# UNIVERSITY OF GOTHENBURG
## SCHOOL OF BUSINESS, ECONOMICS AND LAW

# Ethnic Discrimination in London's Housing Market

Are Bangladeshi women worse off applying for housing compared to White women?

## Abstract

This study investigates ethnic discrimination for sublets in London's rental housing market. By applying an experimental design, four female fictitious characters were created to apply for housing advertisements on the website Gumtree. The characters signaled two different ethnicities: Bangladeshi and White, all were females and had similar occupations in the applications. The applications were sent out to 399 landlords in London and randomly constructed into pairs of one Bangladeshi and one White applicant. The results were analyzed based on taste-based and statistical discrimination theory; however, drawing conclusions from these theories were challenging since limited information about the landlords was observable. Surprisingly, Bangladeshi applicants received more positive callbacks than Whites, nonetheless the results for the probability of receiving a callback depending on ethnicity was inconclusive. The study concludes that no inferences on ethnic discrimination between Bangladeshis and Whites could be made, but the gender and ethnicity of the landlords played a significant role for determining the rate of callbacks overall. The Bangladeshi applicant had 11.2 percentage points lower probability of receiving a positive callback when they were sent second to the White applicant, opposed to vice versa. This could suggest some differential treatment between the ethnic groups that was not detected with this experimental design.

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Department of Economics, Handelshögskolan
Authors: Matilda Fredholm & Sonja Stanicic
Supervisor: Melissa Rubio
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# 1. Introduction

Disparities because of socio-economic backgrounds have been present in different markets. In particular, the role of ethnic backgrounds on discrimination has been a long-standing question in economics. The labor market is one of the most prominent scenarios where such disparities take place.[1] However, this differential treatment is also observed in other markets, such as discrimination based on ethnicity and gender in the housing market. One notable example comes from the United Kingdom, where households with children are more likely to suffer from housing deprivation, and this effect differs between ethnic groups. In particular, the minority groups Pakistani and Bangladeshi are affected. Bangladeshi households are 63 percent more likely to struggle with housing deprivation compared to White-British (de Noronha, 2015).

This paper will study whether or not Bangladeshi minority in the UK suffer from ethnic discrimination in the London housing market. London offers an ideal scenario to study this question because its housing market is characterized with an under-supply of housing[2], and various minorities[3]. Studying the effects of discrimination is important for influencing policy implementation with possible implications on inequality. This paper is based on a field experiment that compares the probability of callback rates between Bangladesh-British and White-British women. The study finds no compelling evidence for discrimination, however, being sent last to the landlord disadvantaged the Bangladeshi applicant. Furthermore, non-White female landlords seem to have a negative impact on the outcome for the Bangladeshi applicant.

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[1] For ethnic discrimination in labor market between Black and White applicants in the US, see Bertrand and Mullainathan (2004), and Agan and Starr (2017) who investigates ethnic differentials for convicted White and Black men. For different outcomes of ethnic groups in Sweden against Arabic-Swedish, see Carlsson and Rooth (2007).

[2] The under-supply of housing in London is driving the market into a pressured situation along with the lack of affordable housing (Gallent, Durrant and May, 2017; de Noronha, 2015).

[3] Ethnic minorities have a higher probability of living in income poverty in the UK. The Bangladeshi minority was the largest minority group, 65 percent in 2007, living in income poverty (Palmer and Kenway, 2007).

## 1.1 Purpose

This paper investigates ethnic discrimination by using an online field experiment in the London housing market. This was accomplished by using fictitious female applicants signaling the ethnic backgrounds of Bangladeshi-British and White-British. The ethnicities are only signaled by names on applications sent to private landlords. The intention is to investigate the experiences of two ethnic groups in London regardless of their country of birth since all characteristics of the applicants are constant, except for names signaling ethnicity. Thus, the purpose of this experiment is to examine if Bangladeshis are discriminated against when applying for sublet housing. Ethnic discrimination papers usually use male applicants since they are expected to fare worse than women in the housing market. Also, most studies on ethnic discrimination are set in the context of the labor market, thus it is relevant to expand the knowledge on housing discrimination. No previous study has been found that exclusively investigates the experience of Bangladeshis on London's housing market. Thereby, the aim is to further expand the research on housing discrimination by only using female applicants and market experiences of Bangladeshis in London. Discrimination based on race is closely related to ethnic discrimination, but the term 'race' includes historic context of colonial past between the groups Bangladeshi and British, which will not be further discussed for the purpose of this paper's research question. Henceforth, differential outcomes based on 'ethnicity' will be the term applied for this paper.

## 1.2 Research Question

Addressing ethnic discrimination in the housing market will be attempted with the research question: *Is there discrimination against female applicants with Bangladeshi names compared to White names in London's housing market?* This derives from the hypothesis that there are ethnic differentials between Bangladeshi and White women in the UK. Answering this question will take characteristics of landlords into account as well as different regions in London. Connecting the results to the theoretical framework of discrimination will be attempted in order to answer the research question. Despite only looking at the experiences of women, differences in ethnic background might still lead to diverse outcomes when searching for housing. This is expected to result in a lower probability of receiving a callback for Bangladeshis compared to White applicants.

## 1.3 Background

Based on statistics provided by Office for National Statistics (2015) from the Census 2011[4], approximately 450 000 Bangladeshis lived in the UK and out of these about 220 000 lived within the areas of London.[5] Bangladeshis and Pakistanis face the largest employment gaps in London when compared to White [6] (Office for National Statistics, 2018).[7] However, there are gender differences in the ethnic employment gap; the gap between Bangladeshi/Pakistani and White males is smaller than for females.[8] A report from Trades Union Congress (2006) demonstrated that the minority groups Bangladeshi and Pakistani were disadvantaged both economically and socially, which would urge the development of policy implementation to tackle this inequality. In London, 89 percent of Bangladeshis are Muslims (GLA Intelligence Unit, 2011a) and discussion has surfaced regarding religious affiliation causing Bangladeshi's income and employment disadvantage (Institute for Social and Economic Research, 2016).

London has five subregions: Central, North, West, South and East, and consists of 33 boroughs (Mayor of London, 2016; London Councils, n.d.). The Census 2011 demonstrated that the highest concentrated areas of Bangladesh-borns were in the boroughs Tower Hamlets and Newham, situated in East, where 35 percent of all Bangladesh-borns in London resided (Office for National Statistics, 2015). Bangladeshi households in the UK remain concentrated in London and these specific boroughs, which could be explained by a fear of racism and negative experiences on the housing market (de Noronha, 2015). The White-British population in London was about 3.7 million in 2011, which corresponds to 45 percent of London's population (GLA Intelligence Unit, 2011b). Figure 1 and Figure 2 shows the concentration of the Bangladeshi and White-British population in London, 2011.

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[4] Population census in the UK is taken every ten years, the latest one was carried out in 2011. The data collected in the Census 2011 has been used for many reports regarding differentials across ethnic groups.

[5] Of the entire UK population, 0.7 percent were Bangladeshi. In London, 2.7 percent were Bangladeshi.

[6] In the Census 2011, White-British was one of 18 recognized ethnic groups. The classification did not include Irish, Gypsy or Irish Traveller, and Other which were separate ethnic groups (GLA Intelligence Unit, 2011b). White population is a hypernym including White-British, Irish, Gypsy or Irish Traveller, and Other.

[7] The employment gap in 2017 was -22 percentage points (Office for National Statistics, 2018).

[8] For Bangladeshi/Pakistani males the employment gap in 2017 was -11 percentage points compared to White. For women, the employment gap was -35 percentage points compared to White females (Office for National Statistics, 2018).
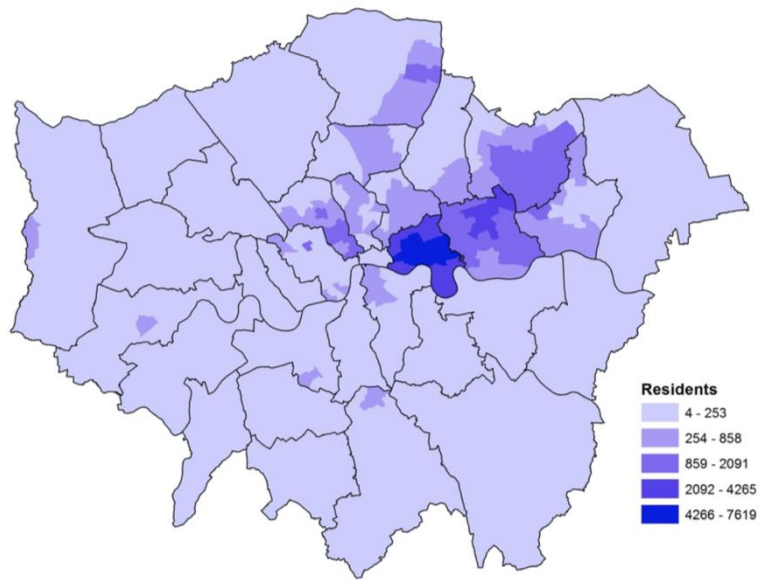
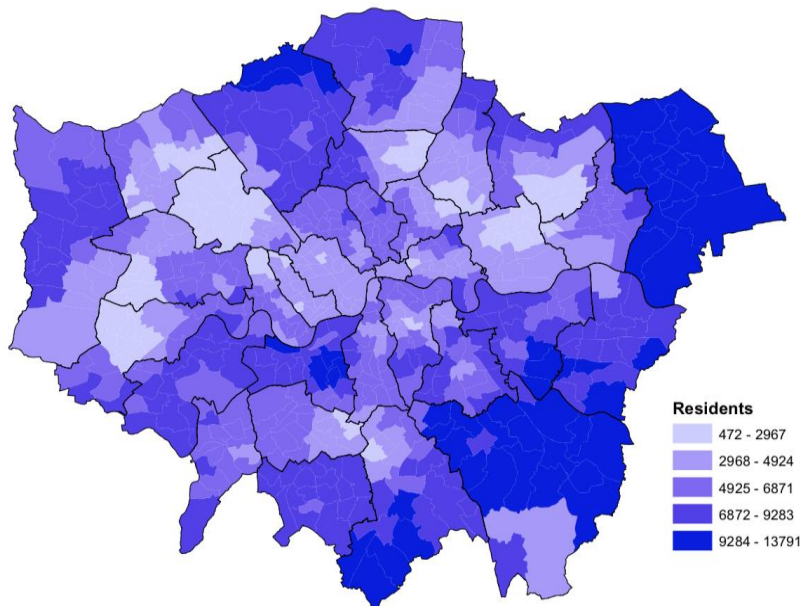Figure 1. Distribution of Bangladeshi Population Across London (GLA Intelligence Unit, 2011a)



Figure 2. Distribution of White-British Population Across London (GLA Intelligence Unit, 2011b)

## 1.4 Literature Review

This section presents a collection of studies on housing discrimination within different contexts.

### 1.4.1 Discrimination in Nordic Countries

In the Nordic countries various papers have conducted research in order to find discrimination on the housing market. In Finland, Öblom and Antfolk (2017) conducted a field experiment with the purpose to test for gender and ethnic discrimination on private rental housing. They used names to signal race and ethnicity, and the names were selected to signal Arabic, Swedish and Finnish backgrounds. They applied to 800 landlords with 1459 applications, randomizing the gender and ethnicity across pairs. Results showed that Arabic males and males overall experienced the highest discrimination, and this was uncorrelated to the gender of the landlord. A similar study was conducted by Bengtsson, Iverman and Tyrefors-Hinnerich (2011) in the housing market in Stockholm. The paper used four fictitious characters differentiating between gender and ethnicity (Swedish and Arabic/Muslim). Females with Swedish names were found to be most successful when applying for housing. Discrimination was found against Arabic females; however no significant results of discrimination were found for Arabic males. Differential treatment based on ethnicity was concluded to be larger than gender. They noted that Arabic females faced less ethnic discrimination when the landlords were not Swedish.

Another study by Ahmed, Andersson and Hammarstedt (2010) investigated whether increased information about applicants would alter previously detected discrimination. Similar to Bengtsson, Iverman and Tyrefors-Hinnerich (2011), the authors used four fictitious characters with two different races. Two groups were created, one from each had an application letter which provided more information than the other applicant in the group. Results showed that providing more information benefited all the applicants. However, the discrimination against the minority persisted, thus the increased information did not lead to reduced housing discrimination. An additional article by Ahmed and Hammarstedt (2008) investigated gender and ethnic discrimination. The aim was to examine whether an Arabic/Muslim male applicant faced discrimination when compared to White Swedish male and female applicants. The results indicated that the White female was preferred in all cases when counting callbacks and subsequently the White male was favored. The Arabic/Muslim male received the least

callbacks, hence, the authors argued that both ethnic and gender discrimination can be found in the Swedish housing market.

Regarding ethnic discrimination, Arai, Bursell and Nekby (2015) identified a reverse gender gap on the labor market, where women experience less discrimination compared to men. The authors conducted a field experiment sending out resumes with applicants signaling gender and Swedish/Arabic background through names. They attempted to compensate the expected outcome gap by increasing the merits of the Arabic applicant's resumes. The results indicated a reverse gender gap since the Arabic females benefited from the increased merits whilst the Arabic males did not. Concluding remarks stated that women probably were more desired on the market compared to men, despite belonging to the same ethnic group.

## 1.4.2 Discrimination in US and Europe

In Los Angeles, a field experiment was conducted on the basis of investigating discrimination towards African-American and Arabs on the housing market (Carpusor and Loges, 2006). Names signaled ethnicity and were measured compared to White characters. They applied to vacancies by randomizing fictitious characters to identical templates where each landlord received one applicant. The main findings showed that the least benefited groups were African-Americans and Arabs since they received the least callbacks. The callbacks were coded in three different categories, one positive for when the flat was available and two types of negative responses.

On the Greek housing market, Drydakis (2010) published a paper where the experimental design used actors who posed as applicants. Drydakis is one of few authors who based their research entirely on women, specifically between Albanian and Greek women. Landlords were randomly sampled from newspapers and phoned by two actors, one Albanian and one Greek. The Albanian female always called before the Greek female. The author justified the order based on that if the Greek female called first, the Albanian applicant could immediately be excluded. Thereafter, information was collected based on three levels of rentals categories: working, middle and upper class. The analysis reached the conclusion that the minority was discriminated in all three categories, but the effect was larger in the upper class. Drydakis suggested that an explanation could be the consequence of prejudices and stereotyping of Albanians. A similar study by Ondrich, Stricker and Yinger (1999) analyzed both ethnic and

racial discrimination by actors in the US. The actors were either White, Black or Hispanic and portrayed equal socio-economic attributes. The study was conducted on agencies only and one of the minorities were always paired up with the White applicant. The results pointed to discrimination across a variety of landlords which were believed to discriminate due to personal prejudices.

In general, many of the field experiments carried out in the US investigated discrimination against African-Americans or Hispanic minorities, whereas in Europe the minority used has more often been Arabic/Muslims. Nevertheless, in the UK there is limited research on the housing market regarding discrimination. A study conducted by Carlsson and Eriksson (2015) on London's housing market through the website Gumtree included various minorities. The aim was to test ethnic discrimination between British and Eastern-Europeans, Indians, Africans and Arabic males. Results indicated that the least benefited minority was the Arabic applicants, whilst Eastern-Europeans were least affected. Consequently, ethnic residential concentration was argued to be significant when investigating the degree of discrimination on the London housing market. This study adds to this field by only looking at women and the Bangladeshi minority in London.

# 2. Conceptual Framework

This section will present and explain the framework of the economic theory of discrimination. There are two acknowledged types of discrimination: taste-based and statistical. Composed, they bring forth different perspectives which mainly arise from the labor market but are equally applicable on other sectors in the economy. This chapter will present the basis of these theories and the application of them in the housing market.

## 2.1 Taste-based Discrimination

Becker's seminal theory of labor market discrimination is based on the concept of taste-based discrimination. The purpose of developing such a theory, according to Becker, was not to understand the reasons behind discrimination but to understand its consequences in economic decision-making. Discrimination occurs when market participants consider factors such as gender and race when making decisions about economic exchange without taking psychological roots of discriminatory behavior into account (Borjas, 2013). Taste-based discrimination assumes individual preferences, as a result prejudiced individuals will pay for following their preference through lower profits (Becker, 1971). Becker describes the *coefficient of discrimination (d)* when a utility maximizing firm considers the wage of the minority worker as the actual wage plus the extra cost of hiring from the unpreferred group, *d*. The greater the prejudice, the greater *d* will be and the perceived cost of hiring a minority worker will exceed the actual cost (Borjas, 2013).

Besides employer discrimination, Becker also describes employee and customer prejudice as an alternative source of discrimination. Employees can demand compensation for working alongside minority workers, and customers can decide to consume less or expect to pay less for goods from a firm due to the cost of interacting with minority workers (Becker, 1971). Connecting taste-based discrimination to the housing market, landlords will discriminate against the group they have prejudice against to avoid dealing with them. Furthermore, landlords may discriminate against a specific group to satisfy the prejudice held by the majority group of tenants who supply most of the business for the landlords (Yinger, 1986). This means that the entry of a minority group might lead to the majority group exiting the market which would result in turnover costs and based on this, landlords could choose to discriminate (Ahmed, Andersson and Hammarstedt, 2010). Furthermore, regardless of no observed

differences in reliability between two groups of tenants, a landlord who discriminates will, despite knowing there is no difference in reliability, still decide to favor tenants from the majority group to avoid renting out to minority tenants (Becker, 1971).

## 2.2 Statistical Discrimination

The theory of statistical discrimination was developed within the labor market primarily by Arrow (1973) and Phelps (1972). Phelps originated his theory by believing that employers are mainly profit maximizers and whenever there is imperfect information on the market, the employers will use observable characteristics to draw conclusions. Observable attributes are used as proxies for factors associated with productivity and efficiency, in order to compensate for the imperfect information on the market. Despite that all other attributes between the groups may although be indistinguishable, differential treatment may occur and hence indicate a discrimination. Thus, Phelps argues that the main reason to why discrimination is prevailing is due to incomplete information on the market.

Despite that discrimination is viewed unethical and illegal in many countries, it may still persist. One main driving force behind discrimination is the employers' previous statistical experience with the groups. The less benefited group may previously have agreed upon deprived terms, consequently making the employer presume that all other individuals within the group are identical to previous cases. On the other hand, the employer may have sociological beliefs about the less benefited group such as that Blacks, females or other minorities might face a disadvantaged upbringing due to racial hostility or societal prejudices. Nevertheless, statistical discrimination is not only harmful for its victims but for society itself, thereby it is of importance to address the issue mainly through policy implementations (Phelps, 1972).

Arrow (1971) argues that personal characteristics unrelated to productivity, particularly race, ethnic background and/or gender may be valued to the employer. Whenever these characteristics are allowed to play a role in market-decisions they give rise to discrimination. Arrow states that employers maximize utility and whenever there is a preferable option between two groups, which are substitutes to one another, this may indicate discrimination. Discrimination can be observed when the employer is willing to pay the cost of decreasing or

excluding the minority workers, or whenever employers from the majority group are willing to accept a lower wage in order to reduce the interaction with the minority group.

The primary platform of detecting statistical discrimination is typically acknowledged in the labor market, but likewise present in the housing market. The outcomes of the housing market are claimed to differentiate from the labor market. The main findings in the housing market show that there are less price differentials but higher degrees of simple exclusions (Arrow, 1971). In the context of housing, statistical discrimination will unfold in ways where the majority group is preferable over the minority subgroup due to imperfect information. Thus, the statistical experiences which the landlords may have will hinder minorities to find housing if there is imperfect information on the market. Consequently, the landlord may rather offer housing to the majority group than to the subgroup, even though it may result in a cost for the landlord. Stereotypical beliefs about the subgroup can be such that the minority is believed to be unable to pay rent, irresponsible or careless which is a direct consequence of imperfect information on the market.

# 3. Experimental Design

This section presents and discusses the choice of method, ethical consideration, data collection with the selection of advertisements and the construction of the applicant profiles, followed by the regression models for the analysis.

## 3.1 Method

In order to investigate discrimination, experimental settings in the field are often applied. Conducting experiments in the field allows the researcher to distinguish causal relationships with high external validity. Previous studies investigating areas of discrimination generally construct their experiment using audits or correspondence testing. Applying these two methods overcomes the issue of attempting to detect discrimination only through a regression approach. Previously used proxies for productivity were unable to explain group differences, thus making it difficult to draw any conclusion of discrimination (Neumark, 2012). An audit study uses applicants, audits, who are coached to act similarly with resumes showing identical qualifications. Correspondence testing design uses applicants on paper who are identical in merits, and applying this method allows the researcher to control for differences between applicants. This has led to a broad literature of field experiments applying these two strategies in discrimination economics on the labor and housing market (Neumark, 2012).

This study applied correspondence testing design where a pair of applicants was sent out to one landlord. All applicants were females and the different ethnic groups were signaled through the name of the applicant. The pair of applicants always consisted of one with a Bangladeshi name and one White, but the order of the sendout was randomized as well as the application template. Two names for each group were selected and four different templates which gave a combination of 96 pairs[9] and 16 different applicants. The templates sent the same information but were phrased differently. The platform used for the experiment was Gumtree[10], which was chosen due to it being the largest online classified advertisement website in the UK with a high supply of property advertisements for rental. Sending out fictitious applications allows the researcher to hold everything constant across the applications, making the variable of interest

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[9] When accounting for two choices of names for each group, the ordering of the pair, and the four templates which cannot be repeated within a pair ($2*2*2*4*3 = 96$).
[10] Official website: www.gumtree.com.

more easily isolated in order to find a causal relationship (Neumark, 2012). Holding everything constant across the sample is more difficult with auditors since human behavior cannot entirely be controlled for in the field. For this reason, the socio-economic status was aspired to be kept constant across the templates through similar occupations. Correspondence testing design was also deemed appropriate for this experiment due to less time consuming and costly compared to audit designs.

## 3.1.1 Ethical Consideration

When conducting a field experiment on the market it is important to acknowledge the ethical position of the research. The intention of the field experiment was to capture an effect that might be difficult to investigate in a laboratory environment, where participants aware of the experiment might alter their behavior. Thus, in order to investigate the effect on the real-life market, it is necessary to study the phenomena in the field to achieve greater external validity. By law in many countries it is illegal to discriminate based on age, gender and race.[11] However, measuring the extent of discrimination or even its existence may be difficult. This has led to field experiments becoming a common practice for detection of discrimination, where the methods are based on misleading actors on the market either through audits or correspondence.

Sending out fictitious applications to different housing advertisements with no real intention of renting the property, relies on successful deception in order to attempt measuring discriminatory behavior by private landlords (Riach and Rich, 2002). In order to not hinder successful transactions on the housing market, all the landlords who were sent the fictitious applications were rejected within one day of them receiving the pair of applicants. This is referred to as the minimal inconvenience argument by Bovenkerk (1992), who argues that no harm is posed on the market since individuals are not identified in publications and the inconvenience of landlords is minimized by promptly declining the positive callbacks. The ethical justification is more difficult for audit design, since researchers sometimes deceive their auditors about the purpose of the experiment to minimize alteration of behavior, known as a double-blind experiment (Riach and Rich, 2002). This would further motivate this experiment's choice of correspondence design to test discrimination on the housing market.

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[11] The Equality Act 2010 offers legal protection from discrimination in the UK.

## 3.2 Data Collection

The applications were sent out between November 14 and November 24, 2018 to housing advertisements posted on Gumtree in London's five subregions. The main outcome of interest was the callback from the landlord for each applicant, which was either positive or negative.[12] The callbacks were recorded from the message inbox on the accounts of the fictitious applicants, one day after the landlord received the application. In total, 399 advertisements were responded to with 798 applications.

### 3.2.1 Selection of Advertisements and Landlords

The recording of the data occurred in three stages: selection, applying and recording. Firstly, the advertisements were found through the search engine on Gumtree, filtered on subregions, rent, recently published advertisements and private landlords. The subregions included three other categories which were later re-coded into the five selected subregions for the analysis based on the categorization by Mayor of London (2016). The rent of the advertisements was restricted to no more than 3000 GBP per month, the rent ceiling emerged to increase the sample as much as possible during the time of the data collection, but also keeping it reasonably within the applicants' eligibility for payment. On the website the recently published advertisements were sorted first, meaning that the sample of advertisements reflected the supply of housing during the experiment's time period. Advertisements were published by private landlords and agencies, but agencies were excluded because individual behavior was of interest. Advertisements were also selected based on it being a room or a smaller flat, to make it authentic for a female applicant to apply for housing alone. If an email to the landlord was not provided in the ad, an application could not be sent to that landlord. Certain advertisements also contained specific requirements for their tenant, specifying male and some ethnicity making the applicants non-eligible, these were also excluded. Figure 3 shows the number of selected advertisements responded to per day, and the number of excluded advertisements. Landlords posting several advertisements were important to note, such that only one of their advertisements was responded to. Sending more than one pair to the same landlord would increase suspicion and could bias the results.

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[12] Callbacks were recorded as either positive or negative for each applicant. A positive callback meant that the landlord responded asking for further information, giving an offer for a viewing of the flat/room, offer or general positive answer indicating further correspondence. A negative callback meant no response from the landlord or receiving a direct rejection.
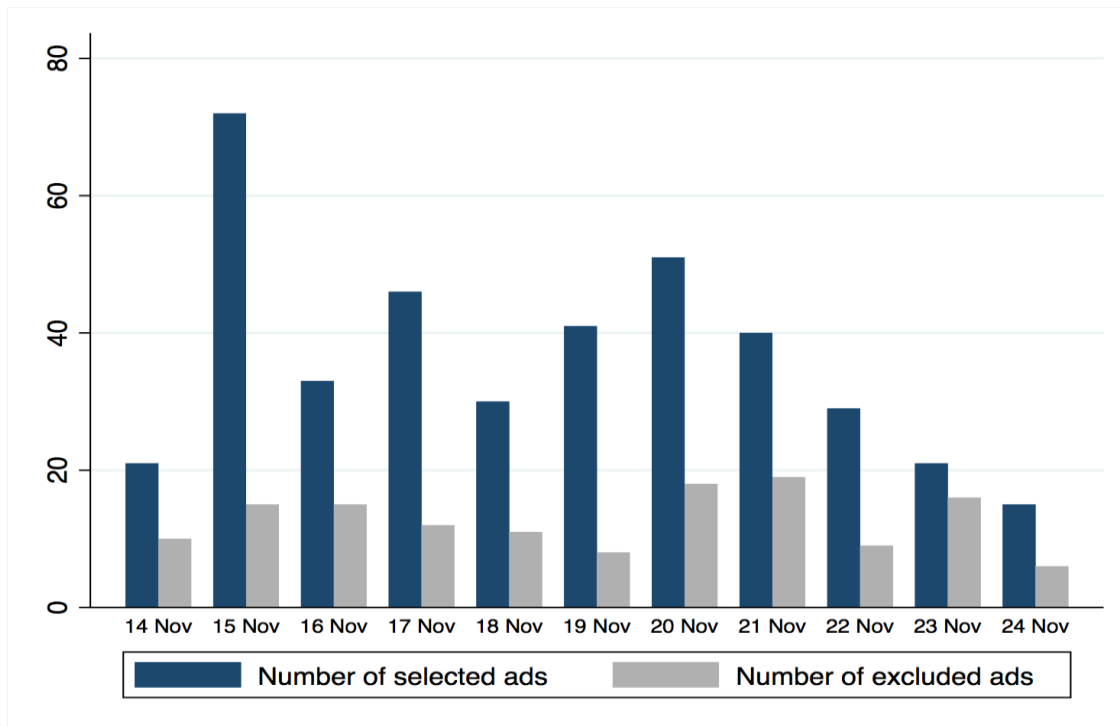
Figure 3. Advertisements Responded to Per Day

Before sending out the applications, information about the advertisement and landlord was recorded. Such information included: location of the advertisement (borough, subregion), flat or room, rent, name of landlord profile, which applicant was going to be sent first and the date when the advertisement was published and responded to. Secondly in the process, the pair of applicants responded to the advertisement. The templates were randomly matched to a randomly drawn name and sent to the landlord posting the selected advertisement. The order was randomized, with a time frame of 30 minutes between sending the first and the second applicant. Due to a fast response rate from the landlords the pair had to be sent out in short approximation to each other. Since the purpose of this research is to investigate discrimination, the aim was to provide the landlords with a choice between a Bangladeshi and White applicant, whilst holding all other information constant. The time frame thereby ensures that there would be a selective choice since the landlord would have received both applicants before choosing to respond. Lastly, one day after the applications had been sent out, the callbacks were recorded, and all landlords were rejected. The landlords who did not respond to the applications were declined as well to avoid inconvenience if they responded later than one day.

## 3.2.2 Applicant Profiles

Two names were selected for each group, and four templates for sending out the applications were also created. The pairs and the templates were randomized. The ordering of the pair was also randomized in order to test whether the callback depended on which applicant was sent first. The templates for responding to the advertisements were written in a neutral and similar language providing the same information about the applicant's age, occupation, hobbies and suggesting a viewing of the flat/room.[13] In order to isolate the effect of differential treatment based on ethnicity the templates were constructed to control the observable information, signaling the ability to pay rent (occupation), holding age and gender identical.[14] During the experiment, it was noticed that landlords quite often specified "no DSS, benefits, tax credits"[15] in their advertisements. Since the templates all signaled occupations with above average income, the total number of callbacks would not be affected by this requirement on the market. If the fictitious applicants stood out in eligibility for landlords against real applicants, the experiment might have generated more positive callbacks than on average in this online market. Since real applicants also could have been responding to the landlord, the importance of having high quality templates increased to record sufficient positive callbacks for the analysis.

## 3.2.2.1 Signaling Applicant Ethnicity

Signaling race or ethnicity through names in applications is believed to convey more affiliation compared to other manipulations (Bertrand and Mullainathan, 2004). To identify names that were ethnically distinctive for Bangladeshi and White, four surnames were selected based on the top three frequently occurring names for each ethnic group.[16] The first names were also chosen based on their frequency between ethnic groups by looking at birth name statistics from 1988, which would include the birth cohort of the applicants. The finalized names used as the fictitious characters for the applications were: Nilufa Begum and Tanzila Miah (Bangladeshi), Kate Brown and Emma Taylor (White).[17] Combining distinctive first and surnames would

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[13] Age was 30 in all four templates to signal young but old enough to have reached a stable career. Occupations all signaled above average salary to make the applicant viable as a reliable tenant for the landlord. There could be a potential bias from the landlords perceiving the four different occupations differently, however, randomizing the four templates across all applicants prevents this from affecting the results. See Appendix A for templates.

[14] The templates were controlled by peers to ensure that they were written similarly but not identically and signaling the same information.

[15] DSS (Department of Social Security) refers to governmental benefits for housing rents.

[16] Choosing surnames based on frequency used website www.names.mappinglondon.co.uk, which shows the fifteen most frequent surnames in London based on data from 2001.

[17] The names were verified by London peer for authenticity.

result in a stronger signal for ethnicity. Connecting names to specific ethnic groups might be difficult, especially when Bangladeshi names could be associated with other South Asian groups. However, since data could be found for the most frequently occurring last names by ethnicity in the UK, an interpretation of the results in relation to Bangladeshis can be made. To avoid suspicion from landlords it was necessary to include randomized names and to randomize between multiple templates, thus using more names increases the probability of signaling ethnicity. Since the signal for ethnic group is crucial for the experiment's internal validity more names minimize the risk of one name not signaling ethnicity to the landlord.

## 3.2.3 Coding Variables

The name of the landlord profile was used to proxy for gender and ethnicity, if the name or profile name was too ambiguous the characteristic was set to unknown. The ethnicity was coded based on the name sounding British/European or not, which hereafter will be referred to as non-White landlords. Coding the gender and ethnicity of the landlord was attempted in order to interpret different treatments of applicants depending on landlord characteristics. These characteristics would be important for the interpretation of the results connected to discrimination theory. The location of the flat/room was recorded for borough and subregion. The subregions had to be re-coded based on specific borough to ensure consistency. Thus, the spread between the subregions seemed even at first, but after re-coding all observations the distribution was more disproportionate.[18] For a full table of coded variables and explanations, see Appendix B.

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[18] Multiple advertisements overlapped across subregions on the website, making the first process of coding inaccurate and giving the impression of an even distribution of advertisements across subregions.

## 3.3 Regression Model

In order to answer the research question of this study, three regression models will be used: simple, with controls and with interaction terms. Regressions show the probability of receiving a callback for applicant *i*, and the properties of advertisement and landlord *j*.

$$Callback_i = \alpha + \beta_1 Bangladesh_i + \varepsilon_i \qquad (1)$$

Regression (1) shows a simple OLS functional form. The OLS estimation method is applied since the problematics of endogeneity is ruled out due to the randomization of names, order, pair and templates. The issue of omitted variables can be dismissed since unobservable factors, which the landlord could draw inferences about, are ruled out between the applicants due to randomization. Likewise, simultaneity can also be eliminated since the probability of callbacks cannot affect the coefficient vectors due to the experimental design. Regression (2) includes control variables.

$$Callback_i = \alpha + \beta_1 Bangladesh_i + \beta_2 Order_i + \gamma X_j + \varepsilon_i \qquad (2)$$

Bangladesh is a dummy variable indicating the ethnicity of an applicant, and Order is a dummy equal to one if the White applicant of the pair is sent first. X is a vector containing characteristics from the advertisement: gender and ethnicity of landlord, rent, accommodation type and categorical variable for the subregions. Interaction terms are furthermore included to investigate combined effects of two variables on the outcome. Based on (2), regression (3) adds several interaction terms:

$$Callback_i = \alpha + \beta_1 Bangladesh_i + \beta_2 Order_i + \gamma X_j$$
$$+ Female\ Landlord_j\ x\ Non-White\ landlord_j + Bangladesh_i\ x\ Order_i \quad (3)$$
$$+ Bangladesh_i\ x\ Rent_j + Bangladesh_i x\ Female\ Landlord_j$$
$$+ Bangladesh_i\ x\ Non-White\ landlord_j + \varepsilon_i$$

Landlord characteristics are believed to influence the rates of callbacks which could also differentiate between Bangladeshi and White applicants. Thereby, the sample is split according to ethnicity which enables this paper to relate the characteristics of landlords to each group. Using interaction terms, the results will aid the analysis regarding connection to discrimination theory. The term Female x Non-White landlord shows the effect of when the landlord is female and non-White on the probability of callback for both ethnic groups. Furthermore, each interaction term is used in order to in depth analyze the relationship which the coefficient may have with the Bangladeshi applicant. The regression models will be applied using a linear probability model.

# 4. Descriptive Statistics

This section presents the descriptive statistics of the experiment. The first section shows the randomization of the experiment, then the collected sample is presented and lastly the statistics of callbacks.

## 4.1 Randomization

During the experiment, 798 applications were submitted to 399 landlords in London. The landlord always received a pair of applicants; one Kate/Emma and one Nilufa/Tanzila who were randomly drawn and paired with one of the four templates. Table 1 demonstrates the occurrence of all names and templates across the sample. The order of sending out the pairs was also randomized, and for almost half of the sample the White applicant was sent before the Bangladeshi. As expected from randomization, the names have been used approximately 25 percent across all applications, and likewise for the templates.

Table 1. Randomization of Applicants

|  | Observations | Template 1 | Template 2 | Template 3 | Template 4 |
|---|---|---|---|---|---|
|  | 798 | 196 (24.56) | 206 (25.81) | 200 (25.06) | 196 (24.56) |
| Nilufa | 217 (27.19) | 48 (22.11) | 57 (26.27) | 57 (26.27) | 55 (25.35) |
| Tanzila | 182 (22.80) | 50 (27.47) | 51 (28.02) | 39 (21.43) | 42 (23.08) |
| Kate | 215 (26.94) | 56 (26.05) | 49 (22.80) | 52 (24.19) | 58 (26.97) |
| Emma | 184 (23.06) | 42 (22.83) | 49 (26.63) | 52 (28.26) | 41 (22.28) |
| Order = 1 | 390 (48.87) |  |  |  |  |

*Note* Table 1 shows frequency of the names and templates across the sample (n = 798.) Values within brackets show frequency in percentage. Order equal to one indicates when White applicant (Kate/Emma) is sent first.

## 4.2 Describing the Sample

Table 2. Descriptive Sample Statistics for Selected Advertisements

| Category | Variable | Observations | Proportion (%) |
|---|---|---|---|
| Subregion | Central | 120 | 30.08 |
| | North | 27 | 6.77 |
| | West | 108 | 27.07 |
| | South | 50 | 12.53 |
| | East | 94 | 23.56 |
| Accommodation | Flat | 282 | 70.68 |
| | Room | 117 | 29.32 |
| Landlord gender | Female | 104 | 26.07 |
| | Male | 233 | 58.40 |
| | Unknown | 62 | 15.54 |
| Landlord ethnicity | Non-White | 129 | 32.33 |
| | White | 209 | 52.38 |
| | Unknown | 61 | 15.29 |

*Note* Observation for sample is 399 since these are the number of advertisements with individual landlords, which have been sent one pair of applicants.

The selection of landlords was coded into variables presented in Table 2, where the dispersion of subregions and representation of accommodation type and landlord characteristics was shown in the sample of advertisements responded to. The sample was not randomized across regions, accommodation type or landlord but based on most recently published advertisements. Thus, this variation will not reflect equal representation based on randomization but displays the supply of housing advertisements on this particular website.[19] Across the subregions, most advertisements responded to were located in Central, and the subregion with least

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[19] The sample collected had the most advertisements in Central, which is an area with no particular concentration other than White thus discrimination can be expected against Bangladeshis. If discrimination is not found in this sample, expanding it would unlikely change the results. Thus, the selection is unlikely to bias the results.

advertisements was North. The reason why North was underrepresented is likely due to the difficulties coding for subregions on Gumtree, where advertisements overlapped from other subregions when finding advertisements in North. For a demonstration of the spread of the sample across London's boroughs, see Appendix C. The majority of available accommodation was for smaller flats in London, compared to single rooms. Coding the ethnicity and gender of the landlords was based on their profile names, where ambiguous names were noted as unknown. Of all landlords, only about 15 percent were unknown in gender and ethnicity. The majority of the landlords were interpreted as White and male.

Table 3. Values for Means by Subregions

| Variable | Type | Total | Central | North | West | South | East |
|---|---|---|---|---|---|---|---|
| Rent | | 1036 | 1108 | 967 | 1021 | 1025 | 977 |
| Flat | | 70.68 | 81.67 | 55.56 | 64.15 | 67.35 | 69.15 |
| Landlord | Female | 30.86 | 34.90 | 56.52 | 20.48 | 35.56 | 26.25 |
| | Non-White | 38.17 | 24 | 31.58 | 44.19 | 40.43 | 48.83 |

*Note* All values are presented as means. Rent is measured in GBP per month. Flat is the type of advertised accommodation, and a dummy variable; either flat or room. Female landlord is a dummy; either female or male (observable gender for landlords = 337). Non-White landlord is also a dummy; either non-White or White (observable ethnicity for landlords = 338).

Table 3 presents the values of the means by subregions, the table likewise demonstrates the characteristics of landlords and accommodation type spread by subregion. The mean of the rent was lowest in North and East whilst highest in Central, which might be expected since central parts of big cities usually have higher rental fees. Overall, the mean of rent across regions was seemingly consistent. Central had the highest share of flats, 81.67 percent of the mean, whilst North had the highest share of rooms. The characteristics of the landlords were shown to be inconsistent across regions. North demonstrated the largest share of female landlords, accounting for 56.52 percent of the mean, whilst East and West had the largest share of non-White landlords. North stood out in many aspects which might be explained by the smaller sample size (only 6.77 percent of selected advertisements). East was expected to have the highest concentration of Bangladeshis which could result in a large share of Bangladeshi

landlords, which was although not the specific variable in this case. However, East was the region with the highest share of non-White landlords. Central had the smallest share of non-White landlords.

## 4.3 Descriptive Results

The callbacks of the two ethnic groups are presented in Table 4. Bangladeshis benefited when they were sent first in the pair, and notably Whites also received a higher share of positive callbacks when the Bangladeshi was sent first. When the Bangladeshi applicant was sent first, they received 33 more positive callbacks compared to when sent last. The White applicant only had a difference of 10 callbacks depending on if they were sent first or last. This suggest that the Bangladeshi applicant was more sensitive to which order they were sent in, unlike the White applicant whose change in callbacks depending on order was quite consistent. In total, the experiment generated 455 positive callbacks and 343 negative, out of 798 applications. The reason why 57 percent of all callbacks were positive may be connected to the quality of the templates, which all signaled high wage occupations and gave a dependable image to the landlord.

Table 4. Callbacks by the Order of the Pair

| Applicant | | Callback | |
|---|---|---|---|
| | | Positive | Negative |
| Bangladesh | | 229 | 170 |
| | Order = 1 | 98 | 97 |
| | Order = 0 | 131 | 73 |
| White | | 226 | 173 |
| | Order = 1 | 108 | 87 |
| | Order = 0 | 118 | 86 |

*Note* All callbacks are presented as the number of observations (n = 798). Order is a dummy variable indicating which applicant was sent first to the landlord, either White was sent first (Order = 1) or Bangladesh (Order = 0). Callback is measured in the response from the landlord which was either positive or negative.

Figure 4 shows the number of applications sent out per subregion and the positive callbacks for White and Bangladeshi applicants. The response rate was quite consistent across the subregions, however highest in South and lowest in West.[20] Overall, Bangladeshi applicants received more positive callbacks than White applicants.
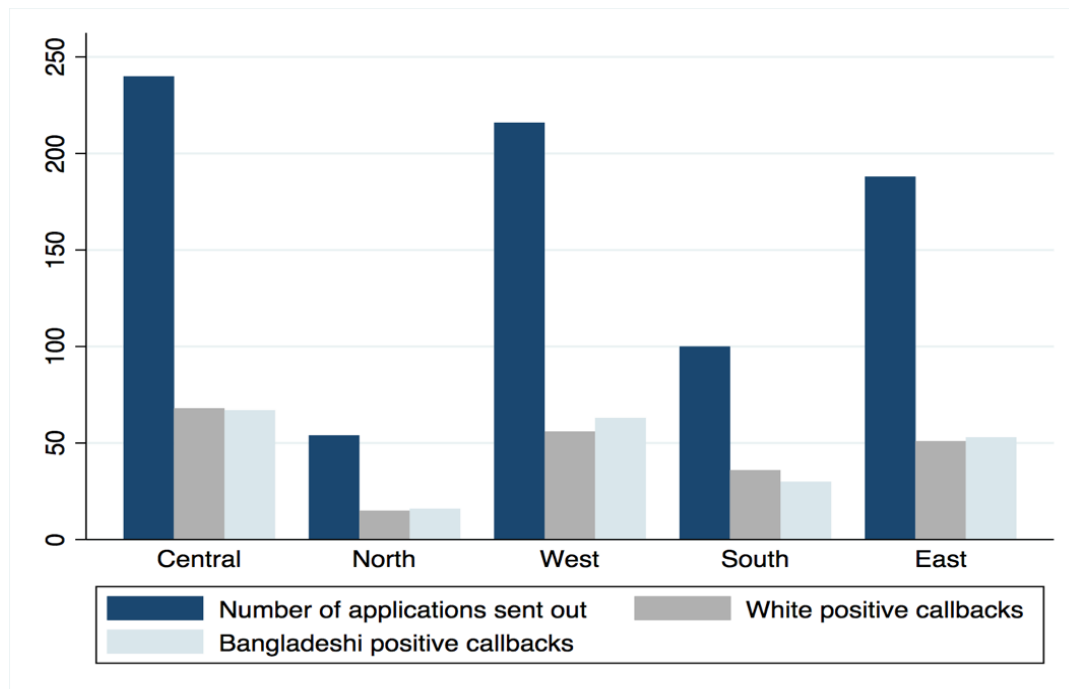


*Note* Subregions in London on the x-axis, number of applications on the y-axis.

Figure 4. Results in Callbacks by Subregion

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[20] The share of positive callbacks in the subregions were: 56 percent (Central), 57 percent (North), 55 percent (West), 66 percent (South), 55 percent (East).

# 5. Results

This section presents the results from OLS regression models and discusses interpretations. To investigate the degree of discrimination the results are presented in two ways; first the probability of receiving a callback is estimated between Bangladeshi and White applicants. Secondly, the sample is split between the groups of applicants in order to allow for heterogeneous effects, which are not included in the main specification in order to avoid having triple interaction terms. The results are based on regression models (1), (2) and (3) by using a linear probability model.[21] Thereafter, a robustness test is conducted excluding East.

## 5.1 Probability of Callbacks

Table 5 shows the main results, the first column presents the basic estimation, the second includes controls and the third adds interaction terms to investigate heterogeneous effects. The variable of interest, Bangladesh, is a dummy variable that takes the value 1 when the applicant is Bangladeshi, otherwise zero. Note that observations decrease when including controls for landlord characteristics since the gender and ethnicity could not be coded for all selected landlords.[22] When including controls and interaction terms, the value for R-squared increases as expected. Studies on discrimination do not question the origins of discrimination but rather assumes its existence, which could explain relatively low values for R-squared, since there are many other explanatory factors for differences in callbacks.

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[21] Results from using logit and probit models shows the marginal effect on callbacks and indicate that the coefficients and significance levels do not change regardless in comparison to linear probability model. The linear probability model is presented because it provides an easier interpretation of the results. See Appendix D for table of results using logit and probit models.

[22] This occurred when it was not possible to identify either gender or ethnicity based on the names of landlords.

Table 5. Probability of Callbacks

| Dependent variable: Callback | | | |
|---|---|---|---|
| Variables | (1) | (2) | (3) |
| Bangladesh (0/1) | 0.008 | 0.000 | 0.019 |
| | (0.035) | (0.039) | (0.123) |
| Order (0/1) | | -0.063 | -0.003 |
| | | (0.040) | (0.056) |
| Rent | | 0.000*** | 0.000* |
| | | (0.000) | (0.000) |
| Flat (0/1) | | -0.068 | -0.064 |
| | | (0.055) | (0.055) |
| North | | 0.063 | 0.089 |
| | | (0.087) | (0.088) |
| West | | 0.007 | -0.001 |
| | | (0.054) | (0.054) |
| South | | 0.073 | 0.066 |
| | | (0.063) | (0.063) |
| East | | -0.005 | -0.012 |
| | | (0.055) | (0.055) |
| Female landlord (0/1) | | 0.053 | 0.142** |
| | | (0.044) | (0.067) |
| Non-White landlord (0/1) | | 0.046 | 0.136** |
| | | (0.044) | (0.067) |
| Non-White x Female landlord | | | -0.266*** |
| | | | (0.092) |
| Bangladesh x Order | | | -0.111 |
| | | | (0.078) |
| Bangladesh x Rent | | | 0.000 |
| | | | (0.000) |
| Bangladesh x Female landlord | | | -0.009 |
| | | | (0.085) |
| Bangladesh x Non-White landlord | | | -0.017 |
| | | | (0.084) |
| Constant | 0.566*** | 0.448*** | 0.399*** |
| | (0.025) | (0.076) | (0.097) |
| Controls | No | Yes | Yes |
| Interactions | No | No | Yes |
| Observations | 798 | 632 | 632 |
| R-squared | 0.000 | 0.027 | 0.044 |

*Note* Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Each column corresponds to regressions (1), (2) and (3). Regional fixed effects are included in column (2) and (3), Central is the benchmark. Observations decrease because of unknown gender and ethnicity for landlords.

The probability of the Bangladeshi applicant receiving a callback did not change considerably when including the controls and interaction terms. In the third model, Bangladeshis had 1.9 percentage points higher probability of receiving a callback in comparison to Whites. However, this effect was not statistically significant, which could suggest that there were no differences in treatment based on ethnic groups. Order does not seem to affect the probability of callbacks overall since the coefficients, both individually and in the interaction term, were not significant, although negative effect for the Bangladeshi applicant when the White was sent first. Rent was

significant at a low positive magnitude, which implies that the probability of a callback increases for advertisements with higher rent. If the accommodation type was a flat, it was more difficult to receive a callback compared to a room, however, this effect was also not significant and thus no evidence can strengthen this. The regional variables demonstrated no significant effect on the probability of a callback. The characteristics of the landlords had statistical significance, which implied that the gender and ethnicity of the landlord mattered for the applicants' outcome. All interaction terms with Bangladeshi show negative effects, except when interacted with Rent, but the effects were not significant.

The coefficient for Rent was small in magnitude albeit positive and significant at 10 percent level. This would suggest that the probability increases for all applicants receiving a callback when the rent is higher. One explanation for this could be that landlords with higher rents were more careful selecting their tenant and thus prioritize applicants with high income occupations. Regions West and East demonstrated a negative effect, which indicated that the probability of callbacks overall decreased when responding to advertisements in these regions. However, since no regional coefficients were significant, not much can be discussed regarding differentials in the probability of callbacks across regions.

The effect of female and non-White landlords separately had positive coefficients. This meant that female landlords in comparison to male landlords favored all female applicants, and likewise non-White landlords compared to White landlords. Since these coefficients were significant at 5 percent, the gender and ethnicity of the landlords played a role determining the outcome. The reason why Female landlords had a positive effect on the probability of callbacks, could be because all templates signaled female applicants. Applicants had 14.2 percentage points higher probability of receiving a callback from a female landlord compared to a male landlord, with 5 percent significance. Interacting Female landlords with Bangladeshi applicants, gave a negative effect which would imply that female landlords decrease the opportunity of Bangladeshi callbacks. This combined effect is not significant and can therefore not be assured.

The interaction term Non-White Female landlord demonstrated a negative effect with a statistical significance at 1 percent. The negative effect of 26.6 percentage points implied that callbacks in general decreased when applications were sent to a non-White female landlord. Comparing this to the benchmark of the interaction Non-White x Female, indicated that White

males have a less negative effect on the probability of callbacks in general for all applicants. The combination of being a non-White female landlord seems to supply suggestive evidence for influencing the outcome negatively. One possible explanation for this outcome may be due to that callbacks from landlords who are non-White females may not respond within the timeframe of recording the callbacks compared to male landlords and/or White landlords. If they do not respond within one day of receiving the applications, their outcome is coded as a negative callback. Hence, the effect may not indicate a specific negative response, but a lack of activity on the website or not responding quickly.

## 5.2 Probability of Callback by Ethnicity

Table 6 presents the probability of callbacks divided by ethnic background[23], where column (1) presents the results for White applicants and column (2) presents results for the Bangladeshi. The sample decreased to 316 observations due to division of ethnicity along with previously unknown landlord characteristics. Bangladeshi's probability of receiving a callback when they were sent after the White applicant was 11.2 percentage points lower compared to when the they were sent first, and this is significant at 5 percent level. Likewise, the coefficient of Order for Whites was negative, but not statistically significant and thereby the evidence is not credible enough to prove otherwise. This could mean that the order affects Bangladeshis negatively to a greater extent. A speculation to this negative effect, could be that landlords who received the White applicant first immediately replied and discarded the following applicant. There might also be reasoning alike 'first come first served' where one of two equal applicants in merits have to be favored. Thus, the one who responded first got the housing offer which in this case disadvantaged Bangladeshis to a greater extent than Whites, despite both applicants being sent first for equal amounts of applications. This negative effect hints to discrimination towards the minority group. It could be that landlords prioritize the White applicant despite equalized merits between the applicants. Hence, this implies that the ethnicity could be a determining factor for landlords.

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[23] This is done in order to allow for more heterogeneous effects. Previously in Table 5, this could have been shown by the use of triple interaction, but it would have complicated the interpretation of the results. Thereby, doing this, we are aware that splitting the sample leads to lower efficiency, but at least it can provide a better understanding of the results.

Table 6. Probability of Callbacks for Bangladeshi and White Applicants

| *Dependent variable: Callback* Variables | (1) White | (2) Bangladesh |
|---|---|---|
| Order (0/1) | -0.005 | -0.112** |
| | (0.056) | (0.056) |
| Rent | 0.000 | 0.000*** |
| | (0.000) | (0.000) |
| Flat (0/1) | -0.042 | -0.085 |
| | (0.079) | (0.076) |
| North | 0.070 | 0.107 |
| | (0.126) | (0.124) |
| West | -0.028 | 0.026 |
| | (0.077) | (0.076) |
| South | 0.130 | 0.002 |
| | (0.086) | (0.090) |
| East | -0.030 | 0.007 |
| | (0.079) | (0.077) |
| Female landlord (0/1) | 0.134* | 0.143* |
| | (0.074) | (0.073) |
| Non-White landlord (0/1) | 0.138* | 0.117 |
| | (0.074) | (0.074) |
| Non-White x Female landlord | -0.251* | -0.282** |
| | (0.131) | (0.130) |
| Constant | 0.402*** | 0.415*** |
| | (0.106) | (0.105) |
| Controls | Yes | Yes |
| Interactions | Yes | Yes |
| Observations | 316 | 316 |
| R-squared | 0.039 | 0.056 |

*Note* Robust standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Both columns use regression (2) with one interaction Female x Non-White. Regional fixed effects are included in column (1) and (2), Central is the benchmark. Observations decrease because of unknown gender and ethnicity for landlords and running regressions separately on White and Bangladeshi callbacks.

Some regions demonstrated a negative effect towards the White applicants, whilst only positive coefficients were presented for Bangladeshi applicants. Perhaps this might indicate that landlords in certain regions preferred Bangladeshis over Whites. If so, the landlords might belong to ethnic minorities and thereby favored them over Whites. However, due to lack of significance no conclusion can be drawn about the regional differences between the Bangladeshi and White outcome. Female landlords indicated a positive effect on callbacks for both applicants. The probability of receiving a callback increased by 13.4 percentage points for the White applicant if the landlord was female, compared to male landlord. For the Bangladeshi, the probability was 14.3 percentage points higher than male landlords to receive

a callback from female landlords. This indicates that female landlords had no preference between the two ethnic groups, and this was significant at 10 percent. Non-White landlords increased the probability for Whites of receiving a callback, with a significance at 10 percent. Thus, the ethnicity of the landlord seemed to matter for the White applicants, but no significant evidence was provided for the Bangladeshi. This could also relate to the fact that landlords who belong to an ethnic minority might have preferred White applicants. One speculation to this could be that minority groups, or people within the same group compete against each other on local markets, and thereby wish to minimize increased competition by giving preference to applicants of the majority group. This is based on the assumption that minority groups do not compete against the majority group. If this is the case, non-White landlords would prefer Whites over Bangladeshis, and thus, offer housing to Whites to a greater extent. Another speculation could be that non-White landlords may have a preference towards Whites which is based upon past experiences with the group.

For White applicants sent to non-White female landlords the effect was negative. The probability for the White applicant to receive a callback decreased by 25.1 percentage points, whilst for the Bangladeshi applicant the probability was 28.2 percentage points lower than if the landlord was a White male. Both effects were significant, at 10 percent for White and 5 percent for Bangladeshi. In addition to previous discussion, the negative coefficient might have been driven by the inactivity of non-White female landlords on Gumtree during the experiment. There could be many explanations for this, one possible being that the negative effect increases in relation to White male landlords. Over 50 percent of the collected sample consisted of White male landlords, which may indicate a higher rate of activity on the London housing market.

## 5.3 Robustness Test

In order to validate the results, sensitivity analysis was performed. Robustness test is one way of performing such sensitivity analysis by excluding or adding regressors to the initial model, in order to test the plausibility of the confounding effects. The robustness test excluded the variable East due to it being the largest Bangladeshi concentrated area and the region with the highest share of non-White landlords. The inclusion of East could bias the results, which could be the reason for why this thesis did not find any differential treatment between Bangladeshi and White applicants. If most of Bangladeshis' positive callbacks come from a place where many Bangladeshis or ethnic minorities live, perhaps discrimination would be unobservable. After eliminating the problematic region from the estimation; if the coefficients do not change substantially, the effects can be considered robust. Consequently, if the magnitudes and signs are consistent the results may be validated for drawing conclusions of causality, considering that the applications were sent out through randomization. The results from the robustness test increased the coefficients, however not large in magnitude.[24]

There were two notable differences: the significance levels for Flat and Non-White landlord. The coefficient for Flat increased in magnitude with the same sign and became significant at 5 percent. This suggests that the estimation for whether the accommodation was a flat or a room was not a robust result on the probability of callback.[25] Hence, when East was excluded the dummy Flat seemed to matter for the outcome. The estimate for non-White landlord was consistent in sign and magnitude, however it loses its statistical significance excluding East from the sample. This might be due to East accommodating the largest share of non-White landlords in the sample of this experiment. In general, the results appeared robust with the exceptions of change in significance for Flat and Non-White landlord.

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[24] For full table of results after conducting robustness test excluding East, see Appendix E.
[25] Out of the total number of flats in all regions, 23 percent were in East. Therefore, it is unlikely that the share of flats in East explains the change in significance.

# 6. Discussion

The analysis of the results will be discussed in connection to the theories of taste-based and statistical discrimination.

## 6.1 Taste-based Discrimination

Previous studies have used the background and gender of the landlord to determine if preferences matter when measuring callback rates. White landlords are expected to prioritize White applicants, and non-White landlords would be more inclined to favor Bangladeshi applicants (Carlsson and Erikson, 2015).[26] In this study, the results indicate that female landlords did not favor any of the two types of applicants, signaling that there was no preference between ethnic groups. Instead, female landlords favored both female applicants, which might suggest that gender played a larger role than ethnicity in this case. However, since this study does not consider male applicants the reverse gender gap in ethnic discrimination (Arai, Bursell, and Nekby, 2015) cannot be confirmed.

Non-White landlords showed a positive effect for both White and Bangladeshi applicants, but larger and only significant for White applicants. This could be because non-White landlords prefer Whites over Bangladeshis in order to avoid increased competition within minority groups in the landlords' residential area. Non-White landlords may also be more assertive against Bangladeshi applicants based on prejudiced preferences. Yet, this could simply mean that non-White landlords respond positively to White tenants to a higher extent because White tenants belong to a larger group in this housing market. Based on the assumption that the landlord is already renting out to a majority of White tenants, a Bangladeshi tenant could be less favored by other White tenants within one building or residential area. Thus, the landlord would favor the applicant who they consider acclimatizing better. Landlords might fear that accepting more Bangladeshi tenants could result in White tenants seeking housing elsewhere. In other words, the minority group can ensue the majority group to exit the market. The presence of taste-based discrimination can be indicated by this result, but the effect of non-White landlords on White callback is only significant at 10 percent, which suggests that the evidence is unsatisfactory. The coefficient for non-White landlords was also not shown robust

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[26] Carlsson and Eriksson (2015) found that the regional concentration of ethnic minorities in general benefited minority applicants in London, and not just the specific ethnic group of the applicant.

when excluding East, which could indicate that this effect cannot be generalized to the entire sample.

Non-White female landlords had a negative effect on the probability of receiving a callback for both White and Bangladeshi applicants, which suggests that there is no differential treatment based on ethnicity. This effect is also significant for both groups and could be explained by non-White females being less responsive than other landlords. Conclusively, evidence for taste-based discrimination from non-White female landlords could not be found against the applicants in this experiment since preference across the groups was not indicated in the results.

## 6.2 Statistical Discrimination

The descriptive results of this paper indicate that the share of positive callbacks in general was slightly higher for the Bangladeshi subgroup in comparison to White. Drawing parallels to statistical discrimination the results could indicate that, despite providing equivalent information, that Bangladeshis were favored over the White applicants. However, if the templates were written with incomplete information, the landlords would have incentives to proxy the subgroups based on ethnicity. In this case, the landlords might prefer Bangladeshis over Whites due to past experiences. This study was unable to find compelling evidence to confirm the existence of statistical discrimination. One main explanation may be that the templates reflected overqualified applicants. The main aim was to make the applicants equivalent to one another and with the help of randomization minimize the effect of preferring one applicant over another due to her place of work or age. Hence, this contradicts the theoretical concept that the landlords may have sociological beliefs that the Bangladeshi minority is disadvantaged due to racial hostility and societal prejudices (Phelps, 1972). Perhaps Bangladeshi females within high wage occupation sectors and at the age of thirty are not disadvantaged and thereby no such inferences were made by the London landlords.

When dividing the regression by ethnicity in Table 6, Rent was significant for the Bangladeshi applicants, indicating that higher rents would lead to an increase in the probability of callbacks. With some significance, this paper presents evidence that the rent is an important factor when determining the probability of callbacks. Thereby, landlords providing accommodation with higher rents favor the Bangladeshi applicant. Perhaps, landlords expect Whites to be less reliable regarding paying rent due to former experiences with Whites and thereby in this case

have greater trust towards Bangladeshis with higher occupation. Unfortunately, due to no significance for White applicants one cannot put them in relation to one another, hence indicating no statistical discrimination based on Rent.

Previous research from Arai, Bursell and Nekby (2015) conclude that ethnic discrimination has a weaker effect on females compared to males, since the difference in callbacks disappeared after enhancing merits between the ethnic subgroups of female applicants in their study. Thereby, one cannot dismiss the fact that the templates did not provide all the desired information to the landlord. Perhaps landlords are very careful when selecting tenants, and factors such as conviction history, education, place of upbringing, which were not signaled in the applications, might matter. As many other authors have discussed, the effect of gender discrimination might subtract the effect of ethnic discrimination, which may indicate that the Bangladeshi applicant is preferred, based on positive callbacks, on condition that landlords may have inferences about the White subgroup.[27] Based on the regressions, little evidence implied that statistical discrimination is a suitable explanation to why the Bangladeshi minority was favored in the market. In addition, more information about the landlords is needed to capture their perceptions towards minorities, which departs from the scope of this study. [28]

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[27] See Bengtsson, Iverman and Tyrefors-Hinnerich (2011) and Ahmed, Andersson and Hammarstedt (2010).
[28] Little information was provided about the landlords using this experimental methodology. So far, no study in economics has been able to completely disentangle between taste-based and statistical discrimination (Neumark, 2018). Therefore, this paper only discusses its plausibility.

# 7. Conclusion

The purpose of this paper has been to investigate the research question: *Is there discrimination against female applicants with Bangladeshi names compared to White names in London's housing market?* The study was unable to find evidence for ethnic discrimination against applicants with Bangladeshi names. Suggestive evidence was found for the impact of landlord characteristics on the probability of receiving a callback regardless of ethnic background. With some certainty, the results suggest that non-White female landlords disadvantaged the Bangladeshis. In general, the results of this paper can conclude that landlord characteristics are important when researching ethnic discrimination.

Analyzing the characteristics of the landlords showed that females did not discriminate based on ethnicity, which may be because of the quality of templates and/or the gender of the applicant. Non-White female landlords had a negative effect on the applicants, which might suggest less activity on Gumtree for landlords who are female and non-White. These findings are interesting for providing a deeper insight to Bangladeshi women's experience when applying for housing in London; however, results cannot confirm direct discrimination. The results suggested that Bangladeshis were more sensitive to the order than White applicants, despite a slightly higher success in callbacks, which could imply higher susceptibility of callback fluctuation for the minority applicant. Isolating the results to taste-based or statistical discrimination has been inconclusive, and the results are only suggestive. The observable information about the landlords provided insufficient material to connect the analysis to discrimination theory. Yet, the results showed that there are valid reasons to question how landlords select tenants based on their own preferences, prejudices or former experiences.

When interpreting the results, one must be careful since the coefficients might not have been precisely estimated because of the limited sample size. Additionally, one needs to consider that London is inhabited by many different ethnic groups, and discrimination may reveal itself differently across ethnicities. This could be an additional explanation to why this paper does not find discriminatory practices on the housing market. For example, religion could be a determining factor for inequality for Bangladeshi women. Consequently, the results of this paper are within the scope of London's housing market, Gumtree, private landlords, a short timeframe, females and two ethnic groups. Despite this, the results provide a good first step to understand discrimination based on different ethnic backgrounds.

## 7.1 Further Research

Advancing research on discrimination is of importance for developing and implementing policies in both the labor and housing market. Conducting field experiments on the housing market expands the understanding of different experiences and opportunities. London is a city with multiple ethnic and racial minorities with structural gaps in levels of education, wage and area of residence. Thus, it would be interesting to carry out a similar experiment when not holding occupation constant and instead having two types of application templates: one with a lower-wage occupation and one with a higher-wage occupation. Comparing the outcomes of female applicants to males would also be of relevance to analyze if there is a gender gap in ethnic discrimination.

Further research could include multiple ethnicities in London in order to give rise to a more evident discrimination and possibly establish which type. The analysis would be given more depth if callbacks were coded with more categories beside 'positive' and 'negative'. The way the landlord responded varied in tone and asked for further information, and it would be interesting to measure the variation in how the applicants were responded to. Another interesting aspect would be to conduct an audit study on London's housing market by using Gumtree as a platform and contacting landlords by calling them. Using audits, the results could perhaps indicate alternative conclusions from this study if treatment and tonal differences of landlords could be measured. Also, continuing conversation and responding to landlords' follow up questions could give more information about differential treatment which could lead to more extensive discrimination analysis, however, this would require more careful ethical consideration. In order to test the platform where the data of the study is collected, a pilot would be recommended to construct the rules for coding variables and avoid potential confounds.

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# Appendix

## A. Templates

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**Template 1**
Hello!
My name is X and I am 30 years old. I work as a lawyer at a private firm and enjoy cooking in my free time. I am a calm and tidy person, and do neither drink nor smoke. I saw your ad and I'm interested in renting your place! Please send me a reply if you would like to know more about me or if it would be possible to arrange a viewing.

Kind regards, X

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**Template 2**
Hi, I saw your ad and thought it suited me well as I'm looking for a place to rent. My name is X and I'm turning 30 soon. I'm quiet and neat as a person and enjoy playing badminton and being with friends. I consider myself a healthy person, as I do not care for smoking or alcohol. For the last few years I've been working in the IT sector as a project engineer. Send me a message if you have any questions, I would also like to come for a viewing if possible.

Greetings, X

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**Template 3**
Hello, I'm interested in your ad! My name is X, I'm 30 and I've been working as a business analyst at a company for the past three years. In my spare time I enjoy going on walks or watch a film. I don't like to party and I do not smoke. Please get in touch if you need more information! I was wondering if it would be possible to get a viewing?
Regards, X

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**Template 4**
Hi!
I came across your ad and decided to introduce myself. I am 30 years old and I'm looking to rent your place. I work as a doctor and would be a calm tenant since I work most of the time. I do not smoke or party. Most of my free time I spend at the gym or socialise with friends. If it would be possible for us to arrange a viewing I would be happy to hear from you.
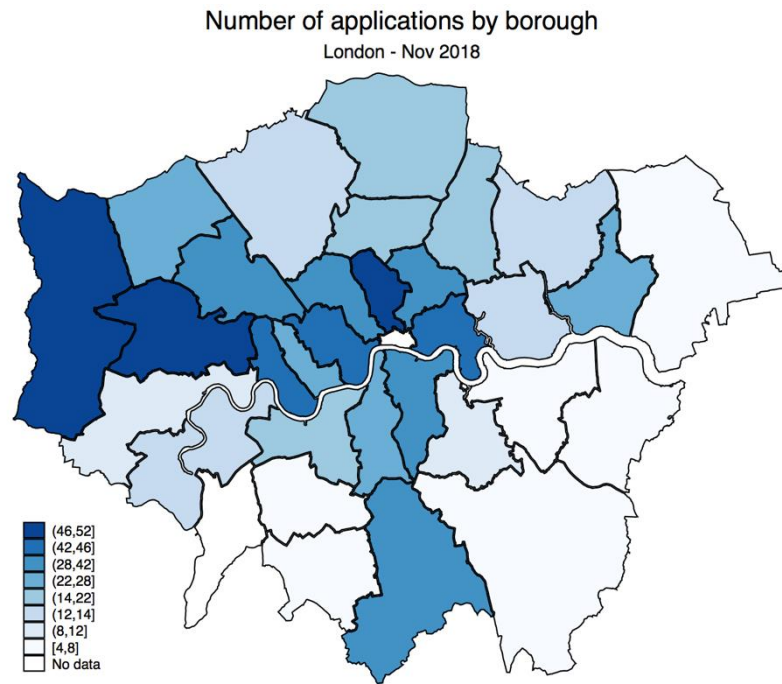Sincerely, X

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# B. Table of Variables

| Variables | | Definition |
|---|---|---|
| Pair | eg. Tanzila2 + Emma4 | First name signals order, number signals which template |
| Callback | | 1 if positive, 0 if negative |
| Bangladesh | | 1 if Bangladeshi applicant, 0 if White applicant |
| Order | | 1 if White applicant sent first, 0 if Bangladeshi applicant sent first |
| Landlord characteristics | Female | 1 if female, 0 if male |
| | Non-White | 1 if non-White, 0 if White |
| Rent | | Rent of flat/room in GBP per month |
| Flat | | 1 if ad was for flat, 0 if room |
| Subregions | Central | 1 if advertised flat/room in Central |
| | North | 2 if advertised flat/room in North |
| | West | 3 if advertised flat/room in West |
| | South | 4 if advertised flat/room in South |
| | East | 5 if advertised flat/room in East |
| Borough | | Location area of advertised flat/room |
| Date | Ad published | The date of when the ad was published |
| | Sendout | The date of sending out applications |
| | Callback | The date of callback for White and/or Bangladeshi applications |

*Note* Positive callback was recorded when the landlord responded asking for further information, giving an offer for a viewing of the flat/room, offer or general positive answer indicating further correspondence. A negative callback meant no response from the landlord or receiving a direct rejection. The gender and ethnicity of the landlord was recorded based on the names of the landlord's profile. Subregions were coded based on boroughs and the regional categorization by Mayor of London (2016).

# C. Sample Across London Boroughs



Number of applications by borough
London - Nov 2018

(46,52]
(42,46]
(28,42]
(22,28]
(14,22]
(12,14]
(8,12]
[4,8]
No data

# D. Marginal Effect of Callbacks using Logit and Probit Models

| *Dependent variable: Callback* Variables | (1) Logit | (2) Probit |
|---|---|---|
| Bangladesh (0/1) | 0.015 | 0.013 |
| | (0.130) | (0.127) |
| Order (0/1) | -0.003 | -0.002 |
| | (0.057) | (0.057) |
| Rent | 0.000* | 0.000* |
| | (0.000) | (0.000) |
| Flat (0/1) | -0.067 | -0.066 |
| | (0.055) | (0.055) |
| North | 0.095 | 0.093 |
| | (0.089) | (0.089) |
| West | -0.001 | -0.001 |
| | (0.055) | (0.055) |
| South | 0.069 | 0.068 |
| | (0.063) | (0.063) |
| East | -0.011 | -0.012 |
| | (0.056) | (0.056) |
| Female landlord (0/1) | 0.143** | 0.144** |
| | (0.066) | (0.066) |
| Non-White landlord (0/1) | 0.137** | 0.136** |
| | (0.066) | (0.066) |
| Non-White x Female landlord | -0.276*** | -0.275*** |
| | (0.086) | (0.087) |
| Bangladesh x Order | -0.117 | -0.117 |
| | (0.081) | (0.081) |
| Bangladesh x Rent | 0.000 | 0.000 |
| | (0.000) | (0.000) |
| Bangladesh x Female landlord | -0.007 | -0.010 |
| | (0.090) | (0.088) |
| Bangladesh x Non-White landlord | -0.016 | -0.016 |
| | (0.878 | (0.086) |
| | | |
| Controls | Yes | Yes |
| Interactions | Yes | Yes |
| Observations | 632 | 632 |
| Pseudo R-squared | 0.033 | 0.033 |

*Note* Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Regression (3) has been applied for the logit marginal effects (column 1) and probit marginal effects (column 2). The coefficients give dy/dx for discrete change of dummy variable from 0 to 1. Regional fixed effects are included in column (2) and (3), Central is the benchmark. Observations decrease because of unknown gender and ethnicity for landlords.

# E. Robustness Test on Callback without East

| *Dependent variable: Callback* | | | |
| Variables | (1) | (2) | (3) |
|---|---|---|---|
| Bangladesh (0/1) | 0.003 | -0.008 | 0.028 |
| | (0.040) | (0.045) | (0.136) |
| Order (0/1) | | -0.079* | -0.031 |
| | | (0.046) | (0.064) |
| Rent | | 0.000*** | 0.000** |
| | | (0.000) | (0.000) |
| Flat (0/1) | | -0.133** | -0.145** |
| | | (0.062) | (0.062) |
| North | | 0.054 | 0.093 |
| | | (0.088) | (0.089) |
| West | | 0.009 | -0.006 |
| | | (0.054) | (0.054) |
| South | | 0.076 | 0.063 |
| | | (0.064) | (0.063) |
| Female landlord (0/1) | | 0.053 | 0.160** |
| | | (0.050) | (0.074) |
| Non-White landlord (0/1) | | -0.024 | 0.120 |
| | | (0.052) | (0.078) |
| Non-White x Female landlord | | | -0.391*** |
| | | | (0.108) |
| Bangladesh x Order | | | -0.082 |
| | | | (0.089) |
| Bangladesh x Rent | | | 0.000 |
| | | | (0.000) |
| Bangladesh x Female landlord | | | 0.010 |
| | | | (0.095) |
| Bangladesh x Non-White landlord | | | -0.040 |
| | | | (0.099) |
| Constant | 0.574*** | 0.515*** | 0.450*** |
| | (0.028) | (0.083) | (0.106) |
| | | | |
| Controls | No | Yes | Yes |
| Interaction | No | No | Yes |
| Observations | 610 | 474 | 474 |
| R-squared | 0.000 | 0.032 | 0.062 |

*Note* Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. For robustness test, East has been excluded. Each column corresponds to regressions (1), (2) and (3). Regional fixed effects are included in column (2) and (3), Central is the benchmark. Observations decrease because of unknown gender and ethnicity for landlords, and excluding East.