Not for you! The cost of having a foreign-sounding name in the Swedish private housing market

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Abstract

Both immigration and a troubling housing deficit have increased rapidly in Sweden over the past 20 years. Today, up to 33 percent of the people living in the largest Swedish cities are immigrants. In this Internet-based field experiment, we investigated whether there exists discrimination in the Swedish private rental housing market based on the names of apartment seekers. We used a correspondent test by randomly sending out equivalent applications from four fictitious, highly educated, and seemingly "well-behaved" male applicants in response to a number of randomly selected private housing ads. Each advertiser received applications from two applicants with names signalling Swedish, Arab/Muslim, Eastern European, or East Asian ethnicity. Our results clearly confirm previous findings that persons with a name traditionally associated with the majority group in the respective community receive more call backs than others. When comparing our results with previous discrimination research focusing on Swedish housing market, we find that a man with an Arab/Muslim-sounding name needs to apply for clearly more rental objects in order to get a call back compared with just 10 years ago. Our results strongly indicate that the name of a person matters a great deal when applying for a rental object.

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1. Introduction

Ethnic discrimination in the housing market restricts people's access to equal rights and justice. It can lead to major economic costs, time costs, and also social costs for an apartment seeker. When individuals with a minority-ethnic sounding name find difficulties to rent an apartment in cities with a large amount of employers – it can result in a more marginalized labor market. Acolin et al. (2016) investigated rental market discrimination in France. In addition to a person with a traditionally French name, they used five persons with names signaling affiliation with five immigrant groups in France. The researchers found that, compared with applicants with French or other European-sounding names, apartment seekers with African- or Turkish-sounding names were 16 to 22 percentage points less likely to get a response. Moreover, there is a large literature showing that especially apartment seekers with Arab/Muslim-sounding names tend to receive fewer call backs from landlords compared with the dominant ethnic group in a country (see, e.g., Carpusor and Loges, 2006; Ahmed and Hammarstedt, 2008; Ahmed et al., 2010; Bosch et al., 2010; Baldini and Federici, 2011; Andersson et al., 2012; Bengtsson et al., 2012).[1,2] All these studies used field experiments involving written application letters (correspondence studies). The other way to test for possible discrimination is to use a personal approach (audit studies) where test persons who are identical in as many characteristics as possible except ethnicity apply for the same rental apartment. For an overview of previous studies on ethnic discrimination in the housing market that have utilized a personal approach, see Riach and Rich (2002). However, the personal approach has been criticized due to the possibility that the test persons still differ in several unobservable characteristics and because it is impossible to ensure that the test persons communicate with the landlords in identical ways (Heckman and Siegelman, 1993; Heckman,1998; Riach and Rich, 2002; and Ahmed and Hammarstedt, 2008).[3]

Previous studies have also found that this type of discrimination did not decrease when a person with an Arab/Muslim-sounding name had a high-status education and/or job (Ahmed et al., 2010), or that the discrimination gap between ethnic majorities and minorities decreased with

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[1] While Carpusor and Loges (2006), who used names indicating either Arab, African-American, or White ethnicity, found more positive responses for White-sounding names than for Arabic-sounding names, the largest discrimination was found for African-American-sounding names.

[2] Bengtsson et al. (2012) did not found significant discrimination when comparing responses for males with either an Arabic name or a Swedish name, but they did find signs of discrimination when looking at female counterparts.

[3] In addition to field studies with fictitious persons with different names, there are also studies looking at actual price differences in rental markets. See, e.g., Beatty and Sommervoll (2012), who found that non-Norwegians pay higher rents than Norwegians and that this rental premium is the largest for people of African origin.

a high-status education and/or job but only partly: between Spanish- and Moroccan-sounding names in Spain (Bosch et al., 2010), between African-Americans and Whites in the U.S. (Hanson and Hawley, 2011), between Norwegian- and Arab/Muslim-sounding names in Norway (Andersson et al., 2012), between German- and Turkish-sounding names in Germany (Auspurg et al., 2017), and between Italian and Arab/Muslim-sounding names in Italy (Baldini and Federici, 2011). For example, Ahmed and Hammarstedt (2008) found a 23 percentage point gap in call backs from landlords between apartment seekers with a Swedish-sounding name and those with an Arab-sounding name when the only information a landlord had received was the name of the applicant. When adding information about the same (high) level of education and good references, a person with a Swedish-sounding name still received 24 percent more call backs than the one with an Arab-sounding name (Ahmed et al., 2010). Thus, although many previous studies have shown that individuals with a high degree of education receive greater opportunities for housing, there still remains a discrimination gap between individuals with an ethnic majority-sounding name and those with an ethnic minority-sounding name, when they compete with the same degree of education. If individuals with an ethnic minority-sounding name feel forced to turn down (high-yield) job offers due to difficulties finding housing, it tends to generate an even more segregated society, which in turn increases the social gap.

Sweden has become an interesting object for studies of potential ethnic discrimination. Historically, the country has experienced substantial emigration and a low rate of immigration. Until the 1970s, most immigrants[4] came from countries with high unemployment rates, such as Finland. In the 1980s, the largest number of immigrants came from Iran and in the 1990s from former Yugoslavia. (Statistics of Sweden, 2018a). Today Syria is the number one source of immigrants to Sweden. This is the first time a non-European country tops this list (Statistics of Sweden, 2019a). Thus, in the last few decades, Sweden has rapidly changed from being a country with a rather homogenous ethnic population to being a country with up to 33 percent immigrants in the largest cities.

Sweden has adopted international conventions and has stipulated laws and determined a mediator for discrimination that monitors and is responsible to eliminate the risk of

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[4] To be counted as an immigrant, it is necessary to have an intention to stay in Sweden for at least 12 months. An exception is Nordic citizens who have free right of residence in all Nordic countries and therefore do not need permission to move into Sweden. Even Swedish citizens who previously emigrated from Sweden and then moved back are counted as immigrants (Statistics of Sweden, 2019a).

discrimination in various markets in Sweden. However, studies conducted in Sweden show results similar to those found elsewhere in the world: persons with names associated with an ethnic minority have greater difficulties finding an apartment than others. Previous research on discrimination in the housing market in Sweden has mainly focused on ethnic discrimination related to differences in responses between apartment seekers with Swedish-sounding and Arab/Muslim-sounding names. These studies have found a clear discrimination of people with Arab/Muslim-sounding names when compared with people with Swedish-sounding names (Ahmed and Hammarstedt, 2008; Ahmed at al., 2010; Bengtsson et al., 2012).

We use an internet-based field experiment to investigate whether there exists discrimination in the Swedish private rental housing market, and if so, whether there are differences based on the name of an apartment seeker. We do this in regions around the three largest cities in Sweden. We also identify a lack of research and investigate whether only people with Swedish-sounding names and those with Arab/Muslim-sounding names are treated differently in the rental market, or if similar differences can be found when comparing other pairs of ethnic groups. To this end, we used one Eastern European-sounding male name and one East Asian-sounding male name. More specifically, we sent two application letters to each landlord, which enables us to test whether the likelihood of getting a call back from a private landlord differs depending on the ethnicity associated with the name of an applicant.

Moreover, in 2007–2008, when the previous studies of discrimination of people with Arab/Muslim-sounding names in the Swedish housing market were conducted (Ahmed and Hammarstedt, 2008; Ahmed et al., 2010), Sweden received about 100,000 immigrants per year. The corresponding numbers in 2016 and 2017, i.e., the years immediately before our study was conducted, were higher than ever before: 163,000 and 144,500, respectively (Statistics Sweden, 2019a). Another reason to investigate current discrimination in the Swedish housing market is therefore that the number of immigrants, and thereby also of Swedish-born with foreign-born parents[5], has increased rapidly over the past 20 years (Statistics of Sweden, 2019a) and the biggest increase in immigration has been in the largest cities (Statistics of Sweden 2019b). At the end of 2018, 19.1 percent of the Swedish population were born outside of Sweden. (Statistics Sweden, 2018c). The historically large immigration in the last 10 years together with

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[5] At present, almost 6 percent of the Swedish population are Swedish-born with two foreign-born parents (Statistics Sweden, 2018c).

too low rates of housing construction[6] has increased the demand for rental housing objects dramatically.[7] Thus, it is possible that the previously identified discrimination in the Swedish rental housing market has either decreased or increased in recent years, or that the discrimination has moved from one ethnic minority group to another. The last aim of this study is therefore to investigate whether we can confirm the previous findings about discrimination in the housing market based on applicant name or the opportunities in the housing rental market have changed in Sweden during the past 10 years for a male applicant with an Arab/Muslim-sounding name.

The experiment was conducted by using three different but as equivalent as possible application e-mails that were randomly sent to 620 landlords. Further, we used four different fictitious male persons with names that signaled different ethnicities as applicants for vacant apartments on the large and well known online buy-and-sell site Blocket.se.[8] One of the persons had a Swedish-sounding name (Johan Andersson), one had an Arab/Muslim-sounding name (Ali Hassan), and the remaining two had an Eastern European-sounding name (Milan Mladenovic) and an East Asian-sounding name (Yong Wang). Ethnicity was solely signaled through the name of the applicants, and not by providing for example country of birth. Thus, our fictitious persons could have been either immigrants or born in Sweden. In this study, all the fictitious persons used were presented as having non-problematic backgrounds and good jobs and as being "well-behaved" and highly educated, in order to eliminate negative responses from the landlords based on factors unrelated to ethnicity. Each landlord received applications from two of our four fictitious persons and each pair of the fictitious persons were randomly matched with a landlord.

The rest of this paper is organized as follows: In the next section we briefly discuss the different types of discrimination theories connected to the housing market. In Section 3, we

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[6] Ninety-three percent of the Swedish population live in municipalities with a deficit in the housing market (National Board of Housing, Building and Planning, 2018).

[7] Around 3–4 percent of the people living in in the largest cities in Sweden have at some point sublet their apartment or house (Statistics of Sweden, 2014), and the largest group of tenants usually consists of young single households. It is possible that there is a selection effect in apartments that are in the rental market compared to apartments that are not available for renting: It is more likely that the rental objects are of smaller size and more centrally located (National Board of Housing, Building and Planning, 2018).

[8] Blocket.se is not the only site where you can rent apartments in Sweden. It is therefore possible that different sell-and-buy sites rent out different kinds of apartments and that might have an impact on our results. However, Blocket.se is very well-known and one of the biggest sites that covers about one third of the market. During the last years it has had around 60-70 000 rental housing ads per year. The majority of the ads have been in and around Stockholm, the capital city of Sweden (National Board of Housing, Building and Planning, 2018).

describe our experimental design and how the data was collected. Section 4 is the result section and Section 5 concludes the paper with a discussion.

2. Discrimination

The economic theoretical framework typically used when examining discrimination are *taste-based discrimination* and *statistical discrimination*. The two theories aim to give a perspective on why people with identical qualifications can be treated differently in the housing market. The taste-based discrimination framework was developed by Becker (1955) and is based on the observation that people have personal preferences and may hence tend to be willing to avoid a certain groups of people. A taste-based discriminator will discriminate despite knowing that the two persons are equivalent in all relevant aspects (Becker, 1995). So, in the case of the housing market, landlords with such tendencies may reject applications from members of certain groups even if their stated qualities are just as strong as those stated by members of other, non-discriminated groups. In contrast, statistical discrimination occurs when the discrimination is due to incomplete information (Phelps, 1972). In the absence of complete information about the abilities of two persons, a statistical discriminator will use observable characteristics of the persons to draw conclusions about their expected behavior. Conclusions about expected behaviour are based on, often stereotypical, perception of the behaviour of the group. Ethnicity and gender are examples of characteristics used to categorize people into groups. In the context of the present paper, this could for example mean that landlords, due to stereotypical perceptions of some ethnic groups, may be afraid that tenants of a certain ethnicity would not take good care of the apartment or would fail to pay rent. The key difference between the theories is that a taste-based discriminator discriminates despite knowing that two tenants are equally qualified, while a statistical discriminator discriminates despite being not fully aware of the actual qualifications of tenants.

3. Method, experimental design, and data collection

3.1. Method and e-mailing procedure

This study uses the correspondent test by randomly sending out equivalent applications from four fictitious applicants to landlords who had posted housing ads on the Swedish online buy-and-sell site Blocket.se. We sent 1,240 applications in response to 620 private housing ads posted November 8–November 15, 2017. Each landlord received two different applications from two different male applicants with names signalling different ethnicities. Varying the ethnic makeup of applicant pairs enables us to measure whether the degree of discrimination a certain applicant faces changes depending on who else is responding to the same ad at the same time. The method requires that the applicants are represented as equally as possible in all respects besides their names. If everything in the applications besides the names is of equal quality, it is possible to conclude that any discrimination found is solely due to the names provided (see, e.g., Ahmed and Ekberg, 2009; Ahmed et al., 2010; Bosch et al., 2010; Hanson and Hawley, 2011; Baldini and Federici, 2011; Andersson et al., 2012; Bengtsson et al., 2012; and Auspurg et al., 2017).

The applications were combined in all possible ways, ethnicity-wise, for a total of six different pairs. Since each landlord received two applications, we also randomized which fictitious person submitted his application first, about four hours before we sent the application for the other fictitious applicant in the pair. In order to avoid discrimination based on general disapproval of any of the three stated employers, or of one of the application letters for other non-ethnicity-related reasons, the application letters and the names where combined randomly prior to each submission of application pairs. This randomization procedure ensures that any differences in response rates are not caused by the emailing process.

The experiment was conducted in the regions of Stockholm, Gothenburg, and Skåne, where we find the three largest Swedish cities (Stockholm, Gothenburg, and Malmö). Only ads with rents up to 10,000 SEK/month and a size of at least 20 square meters were responded to. The name of the city where each applicant had received a new job (Stockholm, Gothenburg, or Malmö) was matched with the location of the vacant rental object in each letter. If the applicant received an answer of any kind, we immediately sent an email back thanking the landlord and saying

that housing had already been found elsewhere.

3.2. Choice of names

Four fictitious applicants were created: Johan Andersson, which signals a Swedish background, Ali Hassan, which signals an Arab-Muslim background, Milan Mladenovic, which signals an Eastern European background, and Yong Wang, which signals an East Asian background. We chose these names because they are strongly associated with some main ethnic groups currently present in Sweden. According to Statistics Sweden (2018b), the largest immigrant groups (excluding people from the other Nordic countries) are immigrants from Asia (37%) and EU countries (32%), followed by immigrants from Afghanistan, Iran, Iraq, and Syria (23%). Only about 9% of all immigrants living in Sweden today originate from Eastern European countries outside the EU.[9] The background of our fictitious persons is only signalled via the applicant´s name, which does not necessarily say anything about the country of birth. The names of the Swedish and Arab/Muslim applicants were chosen from Statistics Sweden. Every year, Statistics Sweden presents statistics on the 100 most common first and last names in the country. Using the most recently (2016) presented list of names, we chose the most common Swedish and Arab names in Sweden: Johan Andersson and Ali Hassan. The names of the fictitious Eastern European and East Asian applicants were chosen through research on the internet, where multiple lists of the most common names of Serbian and Chinese origin were found. Out of those lists, the most frequently occurring names were chosen after ensuring in Statistics Sweden´s database that at least several hundreds of persons had these names in Sweden. The Eastern European fictitious applicant was named Milan Mladenovic and the East Asian was named Yong Wang.

3.3. The fictitious applicants

In order to keep the applicants from being screened out among the large number of residence seekers on Blocket.se, we wanted them to signal desirable characteristics such as a high level of education, a steady income, and a good credit history. In accordance with the method, it was also important that the applicants were made as equivalent as possible. They therefore had the same age, gender, education, marital status, and leisure interests, and similar types of jobs with equivalent wages. They were also all non-smoking, "well-behaved," and had no children or

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[9] Including Yugoslavia, Bosnia Hercegovina, and Turkey.

pets. As these characteristics were kept constant in the applications, we believe that any significant differences in response rates found must depend on discrimination, as only the names distinguish the applicants.

Since each advertiser received two applications from two different persons, we could not use identical employers and therefore needed to reformulate the e-mails slightly. Instead, similar types of jobs at well-known and established companies were chosen, and all of the jobs could be expected to pay good and similar wages. Furthermore, all applicants were searching for housing because of a new job in a new city. In other words, all applications contain the same type of information, but the wording in the e-mails was not identical to avoid suspicion. Below are the three applications that were used in the experiment. Please note that all applications were written in Swedish and have subsequently been translated to English for the purposes of this paper.

Application e-mail 1:

Hi! My name is Johan/Ali/Milan/Yong and I am very interested in renting your apartment that seems to be vacant. I am working as a business administrator at SEB and will now relocate to Stockholm/Gothenburg/Malmö. I am therefore looking for a new place to live in Stockholm/Gothenburg/Malmö. I am a 27-year-old man with a degree in business administration. I have a permanent position with a steady income and a good credit history. In my spare time I like to exercise and hang out with friends. I live alone, I am a non-smoker, and have neither pets nor children. As a person I am calm and clean. I am also flexible with the move-in date, since I am especially interested in this particular apartment. Let's get in touch**!**

Application e-mail 2:

Hi! My name is Johan/Ali/Milan/Yong and I would love to rent your apartment that you are advertising on Blocket.se. Today I live alone and in my spare time I like to exercise and hang out with my friends. As a person I am calm and have no pets or children. I am also a non-smoking person who prefers to keep things in order. I am a 27-year-old man with a university degree in business administration. As far as employment, I currently hold a permanent position, which means I have a steady income, and I have a good credit history. Now I'm looking for housing in the city since I've been hired as an accountant at KPMG. I'm very flexible with the date of moving and I'm convinced that we can agree on a date that suits us both. Kindly contact me so we can talk!

Application e-mail 3:

Hi. I am looking for a place to live and am very interested in renting your apartment, which I think will suit me perfectly. My name is Johan/Ali/Milan/Yong and I'm a 27-year-old man. I have just been hired as an advisor at Söderberg & Partners and I am therefore looking for a place to live. I have a university degree in business administration, a stable income, and a good credit history. As a person, I am orderly and never neglect paying my bills. In my spare time, I like to exercise sports and spend time with my friends. I see myself as well-organized, I do not smoke, I am not in a relationship and have no children or pets. I am flexible with the move-in date and am open to discussing it. Kindly contact me so I can introduce myself!

4. Results

4.1. Descriptive results for the whole sample

In total 31 percent of the applications received a call back from a landlord. We define a *call back* as a case when a landlord offers an applicant to rent the accommodation/shows an interest in renting out but has a few more questions to ask or invites an applicant for a showing.

Table 1 below reports the number of applications per applicant and the call back, negative-response, and no-reply rates. *Negative response* means that a landlord replied but said that the apartment was not available for rent anymore or, e.g., that it was still available but only to a female.

Table 1. Responses per applicant

Name	Johan	Ali	Milan	Yong
No. of applications/person	305	319	303	312
Call back rate	38%	23%	31%	32%
Negative-response rate	8%	4%	5%	7%
No-reply rate	54%	73%	64%	61%

The table shows that the call back rates were 38 percent for Johan, 23 percent for Ali, 31 percent for Milan, and 32 percent for Yong. Results from the test of propositions show that Johan received significantly more call backs than all the other applicants, while Ali's call back rate was significantly lower than anybody else's.[10] There is no significant difference between the rates for Milan and Yong (the p-value is 0.850). As for negative responses, the third row of Table 1 shows that very few landlords responded that their rental objects were no longer

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[10] The p-values are 0.057 (Johan vs. Milan), 0.000 (Johan vs. Ali), and 0.084 (Johan vs. Yong) when comparing Johan with the other applicants. For Ali, the corresponding p-values are 0.028 (Ali vs. Milan) and 0.016 (Ali vs. Yong).

available, and we find no large differences across the applicants in this respect. The last row shows that a majority of the landlords did not reply to the application e-mail at all, and this was true for all fictitious applicants. We conclude that Johan seems to be most popular among the landlords, followed by Milan and Yong. Ali clearly had the lowest rate of positive call backs, and the difference is the largest when compared with Johan: 15 percentage points.

Table 2 shows descriptive statistics of the sample. Most of the vacant rental objects were located in Stockholm, the capital of Sweden, and more often in a suburb than in a city center. It seems to be more common to rent out a whole apartment than just a room. A majority of the landlords had Swedish-sounding names and the rental objects had been advertised online for an average of 12 days before we sent out the application letters.

Table 2. Descriptive statistics of the sample

Variable name	Variable description	Mean value	Standard deviation
City center	=1 if the rental object is located in a city center	0.266	
Suburb close city center	=1 if the rental object is located in a suburb close to the city center	0.319	
Suburb	=1 if the rental object is located in a suburb further from the city center	0.408	
Stockholm	=1 if the rental object is located in Stockholm, the capital of Sweden	0.482	
Gothenburg	=1 if the rental object is located in Gothenburg	0.174	
Skåne	=1 if the rental object is located in the region of Skåne	0.345	
Room	=1 if the rental object is a room only	0.309	
Apartment	=1 if the rental object is an apartment	0.690	
Rental property	=1 if the rental object is a rental apartment or part of a rental apartment	0.559	
Condominium	=1 if the rental object is a condominium or part of a condominium/house	0.440	
Rent	Rent for the apartment or room in SEK 1,000	7.147	2.061
Swedish landlord	=1 if landlord had a Swedish-sounding name	0.597	
Landlord unknown ethnicity	=1 if impossible to judge whether a landlord had a Swedish-sounding name	0.151	
No. of days	Number of days a rental object had been advertised online before the application was sent out.	12.274	13.070

4.2. Regression results

We will now have a closer look at our data and investigate whether differences in the characteristics of the rental objects could explain the differences shown in Table 1 and whether the descriptive results will hold when we add the control variables. We use a binary probit model where the dependent variable is 1 if an applicant received a call back. In Model 1, we only include the applicants and Ali is the reference category. In Model 2, we control for the city and the location of the vacant object within the respective city, whether the object is a room or a whole apartment, and whether it is a rental property or a tenant-owned (such as a condominium) property. We also control for rent, whether the name of a landlord sounds Swedish, and how many days an object had been advertised online before we sent out an application letter. Marginal effects of both models are shown in Table 3.

Table 3. Marginal effects from a binary probit regression. The dependent variable is "call back." Standard deviations in parentheses.

Variable	Model 1	Model 2
Johan	0.159***	0.161***
	(0.040)	(0.042)
Milan	0.083**	0.076*
	(0.040)	(0.041)
Yong*	0.093**	0.089**
	(0.040)	(0.041)
Inner city		-0.109***
		(0.034)
Suburb close		-0.125***
		(0.031)
Gothenburg		-0.045
		(0.041)
Skåne		-0.043
		(0.040)
Room		0.059
		(0.040)
Rental property		-0.082***
		(0.028)
Rent		0.010
		(0.009)
Swedish landlord		-0.033
		(0.033)
Landlord unknown ethnicity		-0.024
		(0.044)
No. of days advertised		-0.005***
		(0.001)
No. of observations	1, 242	1,190
Pseudo R^2	0.011	0.061

* Ali is the reference category

Model 1, where we only include the names of the applicants, shows that Johan had a 16 percentage point higher likelihood of getting a call back than Ali. Milan and Yong had an 8 and 9 percentage point higher likelihood than Ali, respectively. In Model 2, with all control

variables, we find that the marginal effects of Johan, Milan, and Yong are stable. When looking at the rental object characteristics, we find that if an object was located in the city center or in a suburb close to the city center, the overall likelihood of receiving a call back was 11 and about 13 percentage points lower than if it was located further away from the city center. Moreover, it was less likely to get a call back rate if the object was a rental property. The marginal effect for rent is insignificant, so we cannot confirm previous findings that discriminated groups in the housing market are more likely to have to pay higher rents (Auspurg et al., 2017), but we can confirm the results of Ahmed and Hammarstedt (2008), who also conducted their study in Sweden and who found no significant impact of rent on the likelihood of being invited to further contacts or showing [11],[12] Finally, whether a landlord has a Swedish-sounding name did not have a significant impact on the likelihood of receiving a response, and landlords of objects that have been advertised as vacant for a longer time were less likely to respond to applications.

4.3. Are there any differences between the regions?

Table 4 shows the response rates for each region and fictitious applicant. In 2018, about 25 percent of all foreign born in Sweden lived in the Stockholm region, about 25 percent in the Malmö region, and about 21 percent in the Gothenburg region (Statistics Sweden, 2019b). One third of the people living in Malmö, which is the biggest city in the Skåne region and the third largest in Sweden, have immigrant background (Statistics Sweden, 2018b). Geographically all the regions are located differently; the region of Stockholm is located on East coast, the region of Gothenburg in Western Sweden and the region of Malmö in South Sweden.

Table 4. Response rates for each region and fictitious applicant

Region	Johan	Ali	Milan	Yong
Stockholm	46%	27%	43%	39%
Gothenburg	33%	20%	15%	25%
Skåne	31%	20%	22%	26%

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[11] We have also run separate probit regressions for each fictitious person to investigate whether there is heterogeneity in the apartment and landlord characteristics that could affect the likelihood of receiving a call back for each fictitious person. The individual regression results show that the same characteristics matter as in Table 3. For all four persons, the probability of getting a positive call back decreases as the number of days an apartment had been advertised online increases. For Johan and Milan, the likelihood of getting a positive call back increases if the apartment/room is located in a suburb. Finally, for Milan, the likelihood of getting a positive response decreases if the apartment is in Gothenburg instead of Stockholm, and for Yong, the likelihood of getting a positive response increases the higher the rent of an apartment is. The results of the separate regressions are available on request.

[12] Since we only sent application e-mails to accommodations with a maximum rent of 10,000 SEK (1,000 euro)/month, we are not able to investigate the likelihood of getting a call back for apartments with very high rents.

When looking at the call back rates per region, we find that although Ali received more call backs in Stockholm than in the other regions, the difference between Johan and Ali is also the largest in Stockholm (19 percentage points), while it is the smallest in Skåne (11 percentage points). We use the test of propositions to test whether the differences shown in Table 4 are significant and find that in Stockholm, the rate of positive call backs was significantly lower for Ali than for Johan (p-value=0.001), Milan (p-value= 0.003), and Yong (p-value=0.027). In the second largest Swedish city, Gothenburg, again the response rate was the highest for Johan (33 %), while in this city Milan had the lowest response rate (15%). The test of proportions shows that only the difference between Johan and Milan is significant (p-value=0.037). Finally, in Skåne in the far south of Sweden, we find that only the difference between Johan and Ali is significant, but only at the 10 percent level (p-value=0.074).

We now turn to investigate for each applicant whether there were differences in call back rates across the three regions. Baldini and Federici (2011) found that foreign persons were significantly more discriminated in northern Italy, where the share of immigrants is relatively large, than elsewhere in the country. Similarly, Acolin et al. (2016) found that applicants with foreign-sounding names had the greatest difficulties getting a response in areas with higher incomes and in areas with more immigrants. Bengtsson et al. (2012) found ethnic and gender discrimination only in the suburbs or satellite cities around Stockholm. Thus, we test by using the test of proportions whether Johan, Ali, Milan, and Yong had an easier or more difficult time getting a call back in the regions of Stockholm and Malmö since these areas have slightly higher shares of immigrants compared with the region of Gothenburg. We find that for Johan, Milan, and Yong, it was actually significantly easier to get a positive call back in the region of Stockholm than in the regions of Gothenburg and Malmö. Moreover, there are no significant differences in response rates between Gothenburg and Malmö regions for any of the applicants. When looking at the call back rates for Ali, we see that there are no significant differences across the regions. It is not significantly easier (or harder) for Ali to find an apartment in any of the regions.[13] In our study, it seems that the national capital region of Stockholm, which is also the region with the most rental objects and the highest average rent level (National Board

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[13] The p-value for Johan between the regions of Stockholm and Gothenburg is 0.098 and between the regions of Stockholm and Malmö it is 0.018. Between the regions of Gothenburg and Malmö the p-value is 0.794. For Ali, the p-values are 0.289 (Stockholm-Gothenburg), 0.203 (Stockholm-Malmö), and 0.957 (Gothenburg-Malmö). For Milan, the p-values are 0.000 (Stockholm-Gothenburg), 0.001 (Stockholm-Malmö), and 0.360 (Gothenburg - Malmö) 0.360. For Yong, the p-values are 0.062 (Stockholm –Gothenburg), 0.029 (Stockholm-Malmö), and 0.851 (Gothenburg-Malmö).

of Housing, Building and Planning 2018) is the easiest region to find an apartment on the Blocket.se in if you have a name signaling Swedish, East Asian, or Eastern European origin. However, for those with an Arab/Muslim-sounding name, it is not significantly easier to get a call back in Stockholm than in the other urban areas assessed.

4.3. Pairwise comparisons

Since we sent out two applications for each advertised apartment/room, we can also make pairwise comparisons between our applicants' call back rates. It is not possible for us to be aware of other possible applicants who might have responded to the ads, and this is of course a weakness in the comparisons. However, since we sent out the application pairs with 4-hour intervals, we still believe that it is informative to study whether there are significant differences in response rates between the four applicants depending on in which applicant pair they were placed. Since we have in total four different applicants, we used six different applicant pairs. We show the results of the pairwise comparisons within each pair in Table 5.

Table 5. Call back rates for each applicant pair:

Name	Johan vs. Ali	Johan vs. Yong	Johan vs. Milan	Milan vs. Ali	Milan vs. Yong	Ali vs. Yong
Share of callbacks	35% vs. 20%	39% vs. 32%	41% vs. 31 %	32% vs. 23%	30% vs. 31%	27% vs. 32%
No. of obs.	108	99	97	102	104	108

In all combinations, Johan gets more call backs than Ali, Yong, and Milan and the difference compared with Ali and Milan is significant (p-values from the t-tests are 0.001 and 0.025, respectively). When applying for the same apartment as Milan, Ali has a significantly lower likelihood of receiving a response (p-value= 0.018). In the other pairs, we do not find any significant differences in call back rates. We conclude that in two of the three possible combinations, Johan has the significantly highest call back rate and Ali the lowest.

Finally, we also test by using the test of propositions whether there are significant differences in call back rates *individually* for each applicant depending on in which pair they were included. For example, we are interested in finding out whether Johan received significantly more positive call backs when paired with Ali than when paired with Milan or Yong. The results from the proportion test show that this is not the case for any of the applicants. For example, both Yong's and Milan's rates of positive call backs are around 30 percent and Johan's around

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35–40 percent regardless of the name of the other applicant. Thus, there are significant differences in call back rates between some of the pairwise combinations but the rates per applicants are stable across the different combinations. This reinforces our result that it is the name per se that clearly matters when applying for an apartment or a room.

5. Comparisons over time

Ahmed et al. (2010) found that also male applicants with a high level of education, a good job, and a good payment history but with an Arab/Muslim-sounding name (Mustafa) received fewer responses from private landlords than persons with the same educational and economic standard but with a Swedish-sounding name (Fredrik). Since their applicants sent a similar letter to landlord advertising on the same buy- and-sell site (Blocket.se) as we, we can compare their results for Mustafa and Fredrik with our results for Ali and Johan to see whether it was more or less difficult for a male with an Arab/Muslim-sounding name to rent an apartment through the same website in 2017 than in 2008. After the Swedish government in 2013 relaxed the country's regulation of private landlords, the supply of private rental objects increased rapidly (National Board for Housing, Building and Planning, 2018). Still, however, the demand for housing has climbed steadily in recent years to a very high level, especially in and close to the largest cities (National Board for Housing, Building and Planning, 2018).[14]

In Table 6 below, we define *call back* the same way as in Ahmed et al. (2010), i.e., the term includes *both* positive and negative call backs. We show the call back rates for Mustafa and Fredrik from the study by Ahmed et al. (2010) and for Ali and Johan in our study.

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[14] Note that in the case of difficulties with a tenant, it is possible to terminate the contract. According to the rules regulating private landlords in Sweden, the landlord has the right to terminate a contract without any specific reason. The tenant then has 3 months to leave the rental unit. A tenant can terminate a contract with only a 1 month notice (Swedish Government, 2013)

Table 6. Comparisons between the findings of Ahmed at al. (2010) and our results.
Call back rates. Absolute numbers of call backs in parentheses.

Name	Call Back
Mustafa (N=258)	0.50 (130)[a]
Fredrik (N=258)	0.62 (160)[a]
Ali (N= 319)	0.27 (87)
Johan (N=305)	0.46 (140)
Ratio	
Fredrik/Johan	1.35
Mustafa/Ali	1.85
Fredrik/Mustafa	1.24[a]
Johan/Ali	1.70

a= According to Ahmed et al. (2010)

Overall, we find clearly lower call back rates for both Johan and Ali (46 and 27) percent, respectively) than for Fredrik and Mustafa (62 and 50 percent, respectively). When comparing the relative call back rates between Swedish names and Arab/Muslim names separately, we see that Johan needed to apply for 35 percent more apartments than what Fredrik needed to do in 2008 to get a call back. The corresponding number for Ali compared with Mustafa is about 85 percent. By using a z-test, we find that these drops in response rate are significant for both of the two comparisons at one percent level. Moreover, when following the paper by Ahmed et al. (2010) and estimating the call back ratios between Fredrik and Mustafa and Johan and Ali, respectively, we find that this ratio increased from 1.24 to 1.70 over the 10 year period. This means that in 2017, a male named Ali needed to apply for 70 percent more apartments than Johan, while in 2008 Mustafa needed to apply for 24 percent more apartments than Fredrik, in order to get a response from the landlord. Thus, it is actually even more difficult today to have an Arab/Muslim-sounding name when applying for housing in the Swedish private rental housing market.

6. Conclusions and discussion

Sweden has rapidly changed from a homogenous country with few immigrants born outside of the other Nordic countries to having, in the largest cities, up to 33 percent of immigrants born in many different countries. In this field experiment we investigated whether there exists

discrimination in the Swedish private rental housing market, and if so, whether there are differences based on the name of an apartment applicant. We used a correspondent test by randomly sending out equivalent applications from four fictitious, highly educated, and "well-behaved" male applicants to private landlords who had posted for-rent ads on Swedish leading buy-and-sell website Blocket.se. Every advertiser received two different applications from two applicants with names signalling different ethnicities, namely Swedish, Arab/Muslim, Eastern European, and East Asian. The applicants applied for rental objects in the three largest metropolitan areas in Sweden. Our results clearly confirm the previous findings that the person with a name associated with the dominant ethnic group received the most call backs from the private landlords, and especially the Arab/Muslim-sounding name yielded a significantly lower call back rate than the member of the dominant ethnic group. After controlling for the characteristics of the rental objects, whether the landlords had a Swedish-sounding name or not, and the region in which the rental object was located, we found that Johan had a 16 percentage point higher likelihood of receiving a call back than Ali, and Milan and Yong had a 8 and 9 percentage point higher likelihood than Ali. Moreover, in our study, it seems that the region of Stockholm, i.e., the country's capital and the region with the most rental objects available, seems to be the easiest region to find an apartment in if you have a name signaling Swedish, East Asian, or Eastern European ethnicity. However, for those with an Arab/Muslim-sounding name, there are no significant differences in call back rates across the three different regions of Sweden.

Moreover, since we sent out two applications to each advertising landlord, we were also able to make pairwise comparisons between our applicants' call back rates. We found that in two of the three possible pair combinations, Johan had the significantly highest call back rate and Ali the lowest. We also tested whether there are significant differences in call back rates *individually* for each applicant depending on in which pair they were included, but we did not find any such differences for any applicant. Thus, there are some significant differences in call back rates between the fictitious applicants when compared in pairs, but each applicant's call back rates are stable across the different pair combinations. This reinforces our result that it is the name itself that clearly matters when applying for an apartment or a room. We conclude that Johan seems to be most popular among the landlords, followed by both Milan and Yong, despite the fact that all our applicants were equally well-behaved, highly educated persons with good jobs and a steady income. Ali clearly had the lowest rate of positive call backs and the difference is largest when compared with Johan.

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We have also compared our results with a similarly designed previous study on the Swedish private housing market: Ahmed et al. (2010). Just like in our study, Ahmed et al. (2010) used the Swedish leading buy-and-sell website Blocket.se to send similar letters to private landlords. Our results confirm theirs, i.e., male applicants with Arab/Muslim-sounding names received fewer call backs from landlords than persons with a Swedish-sounding name. We can also see a decrease in the likelihood of receiving a call back over time: In our study conducted in 2017, a male with an Arab/Muslim-sounding name on average needed to respond to 70 percent more rental ads than a male with a Swedish-sounding name before he received a call back, while in 2008 the same figure was 24 percent. There are probably several reasons for this change, one possibly being the rise of right-wing populism across Europe and other parts of the world. Right-wing populist parties and organizations often have a xenophobic motive, which of course affects the targeted groups. Over the course of the three latest general elections in Sweden, the national-conservative right-wing party Sweden Democrats has gone from being a one-issue party with a focus on anti-immigration with no seats in the parliament to becoming the third largest party in the country. In 2010, the Sweden Democrats gained their first seats in the national parliament latch after winning 5.70 percent of the Swedish people's votes, and in the 2018 general election they won 17.53 percent of the votes (Valmyndigheten, 2019).

Numerous effects of some groups being discriminated in the housing market can be noted. Not only does it restrict people's equal right to housing, it can also lead to an economic cost for both society and individuals. When certain groups face difficulties finding a place to live, they also become restricted in their choice of jobs and life opportunities. If people lack the opportunity to live where they want, they may be forced to also give up job opportunities. In the long run, this can lead to a more marginalized society with some groups being left in isolation.

This experiment gave us an opportunity to examine the issue of ethnic discrimination in the private rental housing market. The advantage of the methodology used is that the applicants in the experiment were fictitious, which makes it possible to construct desirable characteristics for the purpose of the study without having to take into account the limitations any real people might have. However, a disadvantage of the methodology is that the result of the experiment does not say anything about who in the end would have been offered a rental contract; instead, all we know is who received a response to his housing application. Even if this of course is a first step to eventually being offered a contract, we cannot know for sure what the outcome would have been had we looked at actual contract offers. Moreover, it is not necessarily either

the case that the information in the applications we submitted was enough for a landlord to make a choice based on complete information. Also, as the study is limited to only examining ethnic discrimination among men, more research about discrimination among female applicants in the housing market is needed.

Finally, can we say something about the type of discrimination we found? A *taste-based discriminator* will discriminate despite knowing that two persons are equivalent in all relevant aspects (Becker, 1995), while a *statistical discriminator* will discriminate due to incomplete information (Phelps, 1972). The results show that Johan enjoyed a higher call back rate than Ali, Milan, and Yong. From a statistical discrimination perspective, it can be assumed that the landlords believed that Ali, Milan, and Yong had a lower ability to pay than Johan, or that they would not be equally trustworthy as tenants. However, since all the fictitious applicants submitted applications with equivalent information signaling well-behaved, highly educated persons with a strong ability to pay rent, it can be argued that the landlords' choices did not depend on differences in the information about the applicants. Instead, it seems that, despite knowing about the similarities of the applicants, landlords still prefer to rent to a person with a Swedish-sounding name. Thus, based on the results in the experiment, we conclude that we found stronger evidence for taste-based discrimination than for statistical discrimination.

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