Rental discrimination, perceived threat and public attitudes towards immigration and refugees

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Abstract

There is still little research about the association of anti-immigrant attitudes with ethnic discrimination. In this study we investigate whether there is more rental discrimination against ethnic minorities in Belgian municipalities with more negative attitudes and higher perceived threats toward immigrants and refugees. For this purpose, we merged unique data from correspondence tests with the aggregated attitudes in 44 municipalities. There was profound discrimination against candidates with Moroccan names by both private landlords and realtors. In contrast to theoretical expectations there was not more ethnic discrimination in municipalities with more negative attitudes or higher perceived threats. However, it appears that rental candidates – irrespective of their ethnic origin – are less likely to be invited in municipalities with higher threats and more negative attitudes. These findings might correspond to an adjusted version of the so-called 'hunkering down' thesis, in which not ethnic diversity per se, but negative attitudes and perceived threats towards immigrants and refugees have negative consequences.

1. Introduction

Ethnic discrimination refers to the adverse treatment of people because of their ethnic or racial origin. Although ethnic discrimination is prohibited in most countries, many studies have documented continuing discrimination of minority groups in labor and housing markets (Rich 2014; Zschirnt and Ruedin 2016; Baert 2018; Neumark 2018; Flage 2018; Auspurg et al. 2019). These studies rely on correspondence or audit testing to measure discriminatory behaviour in the real world. In these field experiments, two candidates apply for real rental advertisements or job vacancies. Both candidates are as similar as possible and only differ with respect to their ethnic origin. Afterwards, the responses of landlords and recruiters to both candidates are compared, and a significant unequal treatment is seen as evidence for discrimination. Correspondence tests are considered as the 'golden standard' to measure discriminatory behaviour (Heath and Di Stasio 2019). A major limitation of these correspondence tests is, however, that many simply demonstrate the levels and patterns of ethnic discrimination, but do not uncover the mechanisms explaining discrimination (Gaddis 2018; 2019).

One possible driver of discrimination are the negative attitudes, prejudices and threat perceptions towards migrants and ethnic groups. During the last decades, these anti-immigrant attitudes and prejudices have decreased or remained stable in most European countries and the United States (Coenders and Scheepers 2008; Ceobanu and Escandell 2010; Storm et al. 2017; Heath and Richards 2019; Moberg et al. 2019). However, there continue to be large educational and age differences in these attitudes. In addition, the so-called European refugee crisis of 2015 has triggered significantly more negative attitudes towards refugees in a short period of time. This was particularly the case in countries that received a large number of asylum seekers and refugees (De Coninck, 2020; Heath and Richards 2009). This translated into an upsurge in radical right mobilisations, further contributing to the substantial electoral success of far-right political parties in Europe (Gattinara and Pirro 2019). Discriminatory attitudes or threat perceptions among the population are usually measured through surveys. Although there are a number of shortcomings associated with this measurement method (e.g. social desirability bias, implicit versus explicit attitudes, the role of situational factors) (Strabac and Listhaug 2008; Carlsson and Eriksson 2017), it has proven to be one of the most convenient ways to gather information about this topic among a large number of individuals.

With a few exceptions, there is little research empirically linking anti-immigrant attitudes to ethnic discrimination (Esses 2021). During the last decade, a promising avenue of inquiry into discrimination is, therefore, the combination of correspondence tests with other methods of data collection on prejudices (Gaddis 2018). The challenge is here to carry out uninformed correspondence tests and informed attitude surveys among the same sample of landlords or employers, without biases due to

selective drop-out or cross-mode test effects. To the best of our knowledge, only a handful studies have managed to do this with respect to ethnic discrimination. Rooth (2010) successfully combined correspondents tests on hiring with subsequent surveys on implicit (IATs) and explicit attitudes among the same sample of employers/recruiters in Sweden. Notwithstanding a rather low response rate for the survey, he found that more negative implicit (but not explicit) attitudes were associated with more discrimination against job candidates with Middle Eastern names. In addition, Zussman (2013) investigated discrimination on the automobile market in Israel by means of both correspondence tests and a telephone survey among the same sample of Jewish car sellers and found that more negative explicit attitudes towards Arabs are associated with more discrimination against Arab buyers.

An alternative strategy is to combine correspondence tests on discrimination by landlords or employers with survey data on anti-immigrant attitudes among the general public. Carlsson and colleagues have followed this approach in Sweden by aggregating survey findings to the level of the municipality and subsequently investigating whether there is more discrimination in municipalities in which the general population holds more negative attitudes or not. It appears that in municipalities with more negative attitudes towards immigrants there is more discrimination against ethnic minorities on the rental housing market (Carlsson and Erikson 2017) and on the labour market, especially in the segment of low skilled jobs (Carlsson and Rooth 2012).

This study follows a similar approach by examining the association between anti-immigrant attitudes among the general population, aggregated at the municipality level, and discriminatory behaviour by landlords and real estate agents on the rental housing market in Belgium. Our study is contributing to the literature in multiple ways. Firstly, Carlsson and Erikson (2017) have examined the association between attitudes and rental discrimination in Sweden, which is a country with less negative anti-immigrant attitudes, a social-democratic welfare state and high shares of social housing. The sociological context of Belgium is, however, very different, with more negative attitudes towards immigrants and refugees among the adult population (De Coninck et al. 2019), a conservative welfare regime (Esping-Andersen 1990) and a very low share of social housing (Poggio and Whitehead 2017). Secondly, next to measuring general anti-immigrant attitudes we focus on a specific target group too: refugees. Given the recent rise of negative attitudes about refugees since the refugee crisis of 2015 (Heath and Richards 2019), this is a very timely research question. Moreover, we are not only examining the association of rental discrimination with general anti-refugee attitudes but also with perceived threat towards this group. In general, we expect more rental discrimination against ethnic minorities in municipalities with more negative attitudes and higher perceived threats towards immigrants and refugees.

This study proceeds as follows. Section 2 briefly reviews the main social-psychological and economic theories on perceived threat, anti-immigrant attitudes and ethnic discrimination. Section 3 explains the data and methodology we use. Section 4 presents our research findings. Finally, section 5 concludes by discussing the study's contributions and implications for future research.

2. Theories on anti-immigrant attitudes, competitive threat and discrimination

There is a large body of socio-psychological research that theoretically links threat perceptions and anti-immigrant attitudes to (the endorsement of) discrimination (Semyonov et al. 2004; Pereira, Vala, and Costa-Lopes 2010; Semyonov and Gorodzeisky 2012). One of the main theoretical perspectives in this literature is the competitive threat model, which poses that a large or growing presence of an out-group (e.g. migrants) increases competition over social, political and economic resources between the in- and out-group (Quillian 1995; Jolly and DiGiusto 2014). This increased competition can result in threat, either real or perceived, which is strongly associated with prejudices, anti-immigrant attitudes and the endorsement of discrimination (Stephan, Ybarra, and Morrison 2009; Semyonov and Gorodzeisky 2012; Carlsson and Erikson 2017). This endorsement has been found to take place even when it goes against the best interests of the in-group members (Semyonov, Raijman and Tov 2002).

Competitive threat is a multidimensional concept. Aside from being either real or perceived, it can also be understood in general terms – a collection of 'fears' of the out-group – or it can be defined in actual and specific terms (Pereira et al. 2010). Generally, two main types of perceived threat are identified: realistic threat and symbolic threat (Stephan et al., 2009). Realistic group threat refers to the perceived competition for power, material resources and physical well-being, whereas symbolic group threat signals the fear that the out-group poses a threat to the in-group's cultural, religious and/or normative belief system (Ata, Bastian, and Lusher 2009; De Coninck, Rodriguez-de-Dios, & d'Haenens, 2020; Riek, Mania, and Gaertner 2006; Stephan et al. 2009).

In addition to social-psychological theories on competitive threat and anti-immigrant attitudes, there are two main economic theories to explain discriminatory behaviour: taste-based discrimination and statistical discrimination. The theory of taste-based discrimination explains discrimination by the ethnic preferences ('tastes' or 'animus') of natives towards migrants (Becker 1971), whereas the theory of statistical discrimination states that employers and landlords discriminate because they have too little information about applicants and subsequently make use of the (perceived) average characteristics of ethnic groups to make decisions (Arrow 1971; Phelps 1972).

Especially the economic theory of taste-based discrimination is useful to make the theoretical link between anti-immigrant attitudes/threat and discriminatory behaviour on the rental housing market. Following previous research (Yinger 1986; Verstraete and Verhaeghe 2020), we could theoretically differentiate between the ethnic preferences of three types of actors: real estate agents, owners and neighbours. In the case of agent- and owner taste-based discrimination, real estate agents and private landlords (the owners of rental dwellings) discriminate against ethnic minorities because of their own ethnic distastes. This reasoning is followed in the aforementioned Swedish study of Carlsson and Erikson (2017), in which they assume that attitudes of the general public reflect the preferences of private landlords and realtors. In the case of neighbour taste-based discrimination, real estate agents and landlords discriminate, not because of their own prejudices, but because of the (perceived) negative attitudes and threats towards migrants of the residents in a housing block, neighbourhood or municipality. They fear that these coresidents would move away if they let their dwelling to ethnic minorities, creating expensive turnover costs. Because these coresidents are often also renters and thus customers, this model is sometimes called 'customer taste-based discrimination' (e.g. Baldini and Federici 2011; Auspurg et al. 2017). In this study it is, unfortunately, not possible to empirically distinguish between these versions of the taste-based discrimination theory. Nevertheless, they all predict more rental discrimination in municipalities with more negative attitudes and higher perceived threats towards immigrants and refugees.

3. Data and methodology

Ethnic discrimination

Following previous research (Auspurg et al. 2019; Flage 2018; Quillian et al. 2020) discriminatory behaviour on the rental housing market is measured by means of correspondence tests. For this study, we assembled data on rental discrimination from correspondence tests on the housing markets of 47 local municipalities in Belgium. The data originates from four different data collections: three case studies of discrimination in larger cities (Verhaeghe 2018; Verhaeghe and Dumon 2019; Verhaeghe et al. 2020) and one theoretical sample from all Belgian municipalities, in which larger and more diverse localities were oversampled (Verhaeghe 2021). The aim was not to be representative for the rental housing market in Belgium or for Belgian municipalities, but to get sufficient contextual variation at the local level. The data were collected between June 2018 and February 2020, with 87% of the data being collected in the first seven months of 2019. In each municipality under scrutiny, the sampling frame consisted of advertisements for rental dwellings, published on the popular real estate websites 'Immoweb' and 'Zimmo'. From these sampling frames, we drew random samples of advertisements

to be tested. However, to avoid suspicion among real estate agents, only one advertisement per week was sampled per real estate agency. This resulted in a realized sample of 5,782 rental advertisements, tested through correspondence tests.

In line with previous research in Belgium (e.g. Van der Bracht et al. 2015; Verhaeghe & Ghekiere 2021), in the correspondence tests two fictious candidates apply for the same rental advertisement. They contacted the landlord or realtor through a standard message of the rental websites (and not in-person or by phone). These messages were brief and - depending on the municipality - in impeccable Dutch (in Flanders) or French (in Brussels and Wallonia). In these messages, the candidate expressed his interest for the rental property and asked whether it is possible to visit the dwelling. We examined discrimination against candidates of Moroccan origin. The Moroccan community is the largest non-European minority group in Belgium and has a long migration history (Verhaeghe et al. 2012; Timmerman et al. 2017). Following previous studies (Van der Bracht et al. 2015; Carpusor and Loges 2016), the ethnic origin of the candidates was signalled through their names. The test candidates had typical Moroccan names, while the control candidates had typically Belgian names. After contacting the realtors and landlords, their reactions were collected for ten days. This pairwise matched procedure resulted in data about 11,564 rental applications: two times the 5,782 advertisements.

The pairwise matched correspondence tests in this study could have the following outcomes: neither candidate is invited to visit the rental dwelling, both Belgian and Moroccan candidates are invited, only the Belgian candidate (control person) is invited, or only the Moroccan candidate (test person) is invited.. In line with previous research in Belgium (e.g. Van der Bracht et al. 2015; Verhaeghe & Ghekiere 2021), we define an invitation as being explicitly offered the opportunity to visit the property.

Attitudes towards immigrants and refugees

The data from these correspondence tests were subsequently combined with information on anti-immigrant and anti-refugee attitudes, and perceived refugee threat. These data originated from an online web survey that was organized to collect data on intergroup attitudes following the European migration crisis. This survey was fielded in the fall of 2017 among individuals who resided in Belgium (age range: 18 to 65), which resulted in a sample of N_i = 1,500 individuals nested in N_j = 402 municipalities (for more information, see De Coninck, d'Haenens, Joris, 2019; De Coninck, 2020). The Belgian survey agency we worked with (iVOX) drew the sample out of their large-scale online population panel which consisted of 150,000 Belgians at the time (cooperation rate: 35%). Although

the gender and age distribution of the sample already strongly resembled that of the Belgian population, additional weights were applied to ensure a gender- and age-representative sample.

For each respondent, we asked for the postal code of their main residence. Based on this information, we were able to calculate the aggregate scores of attitude and threat scales at the municipal level. These attitude and threat scores were then linked with the data from the correspondence tests using the postal codes in both datasets. We were able to match data from 368 of the 1,500 Belgian respondents to 44 out of 47 municipalities with correspondence tests, with an average of 18.8 respondents per municipality (min.: 1; max.: 78). The remaining 1,132 respondents in the attitude-dataset lived in municipalities that were not included in the correspondence tests-dataset, and their information could thus not be linked. Information from the three municipalities without attitude data was not included in the analyses.

We use three variables to measure attitudes and perceived threat towards immigrants and refugees:

Anti-immigrant and anti-refugee attitudes. To measure anti-immigrant attitudes, we used six items from the European Social Survey (2014) that asked respondents about the groups of immigrants that they believed should be allowed to stay in Belgium (1 = allow none; 4 = allow many): 'Immigrants of the same race or ethnicity as most of Belgium's population', 'Immigrants of a different race or ethnicity as most of Belgium's population', 'Immigrants of the richer countries in Europe', 'Immigrants of the poorer countries in Europe', 'Immigrants of the richer countries outside Europe', and 'Immigrants of the poorer countries outside Europe'. These items were reverse coded so that a high score corresponded to higher anti-immigrant attitudes. Although the original version of this scale consisted of six items, we added a seventh item regarding immigrants from Muslim countries because most migrants who entered Europe during the European migration crisis departed from Syria, Iraq, or Afghanistan – predominantly Muslim countries (Pew Research Center 2017). To measure anti-refugee attitudes, we presented the same items with the same coding, but swapped the term 'immigrant' for 'refugee' in each of them (De Coninck 2020). Directly before this block of items, we showed respondents the UN-definitions of immigrants and refugees. We "clearly highlighted these definitions so that respondents would have a uniform understanding of each group when completing the questionnaire" (De Coninck 2020, p. 1673). Principal component analyses indicated that both scales (immigrants: α = .94; refugees: α = .96) were very reliable. Mean scores of each block of items were calculated to obtain single measures for anti-immigrant and anti-refugee attitudes.

Perceived refugee threat. Following previous studies (De Coninck et al. 2020; Hjerm 2007), perceived refugee threat was measured via four 11-point items that gauged respondents' perceptions about whether refugees 1) create or take away jobs for Belgians, 2) are good or bad for Belgium's economy,

3) contribute significantly to the Belgian welfare system or take out more instead, and 4) undermine the cultural life in Belgium. A high score on these items indicated high perceived threat. These items were originally included in the European Social Survey Round 1 (2002) and Round 7 (2014) as part of a rotating module on migration. The exact wording of the items was the following:

1) 'Would you say that refugees who come to live here generally take jobs away from workers in Belgium, or generally help to create new jobs?'; 2) 'Would you say it is generally bad or good for Belgium's economy that refugees from other countries come to live here?'; 3) 'Most refugees who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think refugees who come here take out more than they put in or put in more than they take out?'; 4) 'Would you say that Belgium's cultural life is generally undermined or enriched by refugees coming to live here from other countries?'.

Although a recent strand of group threat theory (Stephan et al., 2009) states that realistic (or economic) and symbolic (or cultural) threat are two distinct concepts, correlational analyses showed that it was not possible to distinguish between the two concepts with the current data. Indeed, in a principal component analyses these items produced a one-component solution with high internal consistency (α = .94). Therefore, we proceeded with a single threat component. The mean score of these items was calculated to obtain a single measure for competitive threat.

Control variables at the level of the rental property

Data about the rental property were obtained from the publicly available information in the rental advertisement. We took the rental price, the type of provider and the type of dwelling into account as control variables.

Rental prize. This is the rental price in € per month, excluding additional costs (e.g. for heating or electricity).

Type of provider. Rental dwellings were offered on the private rental market by two types of providers: 'Private landlords' and 'Real estate agents'. While everybody in Belgium could let a dwelling as a private landlord without the professional mediation of a real estate agent, realtors are professional actors (mostly companies) who let rental dwellings on the demand of property owners. Realtors are bound by a deontological code which prohibits discrimination.

Type of dwelling. We distinguished between 'Apartment' and 'No apartment'.

Control variables at the municipal level

Outgroup proportion. A first control variable at the municipal level is the share of residents with a non-European migration background on January 1, 2019. To calculate this, we used official numbers from Statistics Belgium (2021) on the migration background of residents: residents with a non-European nationality or those that held the Belgian nationality but with at least one parent born outside of Europe, were considered to have a migration background from outside Europe. Combining this info with the population size from each municipality allowed us to calculate the proportion of residents with a non-European migration background.

Economic context. To control for the economic situation in a municipality, we included the annual average taxable income per person at the municipal level in 2018 (the most recent year for which these numbers were available). Data for this indicator were obtained from Statistics Belgium (2020).

Population size: To control for the size of the population in a municipality, we included the total number of residents on January 1, 2019 using official data from Statistics Belgium (2020).

Analytical strategy

We perform multilevel binary logistic regression analyses on the predicted probability to be invited to visit the rental dwelling. For Moroccan candidates, being invited represents $n_{11} + n_{12}$, while for Belgian candidates, being invites refers to $n_{11} + n_{21}$. Because of the matched structure of the data, in which two candidates apply for the same rental advertisement and in which different rental dwellings are located in the same municipality, the assumption of the independence of observations is violated (Hox 2002). Therefore, we applied multilevel regression analyses in which rental candidates (level 1: n_i = 11,254) are nested in rental advertisements (level 2: n_j = 5,627), which are nested in municipalities (level 3: n_k = 44). We ran three models. In the first model, we examine whether the predicted probabilities to be invited differ according to the ethnic origin of the rental candidate, while taking the control variables at the level of the rental unit and municipality into account. In the second model, we add the aggregated attitudes towards immigrants and refugees at the municipality level. In the third model, we also add a cross-level interaction term between ethnic origin of the candidate and the aggregated attitudes at the municipality level to examine whether the ethnic discrimination differs according to the level of aggregated attitudes of the municipality. We expect that there is more discrimination in municipalities where the attitudes towards migrants and refugees are more negative. Because the three attitude scales are highly correlated (Pearson correlations of more than

0.68), we had to perform models 2 and 3 for the three attitude scales separately (model 2a-c and model 3a-c). To increase the interpretability of coefficients, we z-scored all metric variables.

In addition, we conducted three sensitivity analyses. In the first sensitivity analysis, we restricted the analyses to municipalities for which we had attitude scores of at least 10 inhabitants (n_j = 20 municipalities; n_i = 6,958). In the second sensitivity analysis, we performed multilevel multinomial logistic regression analyses, in which all four possible outcomes of the pairwise matched correspondence tests are considered as categories in the dependent variable, with neither candidate are invited (n_{22}) as the reference category. Since the ethnic origin of the rental candidate is here included in the dependent variable, we could drop the level of rental candidates in the multilevel analyses. In a third sensitivity analysis, we paired the correspondence test-data with data on anti-immigrant attitudes and perceived threat from Round 7 of the European Social Survey (ESS), which contained a rotating module on attitudes towards immigration/migrants. Data on anti-refugee attitudes were not collected in the ESS, so we excluded them from this sensitivity analysis. Because the ESS does not collect information on respondents' residence at the postal code level, the variables in this analysis were nested in 10 NUTS2-regions. The results of these sensitivity analyses are not shown, but available in the supplementary data online (appendices A1 until A4). Only noteworthy findings will be discussed in the result section.

Finally, we performed analyses separately for private landlords and real estate agents for several reasons. In line with international research (Flage 2018), it appears that private landlords discriminate significantly more against ethnic minorities than realtors. This is probably to some extent due to the professionalization of real estate sector and its deontology. In addition, the underlying theoretical mechanisms might be very different for both categories. While real estate agents often discriminate upon request of the property owners (Verstraete and Verhaeghe 2020), this is not the case for private landlords.

Table 1. Descriptive statistics of the variables

	Frequency	Percentage
Level of rental candidate *(level 1)*		
Ethnic origin		
Belgian	5,627	50.0
Invited	1,841	32.7
Not invited	3,786	67.3
Moroccan	5,627	50.0
Invited	1,239	22.0
Not invited	4,388	78.0
Level of rental property *(level 2)*		
Type of dwelling		
No Apartment	3,316	29.5
Apartment	7,938	70.5
Type of provider		
Private landlords	5,098	45.3
Realtors	6,156	54.7

	Min.	Max.	Mean	SD
Rental price per month	181	3,600	943.35	523.57
Level of municipalities *(level 3)*				
Outgroup share	3.15	66.64	24.22	10.40
Population size	5,271	525,935	140,758.87	130,649.99
Taxable income per person	15,486	27,149	21,611.76	1,981.45
Anti-immigrant attitudes	1.00	2.78	1.62	0.39
Anti-refugee attitudes	1.00	3.32	1.69	0.47
Perceived refugee threat	3.00	10.25	5.63	1.19

4. Results

When we look at the descriptive statistics in Table 1, we observe that the invitation rates for Moroccan candidates (22.0%) were lower than for Belgian candidates (32.7%). This difference in invitation rates was statistically significant based on the McNemar test statistic ($p < 0.001$). When we split these rates by type of provider (see Table 2), results indicated that the invitation rate among private landlords was lower for both Belgian ($p < 0.001$) and Moroccan candidates ($p < 0.001$). These findings already suggest that there is a differential pattern of discrimination between realtors and private landlords.

Table 2. Invitation rates by type of provider

	Belgian candidate		Moroccan candidate	
	Invited	Not invited	Invited	Not invited
Type of provider				
Private landlord	24.7	75.3	13.7	86.3
Realtor	39.9	60.7	29.1	70.9
McNemar test statistic	647.00***		1381.55***	

Table 3 presents the results from the multilevel binary logistic regression analyses on the predicted probability to be invited to view a rental dwelling, split by type of provider. To increase interpretability, predicted probabilities (*Pr*) are shown in the table. Based on Model 1, we see that the probability of Moroccan candidates to be invited is significantly lower than the probability of Belgian candidates to be invited. While these probabilities are lower for both owner types, this is more pronounced among private landlords (*Pr* = -0.76, $p < 0.001$) than realtors (*Pr* = -0.48, $p < 0.001$), in line with the findings from Table 2. We also note a limited impact of the type of dwelling among private landlords, while realtors were less marginally likely to invite a candidate when they were renting out no apartment rather than an apartment. When rental prices were higher, the probability to be invited was also higher among private landlords (*Pr* = 0.27, $p < 0.01$) and realtors (*Pr* = 0.13, $p < 0.01$).

The municipal control variables suggest that the local context has a significant impact on inviting rental candidates among realtors and private landlords. The probability to be invited was higher in municipalities where the average taxable income of residents was higher – in other words, in areas where residents were wealthier. In terms of outgroup and population size, we observe a divergent pattern: among private landlords, the probability of an invitation was higher in municipalities with a

larger population ($Pr = 0.23$, $p < 0.01$), but the share of residents with a non-European migrant background has no effect ($Pr = -0.02$, n.s.). Among realtors, the predicted probability of invitation was higher in municipalities with a larger share of residents with a non-European migration background ($Pr = 0.12$, $p < 0.05$), while the overall population size of the municipality had no effect ($Pr = -0.01$, n.s.). This indicates that the visible presence of an outgroup comes along with higher invitation rates for both candidates with Belgian names and candidates with Moroccan names among realtors, but not among private landlords. The multinomial logistic regression analyses in the appendix (table A1) show that the likelihood that both Belgian and Moroccan candidates were invited (n_{11}) by the realtor increased in more diverse municipalities, but the likelihood that only the Belgian candidate was invited (n_{21}) did not decrease. There were no significant interaction effects between these municipality control variables and the ethnicity of the rental candidates, indicating that these local factors does not affect rental discrimination (not shown, but available upon request).

The findings from Model 2 and 3 show that aggregated attitude and threat indicators were significantly associated with the general invitation rate, but not with ethnic discrimination. Among private landlords, it was especially notable that greater perceived threat towards refugees decreased the probability of invitation ($Pr = -0.13$, $p < 0.05$). For realtors, it seemed that anti-immigrant attitudes ($Pr = -0.22$, $p < 0.001$) and anti-refugee attitudes ($Pr = -0.26$, $p < 0.001$) played a larger role. These findings suggest that attitudes and threat towards outgroups play a different role for realtors and landlords. However, the interaction effects between the ethnic origin of the rental candidates and the attitude and threat scales were never significant in the third models (for plots of these interactions, see Figure 1-3). This implies that ethnic discrimination on the rental market is not different according to the attitudes or perceived threat among the general public in a municipality. The additional multinomial logistic regression analyses in the appendix (tables A1 and A2) show that the lower invitation rates in the municipalities with higher anti-immigrant or anti-refugee attitudes and with higher perceived threat are especially due to a lower likelihood that both candidates are invited (n_{11}) among realtors and private landlords and a lower likelihood that only the Belgian candidate is invited (n_{21}) among landlords.

Table 3. Multilevel binary logistic regression analyses on the predicted probability to be invited to visit the rental dwelling, by type of provider (predicted probabilities with their standard errors in parentheses)

	Private landlords ($n_i = 5{,}098$; $n_j = 2{,}549$; $n_k = 25$)						
	Model 1	Model 2a	Model 2b	Model 2c	Model 3a	Model 3b	Model 3c
Ethnic origin							
Belgian candidate (ref. cat.)							
Moroccan candidate	-0.76***	-0.76***	-0.76***	-0.77***	-0.77***	-0.78***	-0.77***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Type of dwelling							
Apartment (ref. cat.)							
No apartment	-0.18	-0.18	-0.18	-0.19	-0.18	-0.18	-0.19
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Rental price per month	0.27**	0.27**	0.27**	0.27**	0.27**	0.27**	0.27**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Municipal control variables							
Taxable income per person	0.24**	0.23*	0.19	0.26**	0.23*	0.19	0.26**
	(0.09)	(0.09)	(0.10)	(0.08)	(0.09)	(0.10)	(0.08)
Outgroup share	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
	(0.12)	(0.12)	(0.12)	(0.11)	(0.12)	(0.12)	(0.11)
Population size	0.23**	0.22*	0.20*	0.22**	0.23*	0.20*	0.22**
	(0.08)	(0.09)	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)
Attitude and threat variables							
Anti-immigrant attitudes (Ma)		-0.03			-0.02		
		(0.07)			(0.07)		
Anti-refugee attitudes (Mb)			-0.07			-0.04	
			(0.07)			(0.08)	
Perceived refugee threat (Mc)				-0.13*			-0.13*
				(0.08)			(0.06)

Interactions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Moroccan*Anti-immigrant attitudes					-0.02 (0.08)		
Moroccan*Anti-refugee attitudes						-0.09 (0.07)	
Moroccan*Perceived refugee threat							-0.00 (0.08)
Constant	-1.08*** (0.08)	-1.08*** (0.08)	-1.08*** (0.08)	-1.06*** (0.08)	-1.08*** (0.08)	-1.08*** (0.08)	-1.06*** (0.08)
AIC	4775.27	4777.08	4776.21	4731.78	4779.01	4776.88	4737.52
-2 Log Likelihood	4759.27	4759.08	4758.21	4713.78	4759.01	4756.88	4721.52

Note: *** $p < .001$; ** $p < 0.01$; * $p < 0.05$. ref. cat. = reference category.
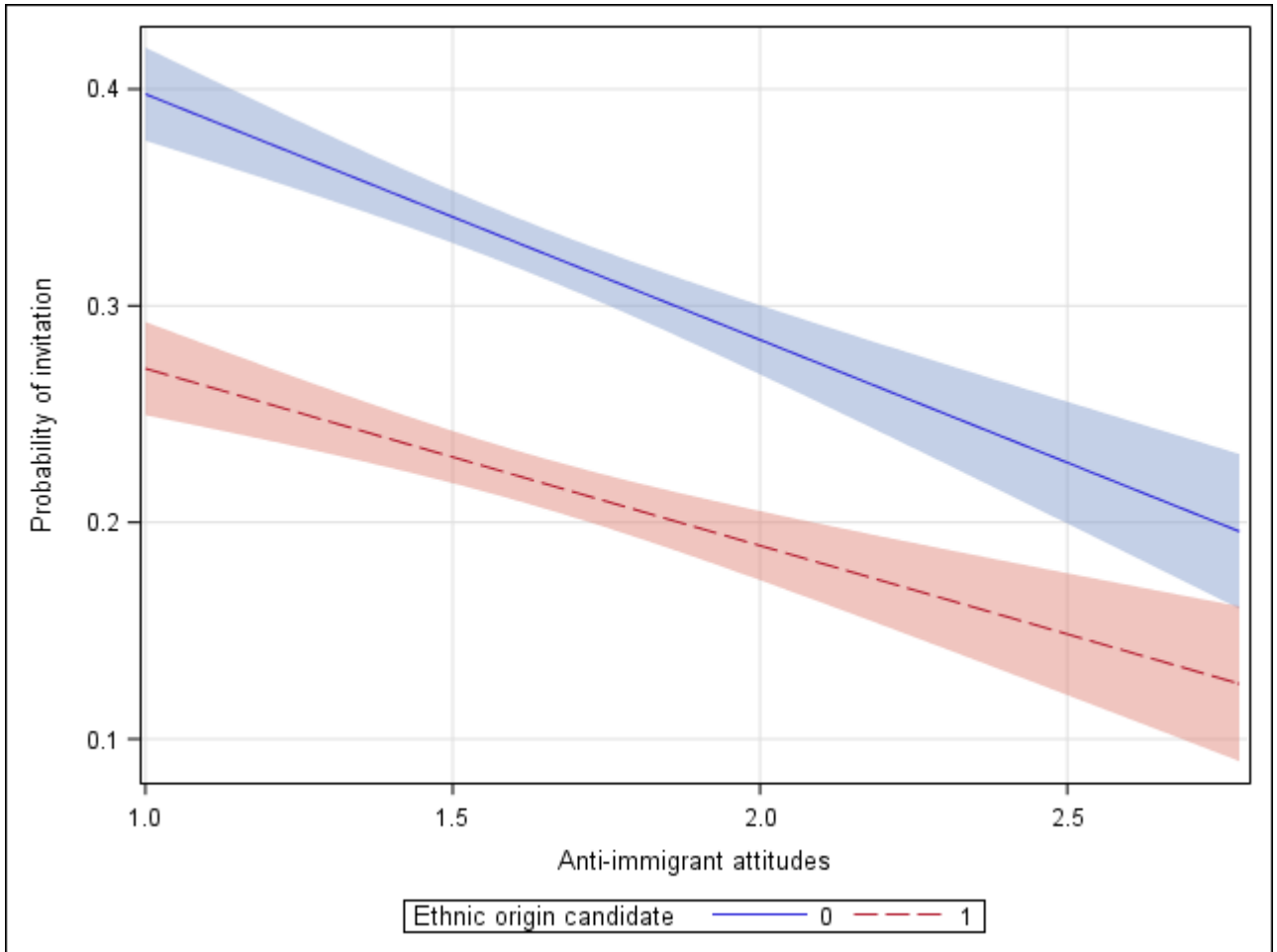
Note: Ethnic origin candidate: 0 = Belgian, 1 = Moroccan.

Figure 1. Interaction effect between anti-immigrant attitudes and ethnic origin of the candidate on the probability of an invitation
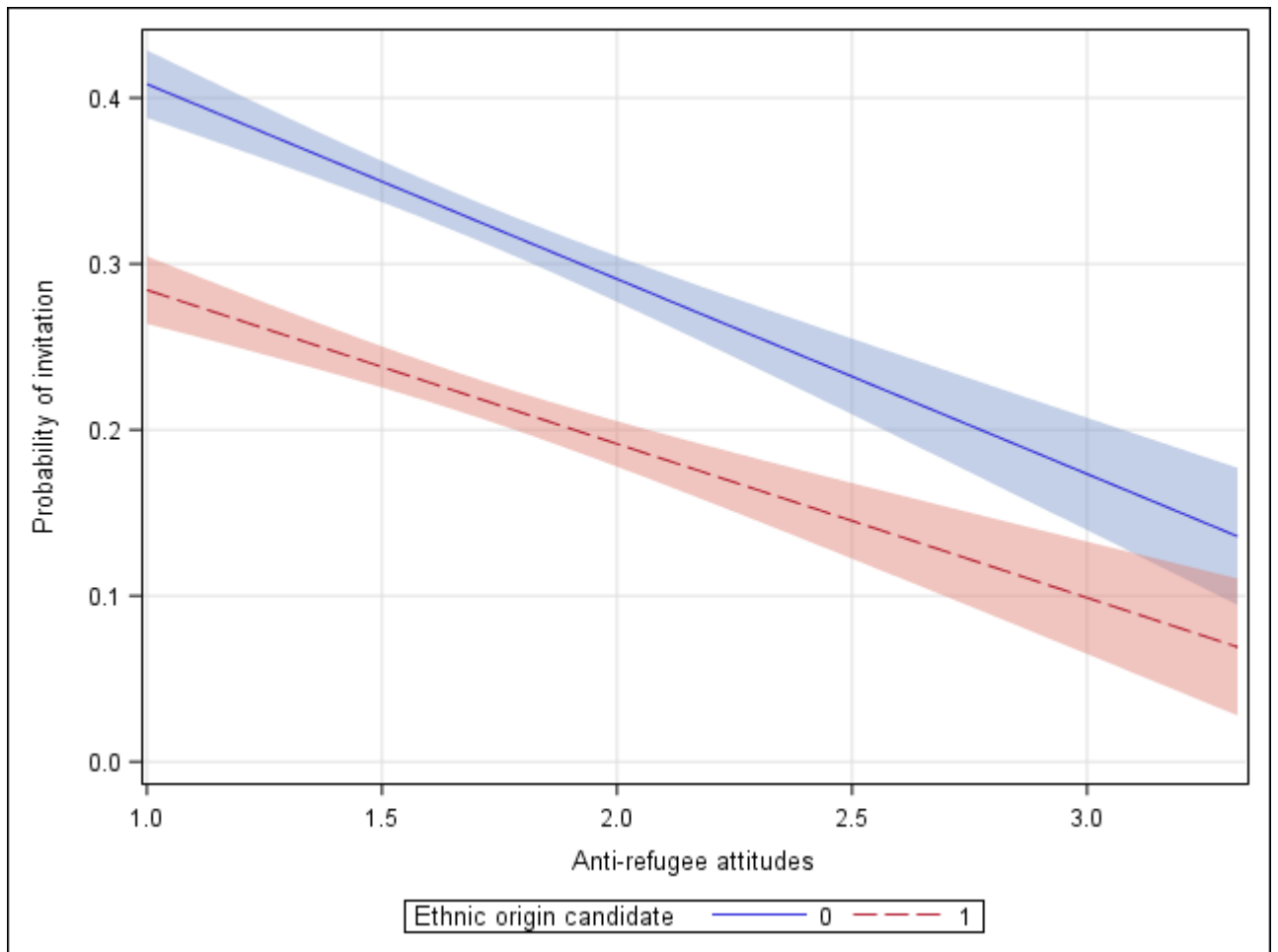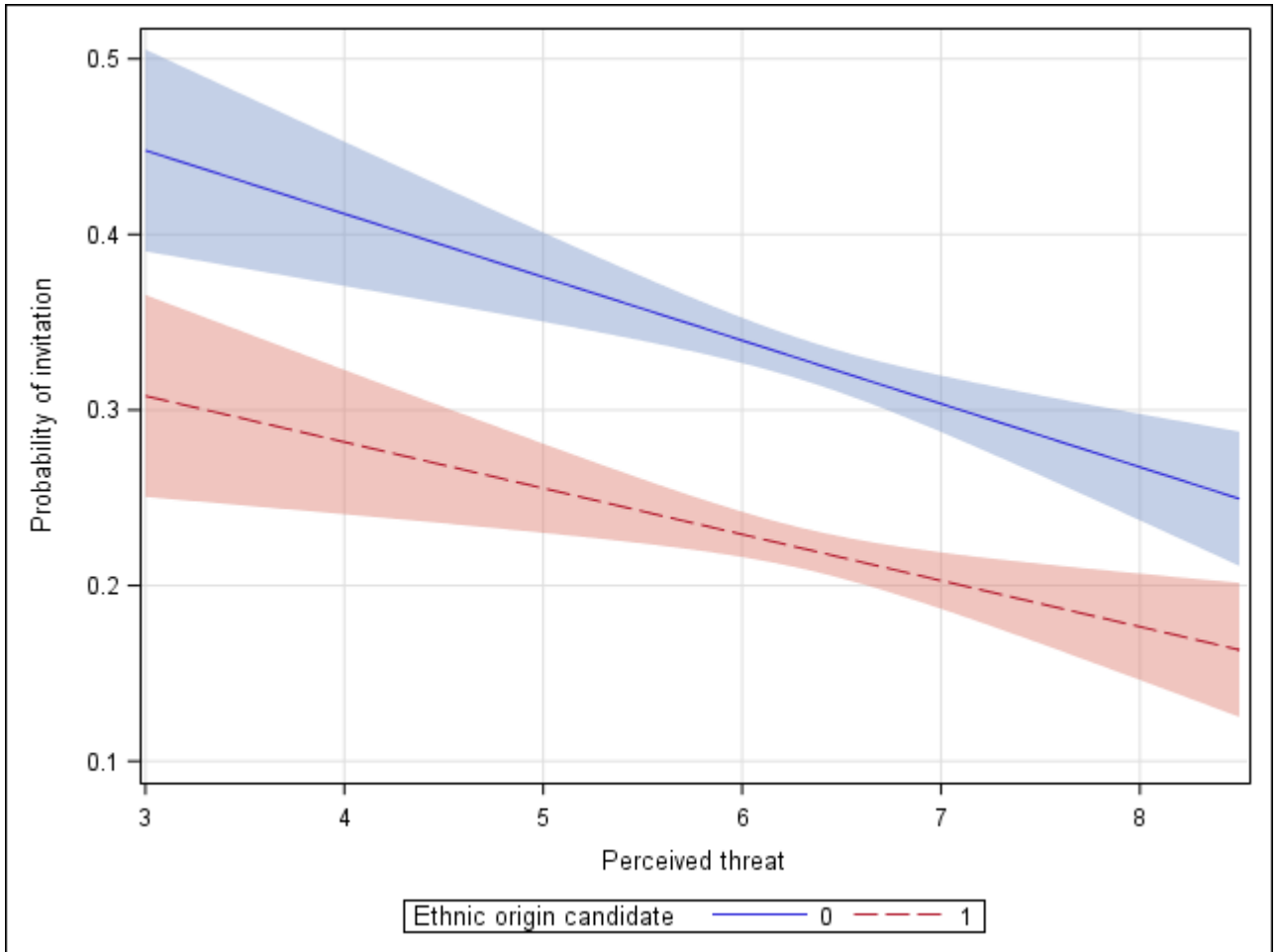
Note: Ethnic origin candidate: 0 = Belgian, 1 = Moroccan.

Figure 2. Interaction effect between anti-refugee attitudes and ethnic origin of the candidate on the probability of an invitation

Note: Ethnic origin candidate: 0 = Belgian, 1 = Moroccan.

Figure 3. Interaction effect between perceived threat and ethnic origin of the candidate on the probability of an invitation

5. Discussion and conclusion

There is still little research about the effect of anti-immigrant attitudes on ethnic discrimination. Not only are both literature strands operating quite separately, it is also very challenging to carry out attitude surveys and robust tests of discriminatory behaviour among the same sample of respondents. In this study we follow the methodological strategy of Carlsson and colleagues (2012; 2017), which aggregates survey findings on the level of municipalities and subsequently investigates whether there is more discrimination in municipalities in which the general population holds more negative attitudes. We investigated in Belgium whether there is more rental discrimination against ethnic minorities in municipalities with more negative attitudes and higher perceived threats towards immigrants and refugees. For this purpose, we merged unique data from 5,782 pairwise matched rental correspondence tests with the aggregated attitudes of 368 Belgian adults in 44 municipalities.

In line with previous discrimination studies (Flage 2018; Auspurg et al 2019), we found profound discrimination against candidates with Moroccan names on the rental housing market by both private landlords and realtors. In contrast to our expectations and to the study of Carlson and Erikson (2017), we did not find that there is more rental discrimination against candidates with a Moroccan sounding name in municipalities with more negative anti-immigrant or anti-refugee attitudes or with higher perceived threat towards refugees. This non-significant finding appeared to be consistent over different attitude or threat scales, different analytical methods and different types of housing providers. A possible explanation for these divergent Belgian results in comparison with Sweden, might be sociological factors at the level of the country, such as welfare state regime, housing policy or general anti-immigrant levels, but cross-national research is needed to dig deeper into these differences.

However, we found that private landlords were less likely to invite rental candidates – irrespective of their ethnic origin – to visit the property in municipalities with higher perceived threat towards refugees. In the same vein, real estate agents did invite less candidates of all backgrounds in municipalities with more negative attitudes towards immigrants and refugees. In other words, both rental candidates with Belgian names and candidates with Moroccan names are less invited in localities with more negative attitudes or higher perceived threat.

Moreover, we found that the overall invitation rates were higher in communities with a higher share of residents with a non-European background among realtors. More precisely, the likelihood that both Belgian and Moroccan candidates were invited increased in more diverse municipalities, but the likelihood that only the Belgian candidate was invited did not decrease. Further analyses show that attitudes towards immigrants and refugees were also more positive in more diverse municipalities

and these attitudes partly mediate the positive effect of outgroup share on invitation rates (not shown, but available upon request). These finding are to some extent in line with the intergroup contact theory which states that contact between ethnic groups result under certain conditions in less prejudices and less discrimination (Allport 1954; Pettigrew 1998). The assumption here is that a larger share of residents with a non-European background in a municipality comes along with more opportunities for positive interethnic contact. Our study found that there are indeed less prejudices, but not less discrimination in more diverse municipalities. Following the theory of neighbour tasted-based discrimination, it could be that realtors in general are inviting more rental candidates of Belgian and Moroccan origin in more diverse municipalities (anticipating the more positive attitudes towards migrants and refugees in the neighbourhood). However, in line with the theory of agent- and owner tasted-based discrimination (Verstraete & Verhaeghe 2020), a specific group of realtors keeps on discriminating against minorities (e.g. agents with negative personal attitudes or realtors who discriminate upon request of the property owner).

Another remarkable finding is that the attitude and threat variables have different effects for private landlords and real estate agents. Among private landlords it was greater perceived threat towards refugees in a municipality that was associated with lower invitation rates, while among realtors this was the case with more negative public attitudes towards immigrants and refugees. A possible explanation is that perceived threat items in our data grasp more the personal, economic perspective of respondents, while anti-immigrant or -refugee attitude items entail a more general perspective. Given that real estate agents are more professional housing providers than private landlords (who often let their own property), realtors might follow the more general attitude perspective than the personal perceived threat perspective. However, this is only a tentative hypothesis that should be tested in further research where perceived threat and attitudes were tested directly among landlords and real estate agents.

More general, this study refutes the idea that ethnic discrimination on the Belgian rental housing market is affected by the attitudes and perceived threats of the general public in a municipality, but not that discriminatory behaviour is caused by the personal attitudes of private landlords or realtors. In line with Rooth (2010) and Zussman (2013) on the labour and consumer markets, we strongly recommend that future research carries out correspondence tests on discriminatory behaviour and attitude surveys among the same sample of landlords and realtors. This would illuminate whether the personal attitudes of housing providers directly drive their discriminatory behaviour or not.

The policy implications from these findings is that we should tackle the negative attitudes and perceived threat towards immigrants and refugees among the general public. This would increase the

invitation rates of both native and migrant candidates on the rental housing market. In addition, policy should also combat discriminatory behaviour of realtors and landlords as this appears to be unrelated to the general attitudes and threat perceptions. This later approach will increase the invitation rates of ethnic minorities relative to these of natives.

However, these conclusions have to be considered with caution because of a few study limitations. Firstly, attitudes towards immigrants and refugees were measured by means of a survey in which respondents have to openly express their attitudes. Because of an increasing anti-racist norm in society might become reluctant to openly utter their private attitudes (Berinsky 1999). Therefore, this measurement method might suffer from potential social desirability bias. In addition, we only measure explicit attitudes and not implicit attitudes (e.g. through implicit association tests). Secondly, our municipality variables of public attitudes and perceived threat were sometimes based on only a handful respondents in that municipality, which might bias our measurements. Although a sensitivity analysis with data where we had the attitudes of at least ten respondents per municipality rendered the same results, further research would benefit from more representative data on attitudes in a municipality. Thirdly, in line with previous research we only measured discriminatory behaviour during the first phase of the rental process: being invited to visit the rental property or not. This leaves the later phases of the rental process out of the scope (during and after the rental visit), where there probably also ethnic discrimination happens. Lastly, the worldwide Covid-19 pandemic appears to come along with more ethnic discrimination on the rental housing market (Verhaeghe & Ghekiere 2021). This Corona impact could, unfortunately, not be taken into account in this study.

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Table A1. Multilevel multinomial logistic regression analyses on the predicted probability to be invited to visit the rental dwelling, realtor – reference category is 'no one invited' (predicted probabilities with their standard errors in parentheses) ($n_i = 6{,}156$; $n_j = 3{,}078$; $n_k = 44$)

	Model 1			Model 2		
	Both invited	Belgian only	Moroccan only	Both invited	Belgian only	Moroccan only
Type of dwelling						
Apartment (ref. cat.)						
No apartment	-0.17	-0.19	-0.27	-0.17	-0.19	-0.27
	(0.12)	(0.13)	(0.19)	(0.12)	(0.13)	(0.19)
Rental price per month	0.16*	0.04	0.13	0.17**	0.05	0.13
	(0.06)	(0.08)	(0.10)	(0.06)	(0.08)	(0.10)
Municipal control variables						
Taxable income per person	0.26**	0.12	0.09	0.19*	0.08	0.09
	(0.09)	(0.08)	(0.09)	(0.08)	(0.08)	(0.09)
Outgroup share	0.17*	0.05	0.01	0.13*	0.02	0.01
	(0.07)	(0.07)	(0.08)	(0.07)	(0.07)	(0.08)
Population size	0.01	-0.19*	-0.16	-0.07	-0.24*	-0.15
	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)	(0.11)
Attitude and threat variables						
Anti-immigrant attitudes (Ma)				-0.27***	-0.21**	-0.08
				(0.07)	(0.07)	(0.08)
Anti-refugee attitudes (Mb)				-0.32***	-0.26**	-0.11
				(0.08)	(0.09)	(0.09)
Perceived refugee threat (Mc)				-0.25**	-0.17	0.02
				(0.08)	(0.08)	(0.08)
Constant	-0.96***	-1.20***	-2.13***	-0.94***	-1.19***	-2.13***
	(0.10)	(0.09)	(0.10)	(0.09)	(0.09)	(0.10)
AIC		6919.61			6913.27	
-2 Log Likelihood		6879.61			6867.27	

Note: *** $p < .001$; ** $p < 0.01$; * $p < 0.05$. ref. cat. = reference category. Ma = Model a; Mb = Model b; Mc = Model c.

Table A2. Multilevel multinomial logistic regression analyses on the predicted probability to be invited to visit the rental dwelling, private landlord – reference category is 'no one invited' (n₂₂) (predicted probabilities with their standard errors in parentheses) ($n_i = 5{,}098$; $n_j = 2{,}549$; $n_k = 25$)

	Model 1			Model 2		
	Both invited (n_{11})	Belgian only (n_{21})	Moroccan only (n_{12})	Both invited (n_{11})	Belgian only (n_{21})	Moroccan only (n_{12})
Type of dwelling						
Apartment (ref. cat.)						
No apartment	-0.27	-0.03	-0.70*	-0.25	-0.03	-0.70*
	(0.22)	(0.17)	(0.36)	(0.22)	(0.17)	(0.36)
Rental price per month	0.30	0.30*	0.51*	0.30	0.30*	0.51*
	(0.16)	(0.14)	(0.23)	(0.16)	(0.14)	(0.23)
Municipal control variables						
Taxable income per person	0.32*	0.32*	0.53**	0.24*	0.30*	0.55**
	(0.14)	(0.14)	(0.17)	(0.14)	(0.15)	(0.17)
Outgroup share	0.18	-0.22	0.13	0.19	-0.22	0.14
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Population size	0.26*	0.45**	-0.02	0.17*	0.43**	0.01
	(0.12)	(0.14)	(0.13)	(0.12)	(0.14)	(0.13)
Attitude and threat variables						
Anti-immigrant attitudes (Ma)				-0.08	0.06	-0.02
				(0.10)	(0.10)	(0.13)
Anti-refugee attitudes (Mb)				-0.17	0.04	-0.08
				(0.10)	(0.11)	(0.11)
Perceived refugee threat (Mc)				-0.22**	-0.06	0.07
				(0.10)	(0.10)	(0.10)
Constant	-1.87***	-1.60***	-2.60***	-1.86***	-1.60***	-2.60***
	(0.13)	(0.14)	(0.16)	(0.13)	(0.14)	(0.16)
AIC		4385.65			4385.02	
-2 Log Likelihood		4343.65			4337.02	

Note: *** $p < .001$; ** $p < 0.01$; * $p < 0.05$. ref. cat. = reference category. Ma = Model a; Mb = Model b; Mc = Model c

Table A3. Multilevel binary logistic regression analyses on the predicted probability to be invited to visit the rental dwelling, by type of owner for municipalities with attitude data of more than 10 respondents (predicted probabilities with their standard errors in parentheses)

	Private landlord ($n_i = 3,768$; $n_j = 1,886$; $n_k = 12$)			Realtor ($n_i = 3,190$; $n_j = 1,595$; $n_k = 20$)		
	Model 1	Model 2(a-c)	Model 3(a-c)	Model 1	Model 2(a-c)	Model 3(a-c)
Ethnic origin						
Belgian candidate (ref. cat.)						
Moroccan candidate	-0.81***	-0.81***	-0.81***	-0.41***	-0.41***	-0.41***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Type of dwelling						
Apartment (ref. cat.)						
No apartment	-0.36*	-0.36**	-0.36*	-0.40***	-0.40***	-0.40***
	(0.14)	(0.14)	(0.14)	(0.10)	(0.10)	(0.10)
Rental price per month	0.40***	0.40***	0.40***	0.27***	0.27***	0.27***
	(0.10)	(0.10)	(0.10)	(0.06)	(0.06)	(0.06)
Municipal control variables						
Taxable income per person	0.27**	0.32**	0.32**	0.29**	0.29**	0.29**
	(0.09)	(0.09)	(0.09	(0.09)	(0.09)	(0.09)
Outgroup share	0.16	0.18	0.16	0.15*	0.09*	0.15*
	(0.19)	(0.19)	(0.19)	(0.09)	(0.09)	(0.09)
Population size	0.10	0.11	0.10	-0.08	-0.12	-0.08
	(0.13)	(0.13)	(0.13)	(0.08)	(0.08)	(0.08)
Attitude and threat variables						
Anti-immigrant attitudes (Ma)		0.07	1.01		-0.19*	1.18*
		(0.08)	(0.08)		(0.09)	(0.08)
Anti-refugee attitudes (Mb)		-0.03	1.10		-0.28**	1.26*
		(0.12)	(0.10)		(0.11)	(0.09)
Perceived refugee threat (Mc)		-0.14*	0.87*		-0.01	-0.03
		(0.06)	(0.06)		(0.06)	(0.07)

Interactions						
Moroccan*Anti-immigrant attitudes (Ma)			0.02 (0.08)			-0.03 (0.08)
Moroccan *Anti-refugee attitudes (Mb)			0.09 (0.07)			-0.04 (0.06)
Moroccan*Perceived refugee threat (Mc)			-0.00 (0.08)			0.04 (0.06)
Constant	-0.80*** (0.12)	-0.78*** (0.08)	-0.78*** (0.08)	-0.37*** (0.10)	-0.40*** (0.10)	-0.37*** (0.10)
AIC	3698.11	3694.64	4742.23	3915.21	3917.41	7642.63
-2 Log Likelihood	3682.11	3678.64	4724.23	3899.21	3901.41	7624.63

Note: *** $p < .001$; ** $p < 0.01$; * $p < 0.05$. ref. cat. = reference category. Ma = Model a; Mb = Model b; Mc = Model c.

Table A4. Multilevel binary logistic regression analyses on the predicted probability to be invited to visit the rental dwelling, by type of owner for NUTS2 regions with attitude data of the European Social Survey (predicted probabilities with their standard errors in parentheses)

	Private landlord (n_i = 5,098; n_j = 2,549; n_k = 9)			Realtor (n_i = 6,156; n_j = 3,078; n_k = 10)		
	Model 1	Model 2(a-b)	Model 3(a-b)	Model 1	Model 2(a-b)	Model 3(a-b)
Ethnic origin						
Belgian candidate (ref. cat.)						
Moroccan candidate	-0.75***	-0.75***	-0.75***	-0.46***	-0.46***	-0.46***
	(0.07)	(0.07)	(0.07)	(0.04)	(0.04)	(0.04)
Type of dwelling						
Apartment (ref. cat.)						
No apartment	-0.18	-0.18	-0.18	-0.14*	-0.14*	-0.14*
	(0.11)	(0.11)	(0.11)	(0.07)	(0.07)	(0.07)
Rental price per month	0.26**	0.26**	0.26**	0.11**	0.11**	0.11**
	(0.09)	(0.09)	(0.09)	(0.04)	(0.04)	(0.04)
Municipal control variables						
Taxable income per person	0.37***	0.37***	0.37***	0.16***	0.16***	0.16***
	(0.05)	(0.05)	(0.05)	(0.03)	(0.03)	(0.03)
Outgroup share	0.08	0.08	0.08	0.09**	0.09**	0.09**
	(0.06)	(0.06)	(0.06)	(0.03)	(0.03)	(0.03)
Population size	0.21***	0.21***	0.21***	-0.04	-0.04	-0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Attitude and threat variables						
Anti-immigrant attitudes (Ma)		0.07	0.07		-0.11	-0.11
		(0.08)	(0.08)		(0.09)	(0.09
Perceived refugee threat (Mb)		-0.10	-0.10		0.07	0.07
		(0.06)	(0.06)		(0.06)	(0.06)
Interactions						

	Ma			Mb		
Moroccan*Anti-immigrant attitudes (Ma)			0.00 (0.06)			-0.07 (0.07)
Moroccan*Perceived refugee threat (Mb)			0.03 (0.04)			0.02 (0.01)
Constant	-0.95*** (0.06)	-0.78*** (0.08)	-0.78*** (0.08)	-0.45*** (0.05)	-0.43*** (0.05)	-0.43*** (0.05)
AIC	4801.56	4802.34	4802.34	7729.96	7729.48	7729.48
-2 Log Likelihood	4798.56	4800.34	4800.34	7715.96	7713.48	7713.48

Note: *** $p < .001$; ** $p < 0.01$; * $p < 0.05$. ref. cat. = reference category. Ma = Model a; Mb = Model b.