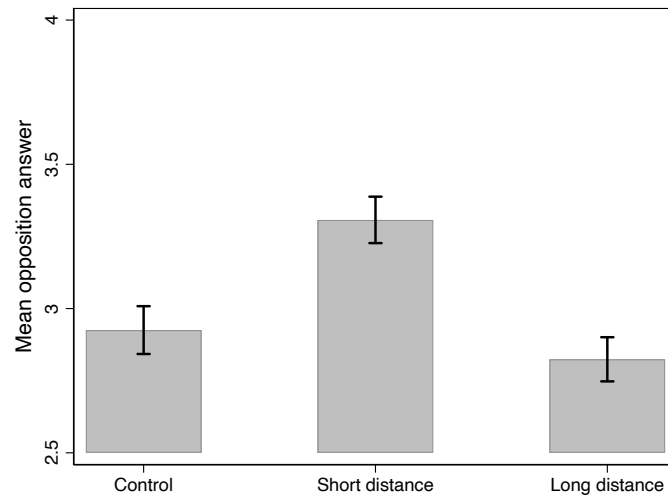
[Note] The figure excludes a sample with large cities over 100,000 (i.e., 28 Dutch cities). N=618.

A10 Questionnaire for the baseline survey

Control group

Nu willen we uw mening vragen op basis van het volgende scenario. Eerder vandaag meldden meerdere nieuwsbronnen dat de Nederlandse overheid verblijfsvergunningen heeft verleend aan 500 Syrische vluchtelingen. (Now, we would like to ask your opinion based on the following scenario. Today, several media outlets reported that the Dutch government has granted residence permits to 500 Syrian refugees.)

Bent u het eens met de beslissing van de overheid? Beantwoord deze vraag op een 5-puntschaal. (Do you agree with the government's decision? Please answer the question on a 5-point scale.)

Short distance treatment

Nu willen we uw mening vragen op basis van het volgende scenario. Eerder vandaag meldden meerdere nieuwsbronnen dat de Nederlandse overheid verblijfsvergunningen heeft verleend aan 500 Syrische vluchtelingen en de 500 vluchtelingen heeft toegewezen aan de [gemeente]. (Now, we would like to ask your opinion based on the following scenario. Today, several media outlets reported that the Dutch government has granted residence permits to 500 Syrian refugees to your [municipality].)

Bent u het eens met de beslissing van de overheid? Beantwoord deze vraag op een 5-puntschaal." (Do you agree with the government's decision? Please answer the question on a 5-point scale.)

Long distance treatment

Nu willen we uw mening vragen op basis van het volgende scenario. Eerder vandaag meldden meerdere nieuwsbronnen dat de Nederlandse overheid verblijfsvergunningen heeft verleend aan 500 Syrische vluchtelingen en de 500 vluchtelingen heeft toegewezen aan een gemeente die op 100km afstand ligt van [gemeente]. (Now, we would like to ask your

opinion based on the following scenario. Today, several media outlets reported that the Dutch government has granted residence permits to 500 Syrian refugees to a municipality 100km away from your [municipality].)

Bent u het eens met de beslissing van de overheid? Beantwoord deze vraag op een 5-puntschaal. (Do you agree with the government's decision? Please answer the question on a 5-point scale.)

A11 Summary statistics for Baseline survey

Table A.9: Balancing table (Baseline survey)

	Control	Short distance	Long distance	p-value
Age	49.404	49.057	48.191	0.662
	(0.97)	(0.95)	(0.97)	
Male	0.429	0.436	0.433	0.982
	(0.02)	(0.02)	(0.02)	
College	0.04	0.06	0.085	0.052
	(0.01)	(0.01)	(0.01)	
Income	0.38	0.405	0.41	0.755
	(0.03)	(0.03)	(0.03)	
N	329	335	330	

Table A.10: A comparison between the Dutch population and the sample (Baseline survey)

	Population	Sample
Age (in years)		
18-24	13%	11%
25-34	19%	17%
35-44	17%	15%
45-54	13%	13%
55-64	19%	20%
65+	19%	23%
Gender		
Male	46%	43%
Female	54%	56%
Education		
Education (high)	28%	26%
Education (middle)	42%	42%
Education (low)	30%	32%
Ethnicity/ race		
White		88%
Middle-Eastern/ Arabic		1%
Black		1%
Asian		4%
Latin-American		1%
Other		5%

[Note] There are no population-level data available with regard to the racial categories I measured in our study. However, in terms of ethnic background, in 2018, 87% of the Dutch population had no migration background. 13% of the population had a migration background, meaning that at least one of their parents was born in Africa, Latin America, Asia or the Middle East. I dropped non-Dutch and non-White respondents.