Ethnic Discrimination in the Housing Market: Evidence from Israel*

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Abstract

Israel is characterized by a very high degree of residential segregation along ethnic (Arab/Jewish) lines. This paper is the first to explore the role of discrimination in creating this pattern. Using a large-scale correspondence study in the online market for rental housing, I show that Jewish landlords are 2.4 times (or 49 percentage points) more likely to confirm the availability of a posted property when receiving a query from a Jewish rather than an Arab potential renter. A nominally independent survey of these landlords reveals that discrimination is mainly driven by tastes, as reflected in their political orientation. Further analysis suggests that social pressure from neighbors may also affect landlords' decisions.

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1 Introduction

Israel is the home of two ethnic groups: about 80 percent of the population is Jewish while the rest is Arab. These groups differ along many dimensions, including religion, language and cultural norms. One manifestation of this ethnic cleavage is the very high degree of residential ethnic segregation. Arabs and Jews live in different localities or in separate neighborhoods within integrated localities (Figure 1).

[Figure 1]

While ethnic segregation may, to some extent, reflect people's natural tendency to associate with people like them (homophily), there are reasons to expect much more migration of Arabs into Jewish localities and Jewish neighborhoods within ethnically integrated localities than is observed in the data. On the supply side, the main factor "pushing" Arabs out of Arab localities is planning and construction policies that have made housing supply in these localities increasingly scarce. On the demand side, the young generation of Arabs – who are more educated than their parents – is "pulled" to Jewish localities that offer a high quality urban society, more open and more achievement-oriented, and is increasingly reluctant to continue living in Arab localities that are characterized by consistently worse socioeconomic conditions relative to ethnically integrated and Jewish localities (see Online Appendix A for a more elaborate discussion of the factors driving Arab migration into Jewish localities).

Considering the factors mentioned above, why is Israel's housing market still so ethnically segregated? A possible reason may be that Arabs looking for housing in ethnically integrated or Jewish localities encounter discrimination. One form of discrimination can be referred to as "institutionalized discrimination", i.e. discrimination that is driven by deeply rooted social norms supporting segregation, which in turn translate into discriminatory legislation. In a recent paper, Troesken and Walsh (2017) review the circumstances under which preferences for segregation in the US in the early 20th century transformed into municipal or state laws banning Blacks from renting or buying

apartments in "White" neighborhoods. In Israel, this mechanism takes various forms such as reduced allocation of land to Arab (vs. Jewish) localities and explicit laws preventing Arabs from joining Jewish localities. For example, in 2011, following an attempt by an Arab family to join a Jewish communal rural locality, Israel passed a law enabling small Jewish localities to screen out applicants who are "not suitable for the sociocultural fabric and community life." The Israeli parliament recently passed the "nationality law" which declares, among other things, that "the state views the development of *Jewish* settlement as a national value, and shall act to encourage and promote its establishment and strengthening" (my own emphasis).[1]

Another form of differential treatment encountered by Arabs – which is the focus of this paper – is "private discrimination", that is, discrimination exhibited by landlords and neighbors. Anecdotal evidence suggests that such discrimination is not uncommon and there had even been cases where prominent public figures were documented calling landlords not to rent their apartments to Arabs. Unlike in many other developed countries, in Israel there is currently no law banning discrimination against potential renters. While there have been several attempts – primarily by Arab and left wing parties – to pass a bill prohibiting such behavior, to date, none of these attempts bore fruit.

In spite of the ample anecdotal evidence and the severe implications – in terms of inferior socioeconomic conditions, education opportunities and job prospects – residential ethnic segregation has for the Arab population, this paper is the first to rigorously study ethnic discrimination in the Israeli housing market.

To measure the *extent* of discrimination, I used a correspondence study methodology and sent over 6,000 text messages in response to ads posted between November 2016 and September 2017 on Israel's largest online website of ads for rental apartments. I focused on ads posted in all eight ethnically integrated localities and in the sixteen largest Jewish localities. To each targeted

[1] In an earlier version of the nationality law, this article facilitated the establishment of localities for a single ethnic group. Since the number of Jewish Israelis who wish to reside in Arab localities (which are usually very poor) is miniscule, it is likely that the main objective of the proposed article was to allow for the establishment of Jewish only localities.

ad I sent one text message containing a short query regarding the availability of the posted property and signed it with either an Arab or a Jewish sounding first name.

The results indicate that Jewish landlords are 2.4 times, or 49 percentage points, more likely to confirm the availability of a posted property when receiving a query from a Jewish rather than from an Arab potential renter. Ethnic discrimination is a widespread and stable phenomenon: I find economically and statistically significant evidence of discrimination in all localities and sub-periods examined.

This study also attempts to identify the *sources* of discrimination against Arabs in the market for rental housing, and in particular to disentangle taste-based (Becker (1957)) from statistical discrimination (Arrow (1972) and Phelps (1972)). In the current context, the taste-based discrimination model would argue that Jewish landlords discriminate against potential Arab tenants because they incur a disutility from interacting with them. According to the statistical discrimination model, Jewish landlords discriminate against potential Arab tenants because they lack information about the individual applicant. What they do know is that the Arab renter belongs to a group who they believe is, on average, more "problematic" (e.g. less trustworthy, more violent) and thus use this information to make an inference concerning the individual applicant.

To disentangle the role of tastes from that of statistical perceptions in affecting individual discriminatory behavior, I carried out a nominally independent survey of the landlords contacted during the correspondence study. Two measures were used to elicit landlords' tastes for discrimination against Arabs. The first measure is the political orientation of the participant. This question is not only straightforward and commonly used in surveys in Israel, but has also been proven in the past to be a good proxy for Jewish-Israelis' attitudes toward Arab-Israelis and the Israeli-Palestinian conflict (e.g. Arian and Shamir (2008)). As an additional measure of prejudice, I use the degree to which a participant supports a legal ban on inter-ethnic marriages. A similar question has appeared in the American General Social Survey since its beginning in 1972 and is commonly viewed as a good proxy for discriminatory

tastes (e.g. Charles and Gurian (2008)). In contrast, surveys in Israel seldom ask participants about their degree of support for a ban on inter-ethnic marriages, and therefore participants may have found this question surprising and confusing.[2]

To capture the statistical perceptions of landlords, I used a novel approach. I identified a set of applicant attributes that (1) may be important for landlords considering a potential tenant, (2) likely concern Jews more generally when interacting with Arabs and (3) are measured and documented in official data. In particular, I chose to focus on the involvement of Arabs in crime and on the perceived severity of the threat of terrorism. In practice, the survey provided participants with official Israeli police data on the involvement of Jews in violent and property crime and asked them to estimate the involvement of Arabs in such crimes. In addition, since many Jewish Israelis are particularly concerned about interacting with the Arab population due to fear of politically motivated violence, participants were asked to estimate the severity of the terrorism wave Israel had experienced between October 2015 and December 2016, just prior to the start of the experiment. The idea is that if participants who quote higher numbers (e.g. in terms of the involvement of Arabs in crime) are also more likely to discriminate against Arabs in the rental housing market, then discrimination is statistical in nature.

Results show that discriminatory behavior is strongly correlated with political orientation at the individual level. The extent of ethnic discrimination among landlords holding centristic or right-leaning political views is twice as high as that among landlords holding left-leaning political views. When examining the correlation between discriminatory behavior and the degree of support for a law banning inter-ethnic marriages, I find that those who strongly disagree with the need for such a law discriminate significantly less than others against Arab renters. Controlling for tastes, the statistical perceptions of

[2]In Israel, only religious marriages between Jewish couples (conducted by the Chief Rabbinate of Israel) are recognized by the state. Civil marriages are recognized only if they take place abroad. While many secular Jewish couples choose the option of civil marriages abroad, there are currently very few inter-ethnic marriages in Israel.

landlords are correlated with discriminatory behavior in the expected direction – landlords who provide higher estimates for the involvement of Arabs in violent or property crime, and especially those who perceive the terrorism threat as more severe, are somewhat more likely to discriminate against Arab renters – but these correlations are relatively weak and not always statistically significant. Thus, tastes seem to matter more than statistical perceptions at the individual level.

Another way to study the association between the prejudicial attitudes of landlords and their discriminatory behavior in the housing market is by measuring how the extent of discrimination varies with the characteristics of the neighborhood the apartment is located in. This method builds on the assumption that neighborhood characteristics serve as a good proxy for the characteristics of landlords. To do so, I used the address of the property for rent that was listed in the ad to merge the results of the correspondence study (and the landlord survey) with administrative data on the neighborhood the apartment is located in. These data include information on the political orientation of the neighborhood. Consistent with the results at the individual level, I find that the extent of discrimination against Arab potential renters is significantly lower when the apartment is located in a neighborhood where a large share of the population holds left-leaning political views.

The availability of information on political orientation at the neighborhood level, in combination with this information at the individual level, allows me to examine how discriminatory behavior is affected by social context. A landlord's decision not to rent her property to an Arab applicant may reflect the preferences of the people residing in proximity to the apartment rather than (or in addition to) her own. This is especially true in Israel, where a consistent finding in surveys is that a large share of Jews does not want to have Arab neighbors (Zussman (2013)). Using the merged data set, I test whose preferences – i.e. landlords' or neighbors' – play a more significant role in generating discriminatory behavior.

Results show that once individual prejudicial attitudes are controlled for, the share of voters for left wing parties in the neighborhood is still negatively

associated with discriminatory behavior, but this result is no longer statistically significant. To further examine this issue, I split the sample into two groups of landlords: those residing in the same locality as the advertised property and those residing in a different locality. One might expect that social pressure may be less important relative to the landlords' own preferences in the latter case – where the landlord is less likely to interact with those neighboring his property, is less exposed to their preferences and is therefore more inclined to act upon his own preferences – and this is indeed what I find.

This study contributes to several strands of the literature. First, it adds to the extensive literature studying discrimination in the housing market. Early research in this literature has used an audit study design to detect differential treatment of minority applicants (Yinger (1986), Page (1995) and Ondrich, Ross and Yinger (2003)). In an audit study, two or more testers who are selected and trained to be similar on all observable characteristics except for the characteristic of interest (e.g. ethnicity) are sent to personally inquire about a rental property or job posting. The main weaknesses of this method are the researchers' inability to fully control for differences between testers and the possibility of an "experimenter effect", i.e. testers' behavior being influenced by their awareness of the purpose of the study and possibly of its main hypothesis (Heckman and Siegelman (1993)).

To overcome these difficulties, researchers have adopted the correspondence study methodology, where fictitious written applications – designed to be identical in all characteristics except for the examined attribute (e.g. race) – are sent in response to rental ads.[3] Within this literature, some papers go beyond documenting discrimination and try to also explore the mechanisms driving it. As mentioned above, some studies do this by using neighborhood characteristics as a proxy for the characteristics of landlords (Ahmed and Hammarstedt (2008), and Acolin, Bostic, and Painter (2016)). Other papers try to disentangle taste-based from statistical discrimination by manipulating the amount

[3]For an extensive review of the early experimental literature, in the housing market as well as in the labor and product markets, see Riach and Rich (2002). For a review of the more recent literature, see Rich (2014) and Bertrand and Duflo (2017).

and the quality of information provided to landlords by potential renters. The idea is that if providing the decision maker with a positive signal reduces discrimination, then discrimination is statistical in nature (Ahmed, Andersson and Hammarstedt (2010); Hanson and Hawley (2011), and Ewens, Tomlin and Wang (2014)).

This paper makes two contributions to the literature studying the sources of discrimination in the housing market. The first is based on my finding that political orientation is strongly associated with statistical perceptions. This correlation suggests that disentangling taste-based from statistical discrimination by modifying the amount of information provided to landlords is problematic, since the willingness of landlords to respond to such signals may itself depend on their tastes. Second, by combining neighborhood level data with a survey of individual landlords, I am able to separate the role of the preferences of neighbors from that of the preferences of landlords. This distinction is similar to the one Becker (1957) made when he suggested that an employer's decision to discriminate could reflect either his own discriminatory tastes or the preferences of the other workers he employs (or of customers).

The second strand of the literature this paper contributes to links data on decision makers' actual discriminatory behavior with data on their beliefs or attitudes toward minorities. The idea of comparing discriminatory actions and discriminatory attitudes dates back to the 1930's, when Richard LaPiere traveled across the U.S. accompanied by two of his friends, a Chinese couple. LaPiere found that while most hotels and restaurants were welcoming to *real* Chinese customers, when they were later called and asked about a hypothetical scenario of catering to Chinese customers, most business owners expressed prejudice (LaPiere (1934)). In contrast to LaPiere, many of the later studies found strong correlation between discriminatory behavior and stated attitudes. Some of these studies used surveys to directly ask decision makers about their attitudes (Glaeser et al. (2000), Oreopoulos (2011), Bar and Zussman (2017), Enos and Gidron (2018) and Islam et al. (2018)), while others tried to elicit decision makers' beliefs using tools such as the Implicit Association Test (Rooth (2010)).

Within the literature linking actions and attitudes in an attempt to disentangle the sources of discrimination, my paper is most closely related to Zussman (2013), who was the first to combine a correspondence study with a follow-up survey of participants in the Israeli context. Zussman (2013) used this methodology to study the extent and the sources of ethnic discrimination in the Israeli online market for used cars and found that both Arab sellers and Arab buyers are discriminated against in this market.

Several differences between this paper and Zussman (2013) are worth noting. First, due to the well-known effects of neighborhoods on individuals' outcomes, the implications of discrimination are much more severe in the housing market than in the market for used cars.[4] Second, the extent of discrimination in the housing market documented in the current paper is an order of magnitude larger than the one documented by Zussman (2013). Third, the comparison between the two papers reveals an interesting insight – while Zussman (2013) finds that discrimination in the market for used cars is motivated by statistical rather than taste-based considerations, I find that discrimination in the housing market is primarily associated with tastes. This suggests that the mechanisms driving discrimination depend on the context examined and, specifically, on the type of interaction taking place. While buying or selling a used car involves a one-time interaction, renting a property to someone requires having a repeated and long-term interaction with them. The results may thus suggest that in repeated interactions tastes play a more prominent role than statistical perceptions.

The paper continues as follows. The next section presents the research design. Section three presents the results and discusses the possible mechanisms generating them. Section four deals with potential confounding factors and presents results of several robustness checks. Section five concludes.

[4]Two recent studies estimate the long-run effects of living in racially segregated neighborhoods. These effects include lower rates of educational attainment and employment, higher crime rates and even greater exposure to air pollution (Christensen and Timmins (2018) and Graham (2018)).

2 Research Design

The research design has two main stages. The first stage, which is based on a correspondence study methodology, estimates the extent of discrimination against Arabs in the Israeli online market for rental housing. The second stage consists of a nominally independent survey of the landlords contacted during the first stage. The survey is aimed at capturing landlords' attitudes and statistical perceptions. Merging the results of the correspondence study and the survey allows me to disentangle taste-based from statistical discrimination. In addition, I use administrative data on neighborhoods to separate the role of the preferences of neighbors from that of the preferences of landlords in generating discriminatory outcomes.

2.1 Targeting ads

The platform used to conduct the correspondence study is the largest website posting rental ads in Israel. The stock of rental ads posted on this website at any given time is close to forty thousand, an order of magnitude larger than the corresponding figure for the second most popular website. In the analysis, I focus on ads posted in all eight ethnically integrated localities and in the sixteen largest Jewish localities in Israel.[5]

Ads included in the analysis had to meet several criteria. First, I only responded to ads posted on the day I viewed them. These could have been either new ads, or ads that were "bumped-up" by the landlord on that day in order to signal that the posted property was still available. Second, the ads advertised apartments (rather than single-family homes) with between one and five rooms and had to specify the requested monthly rent. Third, since I initially contacted landlords via text messages, at least one of the phone numbers listed in the ad had to be for a mobile phone. It is important to note that although this paper studies discrimination exhibited by the majority group against the minority group, I did not ex-ante limit the analysis to include

[5] It is worth emphasizing that many Arabs work, study or conduct business in these large Jewish localities and may thus have a strong interest in residing in them.

only Jewish landlords. However, reviewing the contact names appearing in the ads reveals that the number of Arab landlords posting their apartments on this website is miniscule.

2.2 Contacting landlords

In order to measure ethnic discrimination, one text message was sent in response to each rental ad. While correspondence studies are usually performed via email, the use of emails for the purpose of contacting landlords is not prevalent in Israel. Using text messages allowed me to exploit the benefits of a correspondence study methodology, while maintaining a credible setting (the high response rate to messages sent by "Jewish" renters indicates that the use of text messages for establishing initial contact seemed reasonable to landlords). Text messages were sent using a private cellular phone with an identified number. Since I sent only one fictitious query in response to each ad, I was able to use the same mobile phone number to send all text messages. Text messages contained a short query regarding the availability of the posted property and were signed by one of two ethnically distinct names: Alon - a common Jewish name, or Ahmed - a common Arab name.[6]

Some correspondence studies use a matched-pair methodology (where two or more applications are sent in response to each rental ad or job posting) while others randomize the treatment and send only one application in response to each rental ad or job posting. Although the matched-pair methodology enables the researcher to attribute within subject differential outcomes solely to the experimental treatment, it suffers from two main difficulties. First, Phillips (forthcoming) shows that fictional applications sent by researchers to the same vacancy interact with one another by changing the quality of the whole applicant pool, which in turn affects any given applicant's likelihood of success. In such cases, simple differences in callback rates measure not only the direct effect of discrimination but also the employer's response to the composition of the applicant pool. Second, sending several CV's or rental

[6] The full text of the message, written in Hebrew, read: "Hey, regarding the apartment - is it still relevant? Thanks, Alon/Ahmed".

applications in response to the same ad increases the probability that the experiment would be exposed. Since in Israel the most common way to respond to a rental ad is by simply calling the person who posted the ad, sending two similar text messages to the same landlord within a short time span would have dramatically increased the chances of exposure. Nevertheless, considering the large sample size and the random assignment of ethnically sounding names to ads, in this case too, it is possible to attribute differential outcomes to the difference in signaled "renter" ethnicity. In the next section, I conduct balancing tests and show that assignment is indeed random.

2.3 Scope of the experiment

In total, I sent more than 6,000 text messages in response to rental ads posted online between November 2016 and September 2017. The geographical distribution of ads in the sample mimics the geographical distribution of ads that were available on the website in the relevant localities on November 1, 2016, with some over-sampling in small integrated localities. Table 1 shows the number of ads responded to in each locality and its share of all the ads in the sample. Since three of the integrated localities (Jerusalem, Tel Aviv and Haifa) are also the three largest localities in Israel, the share of ads in integrated localities (Panel A) accounts for almost sixty percent of the sample.

[Table 1]

2.4 Tracking landlord replies

A landlord could reply to a fictitious renter's query either by sending him a text message or by calling back the number the text message was sent from (calls were not answered, but phone numbers of landlords were recorded). Since text messages must be sent from identified mobile phone numbers, I used these numbers to merge replies with ads, i.e. with a set of the posted apartment's characteristics and with the fictitious renter ethnicity assigned to that ad. The same procedure was followed for callback attempts received

from identified numbers. A very small number of callbacks was received from "blocked" numbers or numbers that could not be matched to a specific ad I had responded to. Such callback attempts were excluded from the analysis.[7]

Replies from landlords are classified into four categories: No reply, a positive reply, a negative reply or an unclear reply. The distribution of replies is shown in Table 2. An ad is classified as receiving no reply if the landlord neither replied to the query by text message nor attempted to call the renter back. A positive reply includes cases where (1) the landlord did not send a text message but did attempt to call the renter back; (2) the landlord sent a text message saying that the apartment was still available; or (3) the landlord sent a text message asking the renter to contact him by phone. In the latter two cases, replies are classified as positive regardless of whether the landlord also tried to call the renter. A reply is classified as negative if the landlord replied by text message that the property was no longer available. Again, this is regardless of whether the negative reply was accompanied by a callback attempt.[8] Other replies include text messages such as "I'm already in negotiation with someone, call me back in a week". These cannot be clearly classified and are therefore excluded from the main analysis.

[Table 2]

2.5 Surveying landlords

Classical models of discrimination would predict that discriminatory behavior of landlords is associated either with their tastes for discrimination or with their statistical perceptions regarding the Arab population in Israel. To identify the role of these different mechanisms, I carried out a nominally independent survey of the landlords whose ads I had responded to in the correspondence study (the full text of the survey is in Online Appendix B). Surveys

[7] Calls from unidentified numbers constitute a very small share of all calls received. Moreover, there is no reason to believe that landlords who received a text message from an Arab fictitious renter were more likely to call him back using unidentified phone numbers given that landlords' numbers appeared in the ads and were therefore already known to the renter and used by him to make the initial query.

[8] A negative reply was preceded or followed by a callback attempt in only one case.

were conducted by a professional polling firm between January and October 2017. At least two weeks were allowed to pass between responding to an ad and surveying the landlord who posted it. The surveys were conducted using the same mobile phone numbers to which the fictitious queries were sent. This raises the likelihood that the person who decided whether or not to reply to the query was the one who participated in the survey.

The survey was presented to participants as part of a study conducted at the Hebrew University. If a participant further inquired about the specific purpose of the survey, she was told that it studied the statistical perceptions of the public, without specifically mentioning the Arab population or the rental housing market. The first part of the survey collected sociodemographic characteristics of the participants, while the second part focused on capturing their tastes and statistical perceptions.

To elicit their tastes for discrimination against Arabs, landlords were first asked to rate their political orientation on a scale of one to ten, with one referring to a left-leaning political orientation and ten referring to a right-leaning political orientation. Several reasons make the use of political orientation as a measure of one's discriminatory tastes against Arabs particularly appealing. First, this simple and straightforward question is often asked in surveys conducted in Israel. Second, while the question does not ask the participant to focus directly or solely on her attitudes towards Arabs, it is well-established that political orientation is an extremely strong predictor of the attitudes of Jewish Israelis toward Arab-Israelis and the Israeli-Palestinian conflict.[9] Third, since information on political orientation is available at the neighborhood level, using it as a proxy for individual tastes facilitates the comparison between the role of the preferences of landlords and those of neighbors in generating discrimination.

Another measure used in the survey to capture the prejudicial attitudes of

[9] Arian and Shamir (2008) explain why the conflict with the Palestinians remains the major cleavage in Israeli politics since 1967. Zussman (2013), Grossman, Manekin, and Miodownik (2015), Bar and Zussman (2017) and Enos and Gidron (2018) show empirical evidence for the correlation between political views and attitudes toward Arab-Israelis and the Israeli-Palestinian conflict.

participants towards Arabs is their degree of support for a law banning inter-ethnic marriages. A similar question has appeared in the American General Social Survey since its beginning in 1972 and is commonly viewed as a good proxy for discriminatory tastes. Charles and Gurian (2008), for example, used this measure to explore the role of prejudicial attitudes in generating racial wage differentials across states in the U.S. Given that, in Israel, only religious marriages between Jewish couples (conducted by the Chief Rabbinate of Israel) are recognized by the state, surveys in the country seldom ask participants about their degree of support for a legal ban on inter-ethnic marriages.[10] Therefore, participants may have found this question surprising and confusing, limiting its ability to capture tastes.

To capture the statistical perceptions of landlords, I adopted a novel approach. First, I conducted an online survey among the Israeli population and identified a set of applicant characteristics that are perceived as important for landlords when considering a potential tenant.[11] Next, I narrowed the attributes listed by the online survey participants to include the ones that have been shown by earlier research on Arab-Israeli relations to be a concern for Jews when interacting with Arabs: Zussman (2013) showed that Jews discriminate against Arabs in the market for used cars because they view them as violent and untrustworthy; Bar and Zussman (2017) showed that concerns for safety increase customers' willingness to pay to receive services from Jews rather than from Arabs. As a last step, from this list I chose attributes that are reflected in official data; these data were in turn quoted to landlords in the telephone survey.

In particular, I chose to focus on the involvement of Arabs in violent crime and in property crime. Participants were told that in 2014, out of every 10,000 adult Jewish men, 12 (14) were convicted of violent (property) crime. The participants were then requested to estimate the corresponding figure for Arabs (i.e. out of every 10,000 adult Arab men, how many were convicted of violent (property) crime in the same year). Another prominent concern

[10] Civil marriages are recognized by the state only if they took place abroad.

[11] Details on the survey and its full text are in Online Appendix C.

Jewish Israelis have about interacting with the Arab population is the latter's possible involvement in politically motivated violence. To estimate the degree to which landlords participating in the survey were concerned with this matter, I exploited the fact that in the year preceding my experiment Israel saw a wave of politically motivated violence. Thus, participants were asked to estimate how many Jewish Israelis were killed in terrorism attacks between October 2015 (the beginning of the violent period) and December 2016.

While all the data quoted in the statistical perceptions questions is publicly available, the analysis does not rely on the assumption that participants are familiar with the exact figures. Instead, the idea is that if participants who quote higher numbers (e.g. in terms of the involvement of Arabs in crime) are more likely to discriminate against Arabs in the rental housing market, then discrimination is statistical in nature.

3 Results

3.1 The extent of ethnic discrimination

In this paper, ethnic discrimination is defined as the difference between the share of positive replies to queries sent by Jewish fictitious renters and the share of positive replies to queries sent by Arab fictitious renters. In order to infer that this difference is indeed the result of discrimination, the assignment of ethnically sounding names to ads must be random. Table 3 reports a set of mean apartment characteristics separately for ads responded to by Jewish renters and for those responded to by Arab renters. The difference in these means is small in all cases and statistically insignificant in the vast majority of them.[12]

[Table 3]

[12] In a regression where the indicator variable for an Arab fictitious renter was regressed on all apartment characteristics and locality fixed effects, their joint effect was statistically insignificant (F=0.90).

The distribution of landlord replies by the ethnicity of the fictitious renter is reported in Figure 2. The first bar reveals that 78 percent of the landlords who received a query from a Jewish fictitious renter replied that the posted property was still available for rent. The corresponding share for landlords who received a query from an Arab fictitious renter is only 31 percent. The opposite pattern is observed when looking at the share of landlords who did not reply at all to the query: while only 15 percent of landlords contacted by Jewish renters did not reply to the query, almost 54 percent of landlords contacted by Arab renters chose to do so.

[Figure 2]

Negative replies constitute only a small share of all replies. Nevertheless, this share too is significantly larger for landlords contacted by Arab fictitious renters than for those contacted by Jewish fictitious renters. The distinction between a negative reply and no reply could indicate that most landlords might feel uncomfortable about their discriminatory behavior and therefore prefer not to reply to the query at all rather than explicitly turn down the Arab renter.[13] "Unclear" replies were slightly more prevalent among landlords contacted by Arab rather than by Jewish renters. Although, this gap too could potentially be attributed to the preference of landlords not to discriminate explicitly (making them come up with different excuses), I choose to exclude unclear replies from the main analysis.[14] The measure of ethnic discrimination is therefore the difference in the share of positive replies – with the denominator being the sum of positive, negative or no replies – between Jewish and Arab renters (the two rightmost bars of Figure 2).

To measure the extent of ethnic discrimination econometrically, I estimate the following specification:

$$Positive\_reply_i = \alpha_0 + \alpha_1 Arab\_renter_i + \boldsymbol{\pi}'\mathbf{X}_i + \theta_l + \epsilon_i \qquad (1)$$

[13] An alternative explanation is that, considering the high degree of residential ethnic segregation in Israel, Jewish landlords were surprised to receive a query from an Arab and therefore chose to ignore it. I address this possibility in section 4.

[14] In section 4 I examine the robustness of the results to different classifications of the unclear replies.

where $Positive\_reply_i$ is an indicator variable which takes the value of one if the landlord who posted the ad for apartment i responded positively to the text message sent to him (and zero otherwise); $Arab\_renter_i$ is an indicator which takes the value of one if the landlord who posted the ad for apartment i received a text message from an Arab fictitious renter (and zero if he received a text message from a Jewish fictitious renter); $\mathbf{X}_i$ is a vector of apartment characteristics; θ_l is a fixed-effect for the locality apartment i is located in and ϵ_i is a well behaved error term.[15] My interest is in the coefficient α_1, which measures the extent of discrimination against Arab renters. Results are shown in Table 4.

[Table 4]

The results indicate that Arab potential renters are 48.7 percentage points less likely to receive a positive reply than Jewish potential renters (column 1). Since renter ethnicity was randomized across ads within each locality, it is not surprising that this result does not change with the inclusion of apartment characteristics and locality fixed-effects (columns 2 and 3).

When comparing this result to results obtained in previous correspondence studies on discrimination in the market for rental housing, two things are worth noting. First, the positive response rate among landlords who received queries from Jewish renters is close to 80 percent, which is much higher than the response rates to applications sent by majority group members documented in previous studies (for example, Ahmed and Hammarstedt (2008), Hanson and Hawley (2011) and Ewens, Tomlin and Wang (2014) report response rates of 41, 57 and 58 percent to applications made by majority group members, respectively). This indicates that using text messages to initially inquire about the availability of a posted property was perceived as credible by Israeli landlords.

[15] Standard errors are clustered by the locality where the property is located multiplied by the month when the ad was posted (since not all localities were sampled each month, there are only 151 clusters). An alternative approach could have been to cluster by locality, but this is not feasible as only 24 localities are included in the sample. Clustering by locality*month is conservative: using robust standard errors yields more significant results throughout the analysis.

Second, and more importantly, the extent of ethnic discrimination in the Israeli housing market is very large. The difference between the share of positive replies to queries sent by Jewish fictitious renters and the share of positive replies to queries sent by Arab fictitious renters is almost 50 percentage points. Given the differences in "baseline" response rates across studies, it is useful to calculate the positive response ratio, that is, the share of positive replies among landlords who received queries from majority group renters divided by the share of positive replies among landlords who received queries from minority group renters. The results indicate that the positive response ratio in Israel is 2.4. This figure is one of the highest positive response ratios documented in the literature.[16]

While it is possible that ethnic discrimination is simply much more prevalent in Israel, one must remember that most studies do not limit the ethnicity of the landlords whose ads they respond to, i.e. the pool of landlords contacted during the experiment may include members of both the majority group and the minority group. Assuming that landlords from the minority group discriminate less against members of their own group, this could decrease the overall extent of discrimination documented in these studies. Although in this paper too I did not *ex-ante* restrict the sample to include only Jewish landlords, the share of Arabs among the landlords posting apartments on the website is miniscule. Reviewing the literature reveals that this difference is not likely to generate the gap between the extent of discrimination measured in this paper and previous results. First, some studies similarly have a very small share of minority group members within their sample of landlords or

[16] In France, Acolin, Bostic and Painter (2016) found that the response rate to applicants with French (majority) sounding names is between 1.05 and 1.42 times the response rate to applicants with names identified as originating from Poland or Sub-Saharan Africa, respectively. In the United States, the White/Black positive response ratio was estimated to be 1.75 in an audit study conducted by Yinger (1986) but only between 1.12-1.19 in online correspondence studies conducted several decades later by Hanson and Hawley (2011) and Ewans, Tomlin and Wang (2014). Prior to the current study, the highest positive response ratio between majority and minority group members was estimated in Sweden, where Ahmed and Hammarstedt (2008) found that males with Swedish sounding names were 2.1 times more likely to receive a positive response to an email inquiry regarding rental housing than males with Muslim sounding names.

real-estate agents (e.g. Yinger (1986)). Second, it turns out that including landlords from the minority group in the sample does not necessarily decrease the extent of discrimination. For example, Ahmed and Hammarstedt (2008) find that discrimination against men with Muslim sounding names is much larger when the sample includes Muslim landlords.

3.2 Extensions and robustness

Before analyzing the possible mechanisms driving the main result, several issues should be addressed. The first is the concern that the high level of discrimination documented above may be driven by a few extreme localities. Online Appendix Figure D1, which presents the extent of discrimination by locality, indicates that discrimination is a widespread phenomenon. The extent of discrimination varies in magnitude across localities - it is 30 percentage points in localities like Haifa and Tel Aviv and is more than twice as large in Petah Tiqwa and Ra'annana – but is always large and statistically significant. The next section of the paper explores the differences in the extent of discrimination across localities and neighborhoods and the mechanisms driving them.

Another interesting question is whether ethnic discrimination varies over time. Online Appendix Figure D2, which presents the extent of discrimination in four consecutive sub-periods, illustrates that the extent of discrimination barely changes and is approximately 50 percentage points throughout the period. While several factors could potentially have affected the extent of discrimination during the examined period, perhaps the most prominent one is the amount of time that had passed since the terrorism wave Israel had experienced between October 2015 and December 2016. The fact that the extent of discrimination remains stable over time strengthens the claim that support for ethnic segregation in the housing market is deeply rooted in Israeli society and is not correlated with short-term fluctuations in the Israeli-Palestinian conflict.[17]

[17] Augmenting equation (1) with a variable capturing the amount of time that had passed between the end of the terrorism wave and the date on which each ad was posted and with

Finally, I estimate how the extent of discrimination varies with apartment characteristics, the most important of which is the requested monthly rent. Online Appendix Figure D3, which plots the extent of discrimination by quintiles of the requested monthly rent, suggests that landlords renting cheap apartments (those in the bottom quintile of the rent distribution) discriminate somewhat less than others against Arab renters.[18] This pattern may be interpreted as providing evidence for statistical discrimination: since Arabs are poorer on average than Jews, landlords may be concerned about Arab renters' ability to pay the rent. This concern is likely weaker when the apartment is more affordable. My finding is consistent with Ahmed and Hammarstedt (2008), who found that discrimination against Muslim men in the Swedish housing market is stronger when the price of the rental property increases.

In sum, ethnic discrimination in the market for rental housing in Israel seems to be strong and statistically significant across localities and over time, and only slightly weaker when the rental property is relatively cheap.

3.3 The sources of discrimination

In addition to estimating the extent of ethnic discrimination, this paper attempts to identify the mechanisms driving it. I start by studying whether discrimination is taste-based or statistical in nature. Does the landlord discriminate because she expects to incur a disutility from interacting with an Arab tenant, or does she discriminate because she interprets an Arab name as a signal for a problematic renter simply because he belongs to a group that is associated with negative economically-relevant characteristics? Next, I study the role of peer pressure. While the decision whether to reply to a query sent by an Arab potential renter is the landlord's, it could potentially reflect the

an interaction term between this variable and the Arab renter indicator, reveals that the amount of time passed is not correlated with the extent of discrimination (the coefficient on the interaction term is positive but is statistically insignificant).

[18] Augmenting equation (1) with the requested monthly rent and with an interaction term between the rent and the Arab renter indicator, reveals that an increase of NIS 1,000 (approximately $300) in the requested price is correlated with a decrease of 1.5 percentage points (or 3.5 percent) in the likelihood of an Arab renter (relative to a Jewish renter) receiving a positive reply to his query.

preferences of the neighbors who will live in close proximity to the renter. This distinction is similar to the one Becker (1957) made when he suggested that an employer's decision to discriminate could reflect either his own discriminatory tastes or the preferences of the other workers he employs (or of customers).

3.3.1 Landlord opinions and perceptions

The main challenge in studying the sources of discrimination is disentangling taste-based from statistical discrimination. To do so, I carried out a nominally independent telephone survey of the landlords whose ads I responded to in the correspondence study. About a quarter of these landlords agreed to participate in the survey. Online Appendix Table E1 reports means and standard deviations of the sociodemographic characteristics of these landlords (Panel A) and their tastes and statistical perceptions (Panel B). To check for the randomization of renter ethnicity across survey participants, the variables are reported separately for landlords contacted by Jewish fictitious renters and those contacted by Arab fictitious renters. Column 3 shows that there are no statistically significant differences in potential renter characteristics between the two groups of landlords.[19]

To capture their tastes for discrimination, survey participants were asked to rate their political orientation on a scale of one to ten. Since the number of participants in each bin is small, in Figure 3 I group participants into three categories - participants with left-leaning (those who chose the values 1-3), centristic (those who chose the values 4-7) and right-leaning (those who chose the values 8-10) political views. The figure illustrates how the extent of discrimination towards Arab renters – defined as the share of positive responses to Jewish renters minus the share of positive responses to Arab renters – varies with the political orientation of landlords. Landlords who identified themselves as holding left-leaning political views discriminate significantly less (27 percentage points) than those identified as holding centristic (53 percentage points) or right-leaning (54 percentage points) political views.

[19] In a regression where the indicator variable "Arab" was regressed on all survey participant characteristics together, their joint effect was statistically insignificant (F=0.65).

[Figure 3]

Political orientation is highly correlated with one's degree of support for a ban on inter-ethnic marriages: the correlation between the original political orientation variable – varying from one (indicating that the participant holds left-leaning political views) to ten (indicating that the participant holds right-leaning political views) – and the variable measuring the extent of support for a law banning inter-ethnic marriages – varying from one (indicating that the participant strongly disagrees with such a ban) to four (indicating that the participant strongly agrees with such a ban) – is 0.42 and is highly statistically significant. However, when examining how discrimination varies with the extent of support for a law banning inter-ethnic marriages, no clear pattern emerges (Online Appendix Figure F1). A possible reason for this result could be that, as mentioned in the previous section, this question may have surprised or confused survey participants.

Figure 4 explores the association between the extent of ethnic discrimination and the statistical perceptions of landlords. Examining the extent of discrimination across quintiles of the perceptions of landlords regarding the involvement of Arabs in violent or property crime does not reveal a clear pattern (left and middle panels).[20] In contrast, the right panel of Figure 4 shows a positive (although weak) correlation between the extent of ethnic discrimination and the perceived severity of the terrorism wave Israel had experienced from late 2015 to the end of 2016: the extent of ethnic discrimination is larger among landlords who perceive the terrorism wave as having been more severe.

[Figure 4]

[20] Especially notable is the jump between the first quintile and the second. This jump may be the result of an anchoring effect: before being asked to estimate the involvement of adult Arab men in violent and property crimes, survey participants were quoted data on the involvement of adult Jewish men in such crimes. The anchoring effect could have shifted participants from the second quintile to the first (both violent and property crime figures for Jewish men are within the range of the first quintiles). To address this concern, Online Appendix Figure F2 plots the extent of discrimination towards Arab renters against quintiles of the statistical perceptions of landlords while excluding landlords who thought that the share of Arabs convicted of crime was identical to that of Jews. This figure too does not show a clear association between statistical perceptions regarding crime and the extent of discrimination.

To estimate the role of political opinions and statistical perceptions in generating bias, I use the following specification:

$$\begin{aligned} Positive\_reply_i &= \alpha_0 + \alpha_1 Arab\_renter_i + \beta_1 PO/SP_i \\ &\quad + \beta_2 Arab\_renter_i * PO/SP_i \\ &\quad + \boldsymbol{\tau}' \mathbf{S}_i + \boldsymbol{\pi}' \mathbf{X}_i + \theta_l + \epsilon_i \end{aligned} \tag{2}$$

which is equation (1) augmented with the variable PO/SP_i, which is the response of the landlord who posted apartment i to the political orientation or statistical perception question; an interaction term between an indicator for whether an Arab fictitious renter responded to the advertisement of apartment i and the landlord's response to the political orientation or statistical perception question; and $\mathbf{S}_i$, which is a vector of sociodemographic characteristics of the landlord who posted apartment i.

Table 5 reports the differences in the extent of ethnic discrimination in the housing market across landlords with different political views and statistical perceptions.[21] Column 1 reveals that, all else being equal, when a Jewish landlord holds centristic or right-leaning political views, an Arab renter is 47.8 percentage points less likely to receive a positive reply than a Jewish renter (first row). When the landlord holds left-leaning political views, the gap in positive response rates between Jewish and Arab renters drops by 24.2 percentage points (to 23.6 percentage points) but is still highly statistically significant.[22] This implies that the extent of ethnic discrimination is twice as large among landlords with centristic or right-leaning political views than it is among landlords with left-leaning political views.

[Table 5]

[21] To facilitate comparison, the analysis in this table is restricted to survey participants who answered all attitude and statistical perception questions.

[22] The gap in positive response rates to Arab and Jewish renters among landlords holding left-leaning political views is the sum of α_1 and β_2 which is equal to -0.236. The hypothesis that this value is equal to zero is easily rejected with a p-value of 0.0003.

As for the second measure of tastes, I find that stronger support for a legal ban on inter-ethnic marriages is, as expected, correlated with more ethnic discrimination. However, this association is not significantly different from zero (column 2).[23]

In columns 3 and 4, I examine the association between the extent of ethnic discrimination and the statistical perceptions of landlords regarding the involvement of Arabs in crime. Landlords who quote higher estimates for the involvement of Arabs in violent and property crime are more likely to discriminate against potential Arab renters, but this correlation is not statistically significant.

Relations between Arabs and Jews in Israel are strongly shaped by the ups and downs of the Israeli-Palestinian conflict. When the conflict flares up, Arab-Jewish relations suffer. This is true despite the fact that very few Arab-Israelis are involved in terrorism (see Israeli Security Agency 2016 and 2017). In column 5, I explore the association between the extent of ethnic discrimination in the housing market and the estimates given by landlords regarding the severity of the terrorism wave Israel had experienced between October 2015 and December 2016. The results indicate that the extent of discrimination is larger among landlords who perceive the terrorism wave as having been more severe. Specifically, the Jewish-Arab gap in response rates increases by five percentage points with an increase of one unit (quintile) in the landlord's estimate of the number of Israelis killed during the terrorism wave.[24]

One's statistical perceptions are not necessarily independent of his tastes.

[23] The variable "Support marriage ban" is an indicator that equals 1 if the participant strongly agreed or agreed with the statement "there should be a law banning inter-ethnic marriages in Israel" and 0 otherwise. Although the main result does not reveal a clear pattern, it is worth mentioning that when dividing survey participants to those who stated that they *strongly disagree* with this statement and the rest, the correlation becomes large and statistically significant. Specifically, participants who strongly disagreed that such ban should exist were 8 percentage points more likely than the other participants to positively reply to a query from an Arab renter.

[24] However, in section 4 I show that the correlation between the perceived terrorism threat and the extent of ethnic discrimination is not robust to various changes in the estimated equation.

A nice illustration of this phenomenon is provided by Alesina, Miano and Stantcheva (2018). The authors report that while all natives (in five European countries and in the U.S.) greatly overestimate the total number of immigrants, think immigrants are culturally and religiously more distant from them, and believe immigrants are economically weaker than is the case, those with the largest misperceptions are systematically the right wing, the non-college educated, and the low-skilled working in immigration-intensive sectors. Epley and Gilovich (2016) explore how such associations are formed by reviewing the ways in which people reason their way into conclusions they favor, with their preferences influencing the way evidence is gathered, arguments are processed, and memories of past experience are recalled. Similarly, Bartos et al. (2016), who conduct two field experiments studying discrimination, one in the labor market and the other in the housing market, show that prior beliefs about minority group members affect the amount of attention paid to applications made by them, thereby enforcing differential treatment.

Consistent with these empirical findings, Online Appendix Table F1 shows that, in Israel, political orientation is strongly associated with statistical perceptions: holding a left-leaning political view is correlated with significantly lower estimates of (1) the involvement of Arabs in crime and (2) the number of Israelis killed in terrorism attacks.[25]

To determine which of the models – taste-based or statistical – does a better job of explaining ethnic discrimination in the rental housing market, in column 6 of Table 5 I run a "horse-race" specification, in which I include both political views and statistical perceptions. The coefficient on the interaction term between the Arab renter indicator and an indicator for holding a left-leaning political orientation maintains its size and remains highly statistically significant. As for statistical perceptions, the only coefficient that is (marginally) statistically significant is, again, the one capturing the perceived terrorism threat.

[25] These associations remain strong and statistically significant even after controlling for the sociodemographic characteristics of landlords (columns 4-6), which, as can be seen in Online Appendix Table F2, are by themselves strongly associated with one's political orientation.

The results thus suggest that discrimination against Arab renters is most strongly related to landlords' tastes. Statistical perceptions seem to play a relatively minor role.

3.3.2 Cross-neighborhood variation

As mentioned in the previous section, the extent of discrimination against Arab renters varies across localities. The Israeli Central Bureau of Statistics further divides localities with a population of at least 10,000 into statistical areas (henceforth neighborhoods). A statistical area usually consists of 3,000-5,000 residents and is the smallest and most homogenous geographic unit in the hierarchical division of localities (by population size). There are two ways in which using data on neighborhood characteristics can shed light on the sources of ethnic discrimination in the housing market.

First, studies on housing market discrimination often use neighborhood characteristics as a proxy for the preferences of individual landlords (Hanson and Hawley (2011)). An advantage of using administrative data on neighborhoods to proxy for the characteristics of individual landlords is that it enables me to maintain most of the sample obtained during the correspondence study (in contrast to using information from the follow-up survey, where low response rates significantly decrease the sample size). Second, as long as the preferences of landlords are not perfectly correlated with the preferences of the people residing in proximity to the rental property, one can test whether landlords take the preferences of the neighbors into account when deciding whom to rent their apartments to.

The ads targeted in the correspondence study spanned 434 neighborhoods (Online Appendix Table G1 presents summary statistics for these neighborhoods). Following the findings of the landlord survey, in the neighborhood level analysis too, I primarily focus on the association between the extent of ethnic discrimination and the neighborhood's political orientation. As mentioned above, in Israel, political orientation among Jews is strongly correlated with opinions regarding Arab-Israelis and the Israeli-Palestinian conflict, with left wing parties considered more liberal and tolerant towards the Arab pop-

ulation. Using poll-level voting data from the 2015 parliamentary elections in Israel, I calculate the share of votes for left wing parties in each neighborhood. Figure 5 shows that, as expected, discrimination seems to decline with this measure.

[Figure 5]

When plotting the extent of ethnic discrimination against other neighborhood sociodemographic characteristics, the one that seems to be most strongly associated with discrimination is the share of Arabs residing in the neighborhood (Online Appendix Figure G1). Specifically, the extent of discrimination declines with this measure. From a theoretical perspective, the share of Arabs living in the neighborhood could have opposite effects on the extent of discrimination. On the one hand, according to the "contact hypothesis" (Allport (1954)), cross group contact may lead to a decrease in bias, implying that an existing Arab population would work to reduce prejudice among Jewish landlords against new Arab potential tenants. On the other hand, if the share of Arabs in a locality is close to a tipping point, discrimination against additional Arab renters could be especially strong (Card (2008) and Hanson and Hawley (2011)). While the figure lends some support for the contact hypothesis, an obvious concern is reverse causality, i.e. Arabs may choose to live in places where they encounter less discrimination. Other neighborhood characteristics explored in this figure do not seem to be strongly associated with the extent of ethnic discrimination.

To measure the association between the extent of ethnic discrimination and the political orientation of the neighborhood, I estimate the following equation:

$$\begin{aligned} Positive\_reply_i &= \alpha_0 + \alpha_1 Arab\_renter_i + \gamma_1 Neighborhood\_PO_i \\ &\quad + \gamma_2 Arab\_renter_i * Neighborhood\_PO_i \\ &\quad + \boldsymbol{\delta}' \mathbf{N}_i + \boldsymbol{\pi}' \mathbf{X}_i + \theta_l + \epsilon_i \end{aligned} \tag{3}$$

which is similar to equation (2), but with two changes: the political orienta-

tion of the landlord is replaced with the share of voters in the neighborhood apartment i is located in who voted for left wing parties ($Neighborhood\_PO_i$) and the vector of landlord sociodemographic characteristics is replaced with that of the neighborhood ($\mathbf{N}_i$).

Table 6 shows that, all else being equal, an increase in the share of voters for left wing parties living in the neighborhood is associated with lower levels of ethnic discrimination. Specifically, for a neighborhood where no one votes for left wing parties, the extent of discrimination is projected to be 57 percentage points. For a neighborhood where everybody votes for left wing parties, the extent of discrimination is cut by almost one half to only 33 percentage points, but it is still highly statistically significant (column 1).[26] This finding provides further evidence for the taste-based discrimination model and is consistent with previous research showing that ethnic discrimination in the housing market is lower when the property is located in a more liberal area.[27]

[Table 6]

In columns 2-7 I augment equation (3) in turn with interaction terms between the Arab renter indicator and different neighborhood sociodemographic characteristics. The results in column 2 suggest that an increase in the share of Arabs residing in a neighborhood is associated with lower levels of ethnic discrimination. Exploring the other neighborhood characteristics reveals that discrimination is stronger in high-income neighborhoods. Since high-priced properties are more likely to be located in high-income neighborhoods, this finding may reflect statistical discrimination: landlords may be concerned about Arab renters' ability to pay high rents. When estimating a "horse-race" specification between all neighborhood characteristics (column 7), the same patterns remain.

[26] The gap in positive response rates to Arab and Jewish renters among landlords renting apartments located in neighborhoods where all the residents vote for left-wing parties, is the sum of α_1 and γ_2 which is equal to -0.326. The hypothesis that this value is equal to zero is easily rejected with a p-value of 0.000.

[27] Acolin, Bostic and Painter (2016) show that, in France, discrimination against minority groups is stronger in counties with a stronger anti-immigrant sentiment, which is proxied by the share of votes for France's main far-right party (Front National) in the 2014 European Election.

3.3.3 Landlord decision vs. neighborhood effect

The results presented so far seem to suggest that variation in the extent of discrimination against Arab renters – both across landlords and across neighborhoods – is strongly associated with tastes, which are captured by political orientation. The question remains whether the discriminatory behavior exhibited by landlords is the result of their own preferences or the result of them taking the preferences of neighbors into account. To answer this question, I estimate the following equation:

$$\begin{aligned} Positive\_reply_i &= \alpha_0 + \alpha_1 Arab\_renter_i + \beta_1 PO_i + \\ &\quad \beta_2 Arab\_renter_i * PO_i + \gamma_1 Neighborhood\_PO_i \\ &\quad \gamma_2 Arab\_renter_i * Neighborhood\_PO_i \\ &\quad \boldsymbol{\tau}'\mathbf{S}_i + \boldsymbol{\delta}'\mathbf{N}_i + \boldsymbol{\pi}'\mathbf{X}_i + \theta_l + \epsilon_i \end{aligned} \tag{4}$$

which is the combination of equations (2) and (3).

The analysis in Table 7 is restricted to landlords (1) who participated in the survey (and answered the political orientation question) and (2) for whom data is available on the political orientation of the neighborhood the apartment they are renting is located in. Columns 1 and 2 replicate the results from estimating equations (2) and (3) separately for this sample and show that – consistent with the results shown earlier – the extent of ethnic discrimination is lower when the landlord holds left-leaning (rather than centristic or right-leaning) political views and when the apartment is located in a neighborhood with a larger share of the residents voting for left wing parties. When, in column 3, the indicator for a positive reply to a renter's query is regressed on the political orientation both of the landlord and of the neighborhood the apartment is located in, the association between the extent of discrimination and the landlord's tastes remains highly statistically significant while the association between the extent of discrimination and the preferences of neighbors drops in magnitude and becomes statistically insignificant. However, since

the two coefficients remain economically large, it seems that the preferences of both landlords and neighbors play a role in the decision whom to rent the apartment to.

[Table 7]

To further measure the extent to which landlords' decisions are determined by their own preferences vs. the preferences of neighbors, I exploit the fact that not all of the landlords who participated in the survey live in the same locality as the property they are renting. The others, who live in localities different from the ones their apartments are located in, should potentially be less concerned about the preferences of people residing in proximity to their property (since they are not likely to encounter them as often). Such landlords might therefore feel more comfortable to act upon their own tastes. Columns 4 and 5 of Table 7 replicate the analysis presented in column 3 separately for landlords living in a locality that is different from the one their property is located in (column 4) and for those living in the same locality as the apartment they are renting (column 5). Consistent with my hypothesis, the results show that when the landlord resides in the same locality as the apartment she is renting, the association between the extent of ethnic discrimination and her individual political orientation is weaker while the association between the extent of ethnic discrimination and the political orientation of the neighborhood is stronger. Although the differences across specifications (columns 4 and 5) are not statistically significant (perhaps due to the small number of observations in each of them), they are economically large.

In sum, the results of this analysis suggest that landlords who live in close proximity to their property might be reluctant to rent it to an Arab tenant because they are concerned about their neighbors' reaction, even if they personally hold liberal views and would otherwise reply positively to a query sent by an Arab renter.

4 Confounds and Robustness

The evidence presented above support the interpretation that discrimination against Arab potential renters is driven mainly by the political orientation of landlords. Discriminatory behavior seems to be more strongly associated with the tastes of landlords rather than with their statistical perceptions, although perceptions regarding the terrorism threat seem to also play some role. In this section, I examine whether these results are robust to various changes and whether they are not driven by confounding factors.

4.1 Redefining variables

The first concern addressed in this section is that the outcomes of the main analyses may depend on the definitions of the different variables. The dependent variable used in the regression analysis to estimate discrimination is an indicator for whether a fictitious renter received a positive reply from a landlord in response to his query. So far, a reply was classified as positive if the landlord (1) made an attempt to call the renter back; (2) replied that the property was still available or (3) asked the renter to contact him by phone. Other replies such as "I'm already in negotiations with someone, call me back in a week" or "who is asking?" were excluded from the analysis. In Online Appendix Table H1, I test whether the extent of discrimination and its association with political orientation and statistical perceptions change when a request to contact the landlord by phone is classified as a negative (rather than as a positive) reply (column 2). Additionally, I test if re-defining unclear replies as either positive or negative (instead of excluding them altogether) changes the main results (columns 3 and 4). The table suggests that altering the definition of a positive reply has only a small effect on the magnitude and significance of the main results.

Another related issue is the definition of the independent variables in the regression analysis - namely political orientation and statistical perceptions. Recall that, in the main analysis, I compared landlords holding left-leaning political views to those holding centristic or right-leaning political views. In

addition, to reduce the effect of outliers, I transformed the statistical perceptions variables into quintiles. To address the concern that the results are driven by these classification choices, in Online Appendix Table H2 I estimate equation (2) using the original variables for the opinion questions: i.e. political orientation is a number between one and ten (with one referring to a left-leaning political orientation and ten referring to a right-leaning political orientation) and the statistical perception variables are the original values that the participant had stated in response to the relevant questions. The correlation between discrimination and tastes remains strong and highly statistically significant: a more right wing political orientation is associated with more discrimination. In contrast, none of the statistical perceptions, including those concerning terrorism, is significantly associated with discrimination.

Finally, to make the interpretation of the results easier, it is possible to transform the political orientation and statistical perception variables into standardized scores (z-scores). The latter can then be used to create a unified measure capturing all of the landlord's statistical perceptions.[28] The results in Online Appendix Table H3 are consistent with the ones presented previously. Specifically, a one standard deviation increase – a move towards a more right-leaning political orientation – is correlated with a rise of 8.4 percentage points in the extent of ethnic discrimination. The statistical perceptions remain correlated with discrimination in the expected direction, but none of the correlations is statistically significant. In a "horse-race" specification between the political orientation standardized score and the unified standardized score of statistical perceptions, the political orientation variable maintains its size and statistical significance while the statistical perceptions unified standardized score remains insignificant.

[28] In order to create this unified measure, I first transform the raw estimates given by participants into comparable ratios. In the crime questions, I divide the estimate for the involvement of Arab men in crime by the number of Jewish men convicted of crime. In the questions regarding terrorism fatalities, I divide the estimate given by the participant by the number of Israelis actually killed in the terrorism attacks. I then create a standardized score for each of these variables (by subtracting the value of each observation from the variable mean and dividing the difference by the variable standard deviation) and calculate the average of the three scores to create a unified measure of statistical perceptions.

4.2 Political orientation or other landlord characteristics?

Another issue worth addressing is that, as mentioned in the discussion of Online Appendix Table F2, sociodemographic characteristics such as gender, education, religiosity and immigrant status are strongly correlated with holding a left-leaning political orientation. This could confound the interpretation of the results if such characteristics are also correlated with discriminatory behavior. For example, if more educated landlords tend to (1) hold left-leaning political views and (2) discriminate less against Arab renters, then the association between education and discrimination would be misinterpreted as an association between discrimination and political views. To address this concern, in Online Appendix Table H4, I augment equation (2) in turn with a set of landlord personal characteristics and interaction terms between the Arab renter indicator and those characteristics. While the extent of discrimination varies slightly with some of the sociodemographic characteristics of landlords, it remains significantly lower among landlords holding left-leaning political views than among those holding centristic or right-leaning political views throughout the different specifications.

4.3 Discrimination or disbelief?

Lastly, considering the high degree of residential ethnic segregation in Israel, Jewish landlords are likely not used to Arabs expressing interest in renting their properties. If this is indeed the case, then the differential response rates documented in this paper may not be due to discrimination. Instead, they could reflect the fact that a query from an Arab potential renter might simply be perceived by Jewish landlords as surprising and unusual (or even as a mistake), therefore leading them to either ignore it or send a negative reply. I conducted two tests to rule out this alternative explanation.

First, in December 2017, I sent 500 text messages in response to rental ads that were not included in the original sample (the geographical distribution of these additional ads was similar to that of the ads included in the main

experiment). These text message were phrased exactly as the ones sent in the main experiment, but were signed by the name "Christian". The name Christian is much less prevalent in Israel than the name Ahmed. Therefore, if the difference in the shares of positive replies between Jewish and Arab renters was due to the uniqueness of the situation (i.e. due to the name Ahmed being perceived by landlords as unusual for a prospective renter), one would expect "Christian" to receive an even lower positive response rate than "Ahmed". However, Online Appendix Figure H1 shows that the share of positive replies to queries sent by "Christian" (82.3 percent) is similar to the share of positive replies to queries sent by "Alon" (82.9 percent), the Jewish fictitious renter, and significantly higher than the share of positive replies to queries sent by "Ahmed" (34.1 percent), the Arab fictitious renter.

The second approach I take to address the concern that differential response rates may stem from disbelief – i.e. from landlords questioning the credibility of a query sent by an Arab renter – is based on a comparison between the extent of discrimination in ethnically integrated vs. Jewish localities. Recall that for a locality to be defined as ethnically integrated by the Israeli Central Bureau of Statistics, the share of Arabs residing in it must be between 4 and 50 percent (localities with more than 50 percent Arab residents are defined as Arab). If the lower response rate to Arabs documented in the current experiment was due to Jewish landlords being surprised by an Arab tenant inquiring about their property, one would expect this effect to be smaller in ethnically integrated localities, where the share of Arabs is relatively high. Online Appendix Figure H2 shows that the extent of discrimination is indeed significantly lower in ethnically integrated (45.4 percentage points) than in Jewish localities (53.5 percentage points), but is still large and statistically significant.

In Online Appendix Table H5, I estimate this difference econometrically and find that the extent of discrimination in ethnically integrated localities is only seven percentage points lower than in Jewish localities. In sum, although it seems that at least some of the difference in positive response rates between Jewish and Arab fictitious renters may be the result of landlords not being

used to Arab renters expressing interest in their properties, this cannot solely – or even mainly – account for the main findings.

5 Conclusion

This paper is the first to analyze the extent and sources of ethnic discrimination in the market for rental housing in Israel. Given the severe implications residential ethnic segregation has for the Arab population, there is great importance to studying this phenomenon.

Using a correspondence study in the online market for rental housing, I find extreme levels of discrimination against Arab potential renters: a Jewish landlord is almost 50 percentage points less likely to confirm the availability of a posted property when receiving a query from an Arab rather than from a Jewish potential renter. By merging these response patterns with data collected in a nominally independent survey of the same landlords, I shed light on the sources of discrimination. In particular, the results suggest a strong association between ethnic discrimination and tastes, as captured by the political orientation of landlords: the extent of discrimination among centristic and right-leaning landlords is twice as high as among left-leaning landlords. Discriminatory behavior seems to be only weakly correlated with the statistical perceptions of landlords.

This paper also brings into light a potential pitfall in a key methodology used by researchers to study the sources of discrimination in the housing market. The strong correlation I find between political orientation and statistical perceptions suggests that disentangling taste-based from statistical discrimination by modifying the amount of information provided to landlords is problematic. This is because the willingness of landlords to respond to such signals may itself depend on their tastes. In addition, by combining neighborhood-level administrative data with the landlord survey, I show that landlords tend to act not only upon their own discriminatory tastes but are also influenced by the preferences of neighbors. This is especially true when landlords reside in the same locality as the one their property is located in. This distinction is

similar to the one Becker (1957) made when he suggested that an employer's decision to discriminate could reflect either his own discriminatory tastes or the preferences of the other workers he employs (or of customers).

6 References

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Table 1
Geographical Distribution of Ads (N=6,118)

	Panel A: Ethnically integrated localities (N= 3,624; 59% of total)		
Locality	Share of Arabs in the locality	Number of ads	Percent of all ads
Tel Aviv - Yafo	0.042	1,434	23.44
Haifa	0.110	994	16.25
Jerusalem	0.374	846	13.83
Akko	0.314	85	1.39
Ramla	0.229	78	1.27
Nazerat Illit	0.231	76	1.24
Lod	0.296	73	1.19
Ma'alot-Tarshiha	0.206	38	0.62
	Panel B: Jewish localities (N=2,494; 41% of total)		
Locality	Share of Arabs in the locality	Number of ads	Percent of all ads
Be'er Sheva	0.023	324	5.30
Ramat Gan	0.002	314	5.13
Netanya	0.002	270	4.41
Rishon Leziyyon	0.001	210	3.43
Petah Tiqva	0.001	182	2.97
Herzliyya	0.001	168	2.75
Bat Yam	0.005	160	2.62
Holon	0.001	152	2.48
Rehovot	0.003	118	1.93
Hadera	0.009	116	1.90
Ashdod	0.001	112	1.83
Ra'annana	0.001	108	1.77
Ashqelon	0.002	108	1.77
Kefar Sava	0.001	80	1.31
Bene Beraq	0.000	40	0.65
Bet Shemesh	0.001	32	0.52

Sources: Data on the share of Arabs in each locality were obtained from the Israeli Central Bureau of Statistics.
Notes: The sample consists of ads posted in all eight ethnically integrated localities and in the sixteen largest Jewish localities in Israel. A locality is defined by the Israeli Central Bureau of Statistics as integrated if the share of Arabs residing in it is between 4 and 50 percent (a locality with more than 50 percent Arab residents is defined as Arab). The geographical distribution of ads in the sample mimics the geographical distribution of ads that were available on the website in the relevant localities on November 1, 2016, with some over-sampling in small integrated localities. Since three of the integrated localities (Jerusalem, Tel Aviv and Haifa) are also the three largest localities in Israel, the share of ads in integrated localities (Panel A) accounts for almost sixty percent of the sample.

Table 2
Classification of Replies (N=6,118)

Reply by SMS	Reply by phone call	
	No	Yes
No reply	No reply [0.345]	Positive reply [0.024]
"Yes"	Positive reply [0.428]	Positive reply [0.082]
"Call me"	Positive reply [0.008]	Positive reply [0.005]
"No"	Negative reply [0.035]	Negative reply [0.001]
All other replies	Unclear reply [0.064]	Unclear reply [0.008]

Notes: An ad is classified as receiving no reply if the landlord neither replied to the query by text message nor attempted to call the renter back. A positive reply includes cases where (1) the landlord did not send a text message but did attempt to call the renter back; (2) the landlord sent a text message saying that the apartment was still available; and (3) the landlord sent a text message asking the renter to contact him by phone. A negative reply is a case where the landlord explicitly replied by text message that the property was no longer available. Other replies include text messages such as "I am already in negotiations with someone, call me back in a week", that could not be clearly classified. The number in brackets represents the share of each type of reply out of the entire sample.

Table 3
Balancing Tests

	Jewish	Arab	Diff	Diff with locality FE	N
	(1)	(2)	(3)	(4)	(5)
Monthly rent	4,274	4,319	45.16	45.52	5,620
	(2,007)	(1,984)	[53.25]	[42.41]	
Size in square meters	76.24	77.69	1.454	1.441	5,603
	(33.81)	(36.27)	[0.937]	[0.916]	
Number of Rooms	3.063	3.106	0.043*	0.043*	5,639
	(0.972)	(0.943)	[0.026]	[0.025]	
Floor number	2.785	2.837	0.052	0.052	5,638
	(2.916)	(2.923)	[0.078]	[0.076]	
Balcony	0.619	0.654	0.035*	0.034*	5,639
	(0.750)	(0.776)	[0.020]	[0.020]	
Parking	0.496	0.514	0.018	0.018	5,639
	(0.500)	(0.500)	[0.013]	[0.013]	
In-house shelter (“Mamad”)	0.196	0.202	0.006	0.006	5,639
	(0.397)	(0.402)	[0.011]	[0.010]	
Furnished	0.835	0.834	-0.001	-0.001	5,639
	(0.975)	(0.979)	[0.026]	[0.026]	
Total number of floors	5.131	5.149	0.018	0.022	5,449
	(3.997)	(4.044)	[0.109]	[0.106]	
Service balcony	0.440	0.460	0.020	0.019	5,639
	(0.496)	(0.498)	[0.013]	[0.013]	
Open balcony	0.255	0.268	0.013	0.012	5,639
	(0.436)	(0.443)	[0.012]	[0.012]	
Air conditioner	0.878	0.889	0.011	0.011	5,639
	(0.327)	(0.314)	[0.009]	[0.008]	
Window safety bars	0.356	0.372	0.016	0.016	5,639
	(0.479)	(0.483)	[0.013]	[0.013]	

Table 3 (cont.)
Balancing Tests

	Jewish	Arab	Diff	Diff with locality FE	N
	(1)	(2)	(3)	(4)	(5)
Elevator	0.341	0.351	0.010	0.010	5,639
	(0.474)	(0.477)	[0.013]	[0.012]	
Storage room	0.167	0.178	0.012	0.012	5,639
	(0.373)	(0.383)	[0.010]	[0.010]	
Suitable for the handicapped	0.192	0.198	0.007	0.007	5,639
	(0.394)	(0.399)	[0.011]	[0.010]	
Renovated	0.619	0.630	0.011	0.011	5,639
	(0.486)	(0.483)	[0.013]	[0.013]	
Suitable for roommates	0.275	0.302	0.026**	0.026**	5,639
	(0.447)	(0.459)	[0.012]	[0.012]	
Steel doors ("Pandor")	0.195	0.193	-0.002	-0.002	5,639
	(0.396)	(0.395)	[0.011]	[0.010]	
Number of annual rent payments	11.67	11.59	-0.080	-0.080	5,639
	(2.015)	(2.187)	[0.056]	[0.056]	
Ad with pictures	0.728	0.724	-0.005	-0.005	5,637
	(0.445)	(0.447)	[0.012]	[0.012]	

Notes: Although 6,118 ads were replied to in the correspondence study, due to a technical error that had occurred while downloading the ads, apartment characteristics are available for only 5,639 ads. Column 1 specifies means and standard deviations for characteristics of the apartments whose landlords were contacted by a Jewish fictitious renter. Column 2 specifies means and standard deviations for characteristics of the apartments whose landlords were contacted by an Arab fictitious renter. Each entry in column 3 is derived from a separate OLS regression where the explanatory variable is an indicator for the ad posted by the survey participant being replied to by an Arab fictitious renter (in column 4 the regressions include locality fixed-effects).
Standard deviations are in parentheses in columns 1 and 2. Robust standard errors are in brackets in columns 3 and 4.
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Table 4
Ethnic Discrimination in the Market for Rental Housing

Dependent variable:	Positive reply to text message		
	(1)	(2)	(3)
Arab	-0.487***	-0.487***	-0.486***
	(0.015)	(0.014)	(0.014)
Apartment characteristics	No	Yes	Yes
Locality fixed-effects	No	No	Yes
Observations	5,673	5,008	5,008
R-squared	0.245	0.258	0.273

Notes: "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Apartment characteristics" include the characteristics detailed in Table 3. Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Table 5
Personal Determinants of Ethnic Discrimination – Opinions and Statistical Perceptions

Dependent variable:	Positive reply to text message					
	(1)	(2)	(3)	(4)	(5)	(6)
Arab	-0.478***	-0.431***	-0.385***	-0.340***	-0.286***	-0.284***
	(0.034)	(0.035)	(0.067)	(0.070)	(0.075)	(0.100)
Left wing	-0.059					-0.056
	(0.051)					(0.051)
Left wing x Arab	0.242***					0.218***
	(0.077)					(0.077)
Support marriage ban		-0.037				
		(0.047)				
Support marriage ban x Arab		-0.010				
		(0.085)				
Violent crime			0.007			0.003
			(0.010)			(0.016)
Violent crime x Arab			-0.017			0.012
			(0.021)			(0.029)
Property crime				0.008		0.004
				(0.012)		(0.018)
Property crime x Arab				-0.032		-0.029
				(0.023)		(0.032)
Terrorism fatalities					0.020	0.019
					(0.012)	(0.012)
Terrorism fatalities x Arab					-0.050**	-0.047*
					(0.025)	(0.026)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Apartment characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	783	783	783	783	783	783
R-squared	0.270	0.260	0.260	0.262	0.265	0.277

Notes: "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Left wing" is an indicator that equals 1 if the participant rated his political orientation between 1 and 3 and 0 otherwise (if the participant rated his political orientation between 4 and 10). "Support marriage ban" is an indicator that equals 1 if the participant strongly agreed or agreed with the statement "there should be a law banning inter-ethnic marriages in Israel" and 0 otherwise (if the participant strongly disagreed or disagreed with this statement). To minimize the effect of outliers, participants' responses to the "Violent crime", "Property crime" and "Terrorism fatalities" questions (see survey text for details) were each translated into quintiles. "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3.

Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Table 6
Neighborhood Characteristics and the Extent of Ethnic Discrimination

Dependent variable:	Positive reply to text message						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Arab	-0.566***	-0.558***	-0.499***	-0.616***	-0.432***	-0.381***	-1.067***
	(0.027)	(0.028)	(0.058)	(0.091)	(0.039)	(0.146)	(0.249)
Share of voters for left wing parties x Arab	0.240***	0.159**	0.228***	0.234***	0.520***	0.319***	0.239**
	(0.066)	(0.062)	(0.066)	(0.065)	(0.096)	(0.089)	(0.109)
Share of Arabs x Arab		0.568***					0.453***
		(0.124)					(0.160)
Population size (thousands) x Arab			-0.017				-0.004
			(0.012)				(0.012)
Median age x Arab				0.001			0.004
				(0.003)			(0.003)
Mean per capita income (thousands NIS) x Arab					-0.038***		-0.042***
					(0.008)		(0.011)
Mean number of education years x Arab						-0.015	0.044***
						(0.011)	(0.016)
Apartment characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Neighborhood characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locality fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,806	3,806	3,806	3,806	3,806	3,806	3,806
R-squared	0.287	0.289	0.287	0.287	0.291	0.287	0.293

Sources: Voting data for the 21th Parliament (Knesset) elections held in 2015 were obtained from the Central Elections Committee. Data on neighborhoods' sociodemographic characteristics were obtained from the Israeli Central Bureau of Statistics.

Notes: "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Share of voters for left wing parties" is the share of voters in the neighborhood who voted for left wing parties in the 2015 parliamentary elections. These parties include "HaMahane HaZioni" and "Meretz", and the Arab party "HaReshima HaMeshutefet". "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3. "Neighborhood characteristics" include the share of voters who voted for left wing parties, the share of Arabs, population size, median age, mean monthly per capita income and mean number of years of education for people between the ages of 25 and 54 residing in the neighborhood.
Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Table 7

Landlord or Neighborhood Political Orientation as a Determinant of Ethnic Discrimination?

Dependent variable:	Positive reply to text message				
	All Landlords			Different Locality	Same Locality
	(1)	(2)	(3)	(4)	(5)
Arab	-0.505***	-0.571***	-0.579***	-0.554***	-0.585***
	(0.037)	(0.056)	(0.054)	(0.088)	(0.075)
Left wing	-0.071		-0.056	-0.119	0.010
	(0.050)		(0.050)	(0.079)	(0.060)
Left wing x Arab	0.236**		0.208**	0.275**	0.097
	(0.095)		(0.100)	(0.126)	(0.124)
Share of voters for left wing parties in the neighborhood		-0.035	0.037	0.291	-0.282
		(0.220)	(0.218)	(0.319)	(0.310)
Share of voters for left wing parties in the neighborhood x Arab		0.362**	0.269	0.191	0.351
		(0.160)	(0.170)	(0.265)	(0.238)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Apartment characteristics	Yes	Yes	Yes	Yes	Yes
Neighborhood characteristics	Yes	Yes	Yes	Yes	Yes
Locality fixed-effects	Yes	Yes	Yes	Yes	Yes
Observations	854	854	854	403	415
R-squared	0.325	0.321	0.327	0.383	0.369

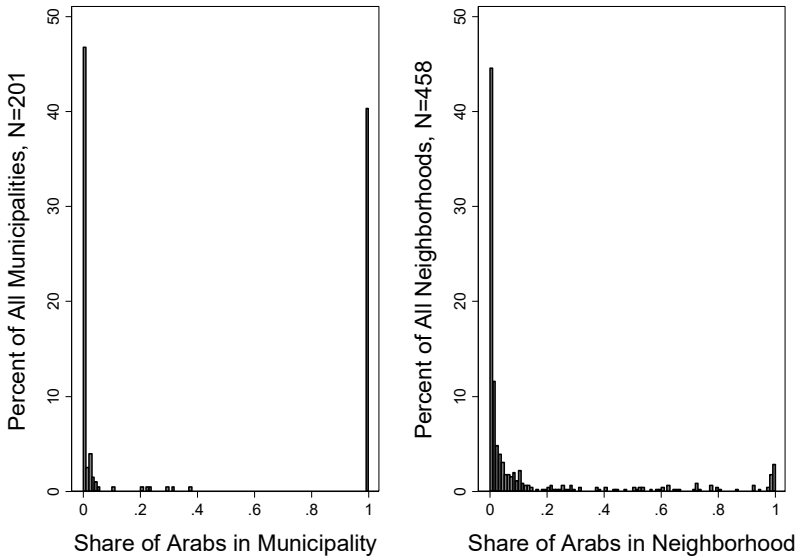
Sources: Voting data for the 21th Parliament (Knesset) elections held in 2015 were obtained from the Central Elections Committee. Data on neighborhoods' sociodemographic characteristics were obtained from the Israeli Central Bureau of Statistics.

Notes: The analysis in this table is restricted to landlords (1) who participated in the survey (and answered the political orientation question) and (2) for whom data is available on the political orientation of the neighborhood the apartment they are renting is located in. In column 4 the analysis is further restricted to landlords who reside in a locality that is different from the one the property they are renting out is located in. In column 5 the analysis is further restricted to landlords who reside in the same locality as the property they are renting out. "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Left wing" is an indicator that equals 1 if the participant rated his political orientation between 1 and 3 and 0 otherwise (if the participant rated his political orientation between 4 and 10). "Share of voters for left wing parties" is the share of voters in the neighborhood who voted for left wing parties in the 2015 parliamentary elections. These parties include "HaMahane HaZioni" and "Meretz", and the Arab party "HaReshima HaMeshutefet". "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3. "Neighborhood characteristics" include the share of voters for left wing parties, the share of Arabs, population size, median age, mean monthly per capita income and mean number of years of education for people between the ages of 25 and 54 residing in the neighborhood.

Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.

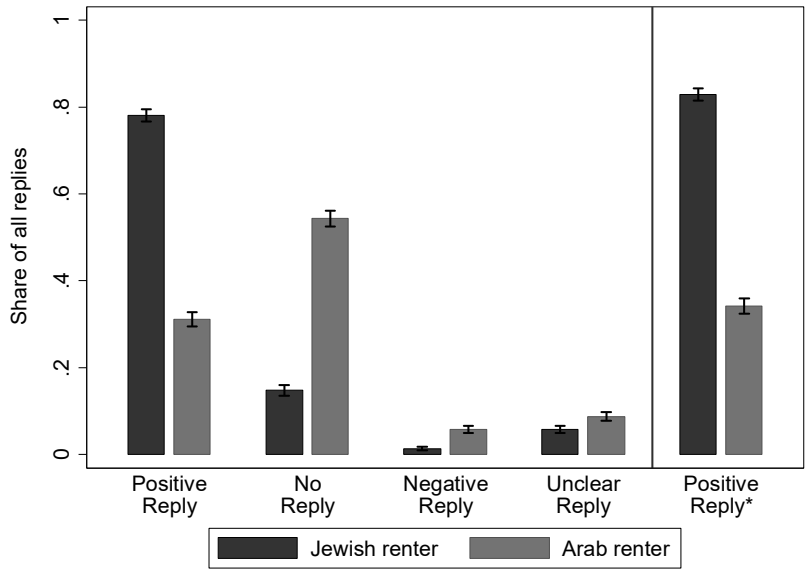
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Figure 1
Distribution of the Share of Arabs in:
All Municipalities **Neighborhoods within Integrated Municipalities**



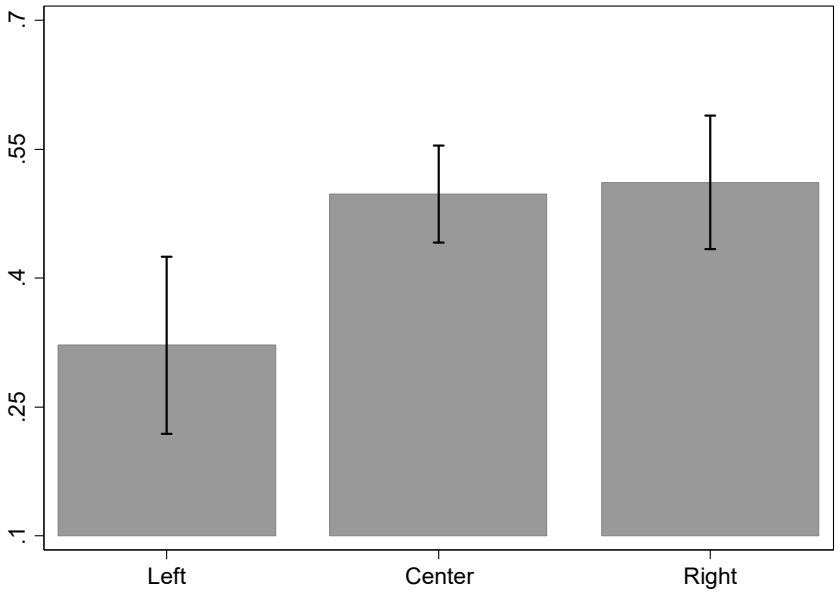
Sources: The Israeli Central Bureau of Statistics.
Notes: A municipality consists of either one big locality (with more than 20,000 residents) or a number of small localities. A municipality is defined by the Israeli Central Bureau of Statistics as integrated if the share of Arabs residing in it is between 4 and 50 percent (municipalities in which more than 50 percent of residents are Arab are defined as Arab).

Figure 2
Distribution of Replies by Renter Ethnicity



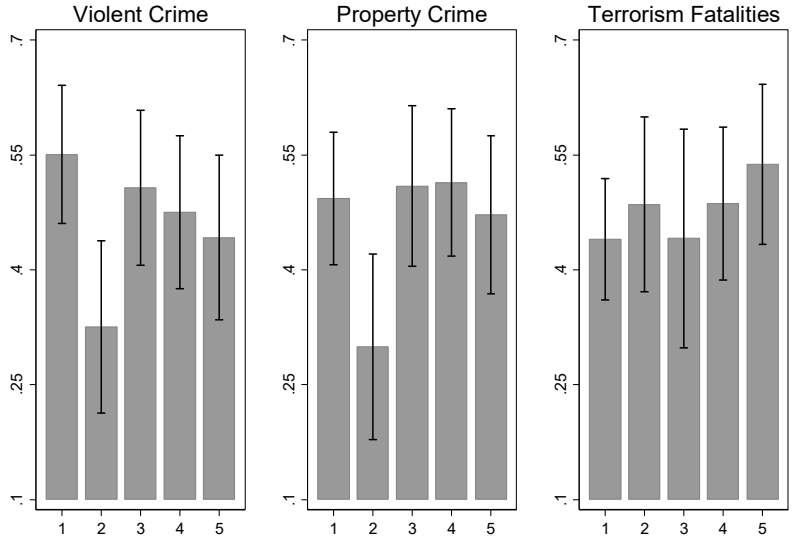
Notes: A positive reply includes cases where (1) the landlord did not send a text message but did attempt to call the renter back; (2) the landlord sent a text message saying that the apartment was still available; and (3) the landlord sent a text message asking the renter to contact him by phone. In the latter two cases, replies are classified as positive regardless of whether the landlord also tried to call the renter. An ad is classified as receiving no reply when the landlord neither replied to the query by text message nor attempted to call the renter back. A reply is classified as negative if the landlord replied by text message that the property was no longer available. Again, this was regardless of callback attempts. Other replies could not be clearly classified and were excluded from the main analysis. Thus, in the two rightmost columns, "positive reply*" is defined as the share of positive replies out of the first three categories.

Figure 3
The Extent of Ethnic Discrimination
by the Political Orientation of Landlords



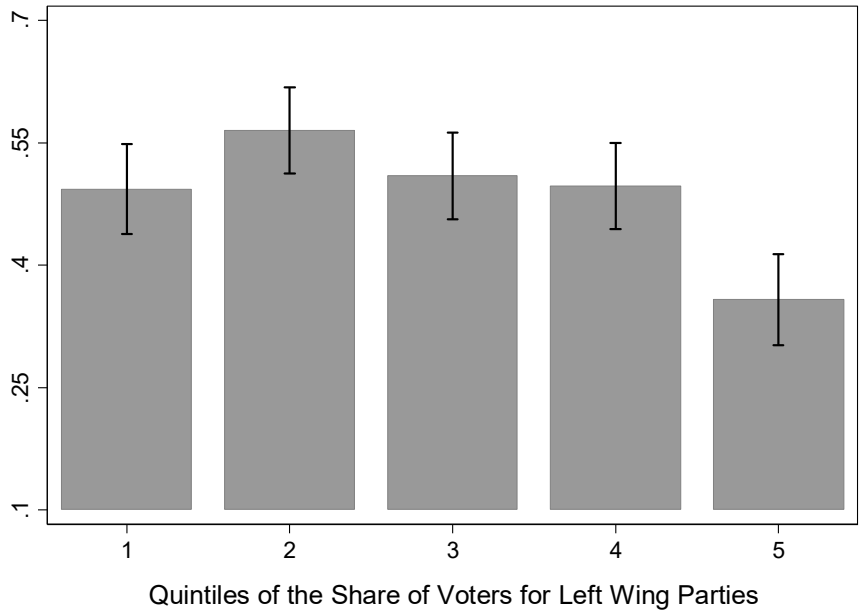
Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. Survey participants were asked to rate their political orientation on a scale of 1 to 10, with 1 referring to a left-leaning political orientation and 10 referring to a right-leaning political orientation. The Figure groups participants into three categories - left-leaning (1-3), center (4-7) and right-leaning political orientation (8-10).

Figure 4
The Extent of Ethnic Discrimination by
Quintiles of the Statistical Perceptions of Landlords



Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. To minimize the effect of outliers, participants' responses to the "Violent crime", "Property crime" and "Terrorism fatalities" questions (see survey text for details) were each translated into quintiles.

Figure 5
The Extent of Ethnic Discrimination
by the Political Orientation of the Neighborhoods



Sources: Voting data for the 21th Parliament (Knesset) elections held in 2015 were obtained from the Central Elections Committee.
Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. "Share of voters for left wing parties" is the share of voters in the neighborhood who voted for left wing parties in the 2015 parliamentary elections. These parties include "HaMahane HaZioni" and "Meretz", and the Arab party "HaReshima HaMeshutefet".

Appendix A: Arab migration into Jewish localities

Israel is characterized by a very high degree of residential segregation along ethnic lines. While this pattern may, to some extent, reflect people's natural tendency to associate with people like them (homophily), there are reasons to expect much more migration of Arabs into Jewish localities and Jewish neighborhoods within ethnically integrated localities. These reasons can be divided into supply side factors and demand side factors.

On the supply side, the main factor "pushing" Arabs out of Arab localities is that housing in these localities has become increasingly scarce due to discriminatory planning and construction policies. Since its creation in 1948, the State of Israel has not established even one new Arab locality outside of the Negev (where some Bedouin localities were created). The area of some of the existing Arab localities has even been reduced when the state expropriated land from its Arab owners for the construction of new Jewish localities or neighborhoods. Today, the area of jurisdiction of all 139 Arab localities comprises only 2.5 percent of the territory of the state.

A key explanation for this phenomenon lies in the fact that 93 percent of the land in Israel belongs to the state and its allocation is under the responsibility of the Israel Land Authority (ILA). The ILA's council consists of 14 members, 6 of whom are (by law) members of Keren Kayemeth LeIsrael (KKL) – Jewish National Fund. KKL considers itself entrusted with the Jewish people's interests and claims that land should be marketed to Jews only.

In addition to the land shortage, most Arab localities rely on outdated master plans or lack them entirely. This makes it impossible to assess the needs of residents and to prepare detailed plans that would allow for the towns' development in a manner that would meet the land, housing, and planning needs of residents.

Another tool that is considered effective in providing a measured and immediate response to housing market needs in a particular area are public planning initiatives. Such initiatives increase the supply of apartments in a relevant area by adjusting it to the population's needs while efficiently exploiting building capacity. An analysis conducted by Adalah, the Israeli Center for Arab Minority Rights in Israel, found that during the year 2016, the ILA published tenders for the construction of 38,261 new housing units in Israeli Jewish towns (not including ethnically

integrated cities), but only 1,844 housing units in Arab localities. In other words, twenty percent of the population is receiving less than five percent of all new housing units.[1]

On the demand side, two prominent factors play a role. First, even if existing Arab localities had the capacity to absorb all the Arabs looking for housing, staying within these localities would force them to settle for socioeconomic conditions that are inferior to those enjoyed by the Arab population in ethnically integrated or Jewish localities. According to the socioeconomic measures published by the Israeli Central Bureau of Statistics, the average score (on a scale of 1 to 10) across Arab localities is 2.7 while this score is equal to 5 and 6 in ethnically integrated and Jewish localities, respectively. In fact, the highest score for an Arab locality is 6 while half of the Jewish localities have a score of 7 or above.

Second, the young generation of Arabs is more educated than that of their parents. Therefore, they are "pulled" to Jewish localities that offer a high quality urban society, more open and more achievement-oriented. In addition, the traditional role of the extended family in helping the young household has lost its importance compared with the desire for individualism and privacy. This enables young Arab families to live further from the older generation.[2] Among those who choose to migrate to Jewish localities or to Jewish neighborhoods within integrated localities, one can find students coming to attend institutions of higher education – but sometimes end up starting their own homes in the destination city and integrating into the local labor market – or educated Arabs who follow government policies intended to integrate them into the public sector.[3]

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[1] Adalah – The Legal Center for Arab Minority Rights in Israel. 2015. "Deliberate Obstacles, Not Failures: Adalah's response to the State Comptroller's Report on the subject of the housing crisis in Israel." https://www.adalah.org/uploads/Response-to-Comptroller-Housing-Report-27-Apr-2015.pdf

[2] Sadeh, Shuki. 2015. "A Growing Arab Middle Class Makes a Home in Jewish Cities". Ha'aretz. https://www.haaretz.com/israel-news/.premium-arabs-moving-to-jewish-cities-1.5381904

[3] Bank of Israel. 2016. "Chapter 8: Welfare Issues - The residential distribution and socioeconomic characteristics of ultra-Orthodox Jews and Israeli Arabs". 2016 Annual Report. http://www.boi.org.il/en/NewsAndPublications/RegularPublications/Research%20Department%20Publications/BankIsraelAnnualReport/Annual%20Report%202016/chap-8.pdf

Appendix B: Landlord Survey text

This appendix contains the full text of the telephone survey of landlords contacted during the correspondence study. Text in bold face was read out loud to the survey participant. Text in brackets provides additional information.

Hello, this is [name of the surveyor**] calling from The Hebrew University of Jerusalem. We are conducting a short survey for research purposes** [If asked about the specific topic, the surveyor stated that the survey deals with the public's statistical perceptions]**. Your answers will be kept secret. You can refuse to answer any question or quit the survey at any point. I would appreciate your participation.**

Gender [identified from conversation]: male / female.

Ethnicity [identified from conversation]: Jewish / Arab.

I will now ask you a few background questions:

- **How old are you?**
- **In which country were you born?**
- [If participant was born in Israel] **In which country was your father born?**
- [If participant was not born in Israel] **In what year did you emigrate to Israel?**
- **What is the highest diploma or degree that you have earned in your studies? up to and including high-school / post-secondary, non-academic / bachelor's degree / master's degree / doctoral degree / other**
- **Do you consider yourself: secular / traditional / religious / haredi [ultra-orthodox]?**
- **In which locality do you reside?**
- **Are you: married / single / divorced / widowed?**
- **How many children do you have?**
- **The mean net monthly income for an Israeli family is NIS 15,000. Is your family's income: higher than / roughly equal to / less than NIS 15,000?**
- **What is your political orientation on a scale of 1 to 10 with 1 referring to a left-leaning political orientation and 10 referring to a right-wing political orientation?**
- **I will now read you a statement and ask you to rank your agreement with the statement in a scale of 1 to 4, where 1 means strongly agree, 2 means agree, 3 means somewhat**

disagree and 4 means strongly disagree: "Israel should have a law banning marriages between Jews and Arabs". strongly agree / agree / somewhat disagree / strongly disagree.

I will now ask you two questions based on Israeli police official data:

- **In 2014, out of every 10,000 adult Jewish men** [aged 19 and above]**, 12 were convicted of violent crime. Out of every 10,000 adult Arab men** [aged 19 and above]**, how many do you estimate were convicted of violent crime in the same year?**
- **In 2014, out of every 10,000 adult Jewish men** [aged 19 and above]**, 14 were convicted of property crime. Out of every 10,000 adult Arab men** [aged 19 and above]**, how many do you estimate were convicted of property crime in the same year?**

I will now ask you a question regarding the wave of terrorism attacks Israel had experienced since October 2015.

- **According to the Israeli Ministry of Defense and the Israel Security Agency, how many Israelis do you estimate were killed in terrorism attacks between October 2015 and December 2016?**

For your information, you were chosen to participate in this survey from of a pool of landlords who recently posted a property for rent on an online website. Thank you for your cooperation.

Appendix C: Survey on the attributes of potential renters

This Appendix provides details on a survey identifying renter characteristics that are perceived as important for landlords. The survey was carried out especially for this study by a professional polling firm. The firm maintains a panel of survey participants whose sociodemographic characteristics are representative of the adult population of Israel and conducts its polling using an internet platform. The survey included 940 participants, of which 30 percent stated that they own an apartment which they are renting and more than 80 percent stated that at some point in their lives they rented an apartment.

Text of the survey

This is a short survey concerning the renting of apartments. We would appreciate it if you could take a few minutes and respond to all the questions in this survey.

1. Are you the owner of an apartment you do not reside in and which you are renting for a money? (this question refers to long-term rents and not Airbnb).
   A. Yes
   B. No
2. Have you ever rented an apartment? (i.e. have you ever resided in an apartment you or your family do not own and for which you paid rent for an extended period of time).
   C. Yes
   D. No
3. Next you will find five attributes that could be important for a landlord who is considering renting his apartment to a potential renter. Rate these attributes from the one you believe would be the most important for the landlord to the one you believe would be the least important to him.

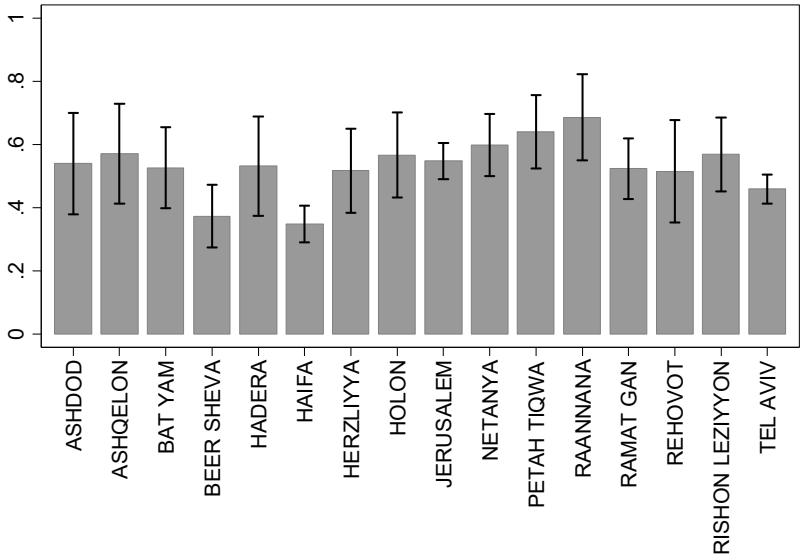
   In my opinion, it is important for a landlord that the renter will:

   - Have a steady job. (rate: _____)
   - Not be violent. (rate: _____)
   - Be clean and tidy. (rate: _____)
   - Be trustworthy and fair. (rate: _____)
   - Be well educated. (rate: _____)

4. Do you think there are other attributes of potential renters that would be important for landlords? If so, state the most important attribute you think was not mentioned in the previous question and place it within the existing ranking. For example, if you think the additional attribute you mention is third in its importance relative to the ones mentioned above, state the number 3.

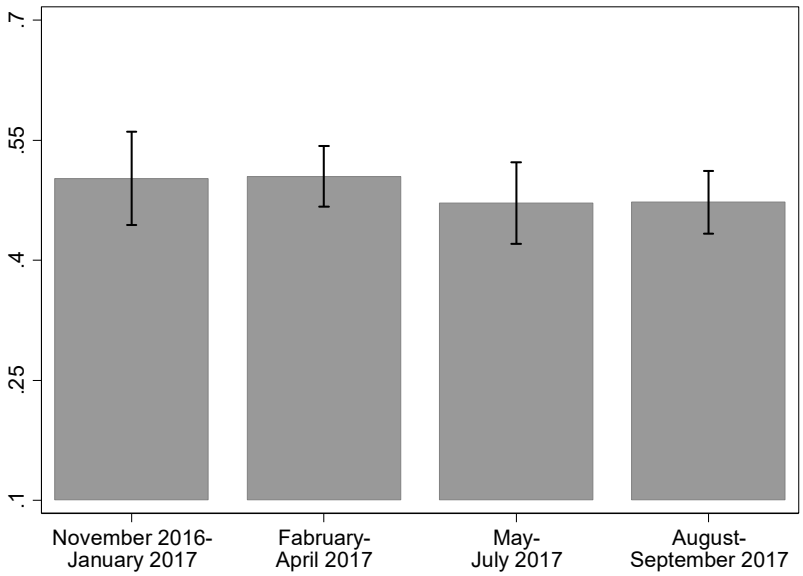
Appendix D: Variation in the extent of ethnic discrimination

Appendix Figure D1
The Extent of Ethnic Discrimination by Locality



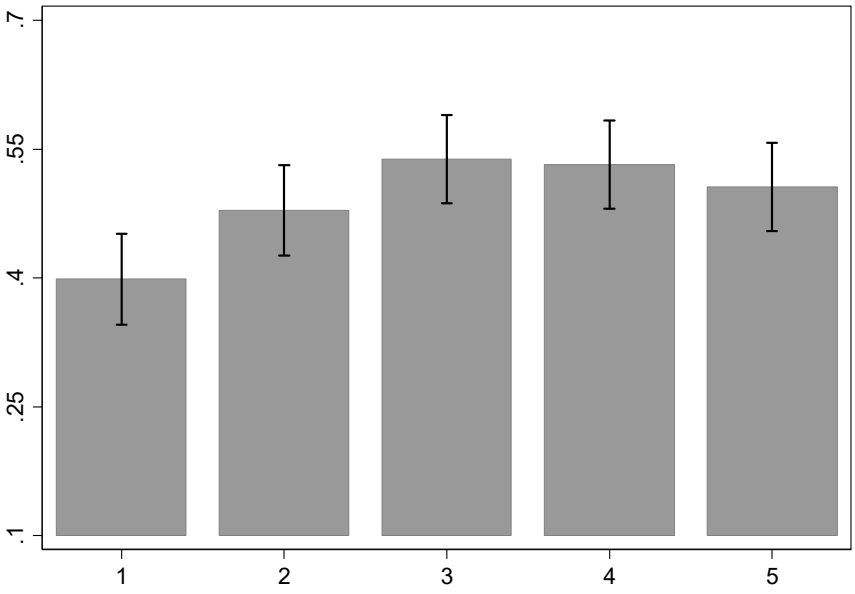
Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. The figure displays results for the 16 (out of 24) localities in the experiment where at least 100 ads were responded to.

Appendix Figure D2
The Extent of Ethnic Discrimination by Sub-Periods



Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters.

Appendix Figure D3
The Extent of Ethnic Discrimination by
Quintiles of the Requested Monthly Rent



Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. The figure plots ethnic discrimination by quintiles of the requested monthly rent.

Appendix E: Landlord Survey results

Appendix Table E1
Landlord Survey – Summary Statistics and Balancing Tests

	Panel A: Sociodemographic Characteristics			
	Jewish renter	Arab renter	Diff	N
	(1)	(2)	(3)	(4)
Female	0.378	0.380	0.002	1,766
	(0.485)	(0.486)	[0.023]	
Age	48.73	48.61	-0.128	1,790
	(14.88)	(14.98)	[0.706]	
Married	0.739	0.714	-0.025	1,767
	(0.439)	(0.452)	[0.021]	
Secular	0.620	0.601	-0.018	1,766
	(0.486)	(0.490)	[0.023]	
Higher education degree[1]	0.600	0.614	0.014	1,731
	(0.490)	(0.487)	[0.023]	
High income[2]	0.427	0.421	-0.006	1,550
	(0.495)	(0.494)	[0.025]	
Number of children	2.387	2.436	0.049	1,728
	(1.557)	(1.727)	[0.079]	
New immigrant[3]	0.072	0.063	-0.009	1,759
	(0.259)	(0.243)	[0.012]	

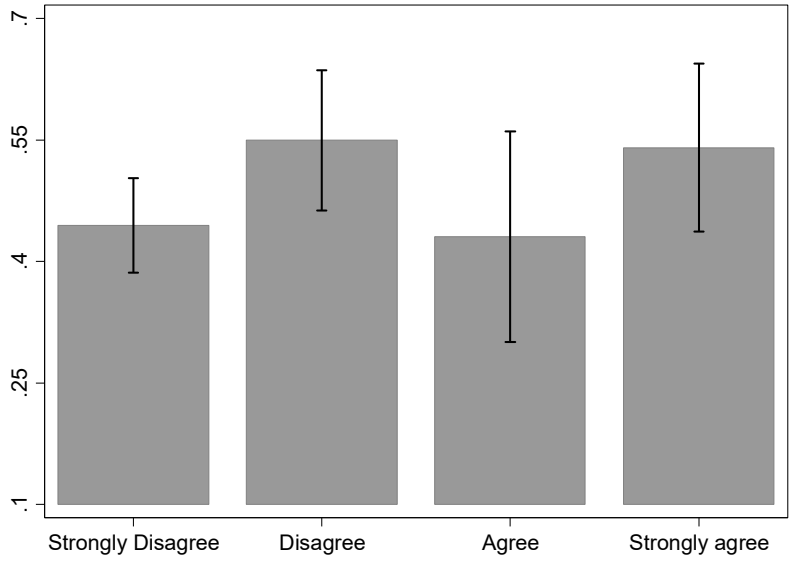
Appendix Table E1 (cont.)
Landlord Survey – Summary Statistics and Balancing Tests

	Panel B: Opinions and Statistical Perceptions			
	Jewish renter	Arab renter	Diff	N
	(1)	(2)	(3)	(4)
Political orientation	5.943	6.007	0.064	1,667
	(2.455)	(2.429)	[0.120]	
Support marriage ban	0.269	0.279	0.010	1,669
	(0.443)	(0.449)	[0.022]	
Violent crime	2.993	2.939	-0.054	1,431
	(1.424)	(1.430)	[0.075]	
Property crime	2.947	2.883	-0.064	1,476
	(1.441)	(1.490)	[0.076]	
Terrorism fatalities	2.796	2.714	-0.082	1,414
	(1.544)	(1.564)	[0.083]	

Notes: [1] Holds a bachelor's, master's or doctoral degree. [2] Reported having an above average income. [3] Immigrated to Israel since 1989. Column 1 specifies means and standard deviations for characteristics of survey participants who were contacted by a Jewish fictitious renter. Column 2 specifies means and standard deviations for characteristics of survey participants who were contacted by an Arab fictitious renter. Each entry in column 3 is derived from a separate OLS regression where the explanatory variable is an indicator for the ad posted by the survey participant being replied to by an Arab fictitious renter. "Political orientation" is a value between 1 and 10, where 1 refers to a left-leaning political orientation and 10 refers to a right-leaning political orientation. "Support marriage ban" is an indicator that equals 1 if the participant strongly agreed or agreed with the statement "there should be a law banning inter-ethnic marriages in Israel" and 0 otherwise (if the participant strongly disagreed or disagreed with this statement). To minimize the effect of outliers, participants' responses to the "Violent crime", "Property crime" and "Terrorism fatalities" questions (see survey text for details) were each translated into quintiles.
Standard deviations are in parentheses in columns 1 and 2. Robust standard errors are in brackets in column 3.
$^{*, **, ***}$ represent statistical significance at the 10%, 5%, and 1% levels.

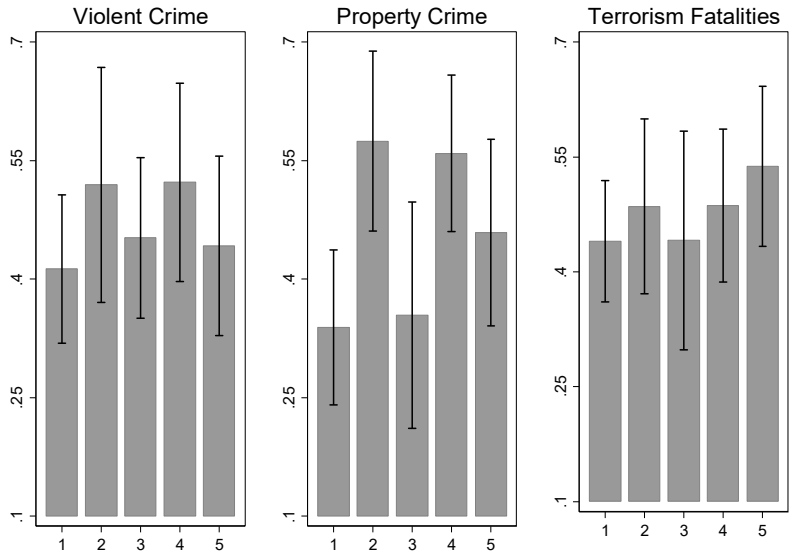
Appendix F: Determinants of ethnic discrimination

Appendix Figure F1
The Extent of Ethnic Discrimination by the
Degree of Support for a Ban on Inter-Ethnic Marriages



Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. Survey participants were asked to what extent they agree with the statement: "Israel should have a law banning marriages between Jews and Arabs".

Appendix Figure F2
The Extent of Ethnic Discrimination by Quintiles of the Statistical Perceptions of Landlords (Excluding "Anchors")



Notes: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters. To minimize the effect of outliers, participants' responses to the "Violent crime", "Property crime" and "Terrorism fatalities" questions (see survey text for details) were each translated into quintiles. To address the concern that results may be influenced by an anchoring effect, this figure excludes (before dividing them into quintiles) survey partiaptants who answered that the share of adult Arab men convicted in violent (property) crime is identical to the share of adult Jewish men convicted of such crimes.

Appendix Table F1
Correlates of Statistical Perceptions

Dependent variable:	Violent crime	Property crime	Terrorism fatalities	Violent crime	Property crime	Terrorism fatalities
	(1)	(2)	(3)	(4)	(5)	(6)
Left wing	-0.507***	-0.586***	-0.375***	-0.319***	-0.348***	-0.265**
	(0.085)	(0.099)	(0.122)	(0.106)	(0.115)	(0.127)
Female				-0.218**	-0.275***	0.301***
				(0.086)	(0.087)	(0.105)
Age				-0.007**	-0.015***	-0.008**
				(0.003)	(0.004)	(0.004)
Married				-0.040	-0.052	-0.063
				(0.103)	(0.103)	(0.118)
Secular				-0.104	-0.250**	-0.209**
				(0.091)	(0.103)	(0.103)
High education[1]				-0.126	-0.236**	-0.090
				(0.097)	(0.093)	(0.103)
High income[2]				0.110	0.133	-0.062
				(0.092)	(0.089)	(0.100)
Children				0.026	0.075**	-0.002
				(0.037)	(0.034)	(0.038)
New immigrant[3]				-0.081	-0.435**	0.685***
				(0.175)	(0.178)	(0.194)
Observations	1,375	1,417	1,350	1,153	1,189	1,125
R-squared	0.017	0.022	0.008	0.026	0.064	0.045

Notes: [1] Holds a bachelor's, master's or doctoral degree. [2] Reported having an above average income. [3] Immigrated to Israel since 1989. "Left wing" is an indicator that equals 1 if the participant rated his political orientation between 1 and 3 and 0 otherwise (if the participant rated his political orientation between 4 and 10). To minimize the effect of outliers, participants' responses to the "Violent crime", "Property crime" and "Terrorism fatalities" questions (see survey text for details) were each translated into quintiles.
Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Appendix Table F2
Sociodemographic Characteristics and Political Orientation

Dependent variable:	Left wing
	(1)
Female	0.058***
	(0.020)
Age	0.001
	(0.001)
Married	0.008
	(0.024)
Secular	0.153***
	(0.022)
Higher education degree[1]	0.051***
	(0.019)
High income[2]	0.004
	(0.022)
Number of children	-0.019**
	(0.008)
New immigrant[3]	-0.143***
	(0.034)
Observations	1,354
R-squared	0.072

Notes: [1] Holds a bachelor's, master's or doctoral degree. [2] Reported having an above average income. [3] Immigrated to Israel since 1989. "Left wing" is an indicator that equals 1 if the participant rated his political orientation between 1 and 3 and 0 otherwise (if the participant rated his political orientation between 4 and 10).
Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

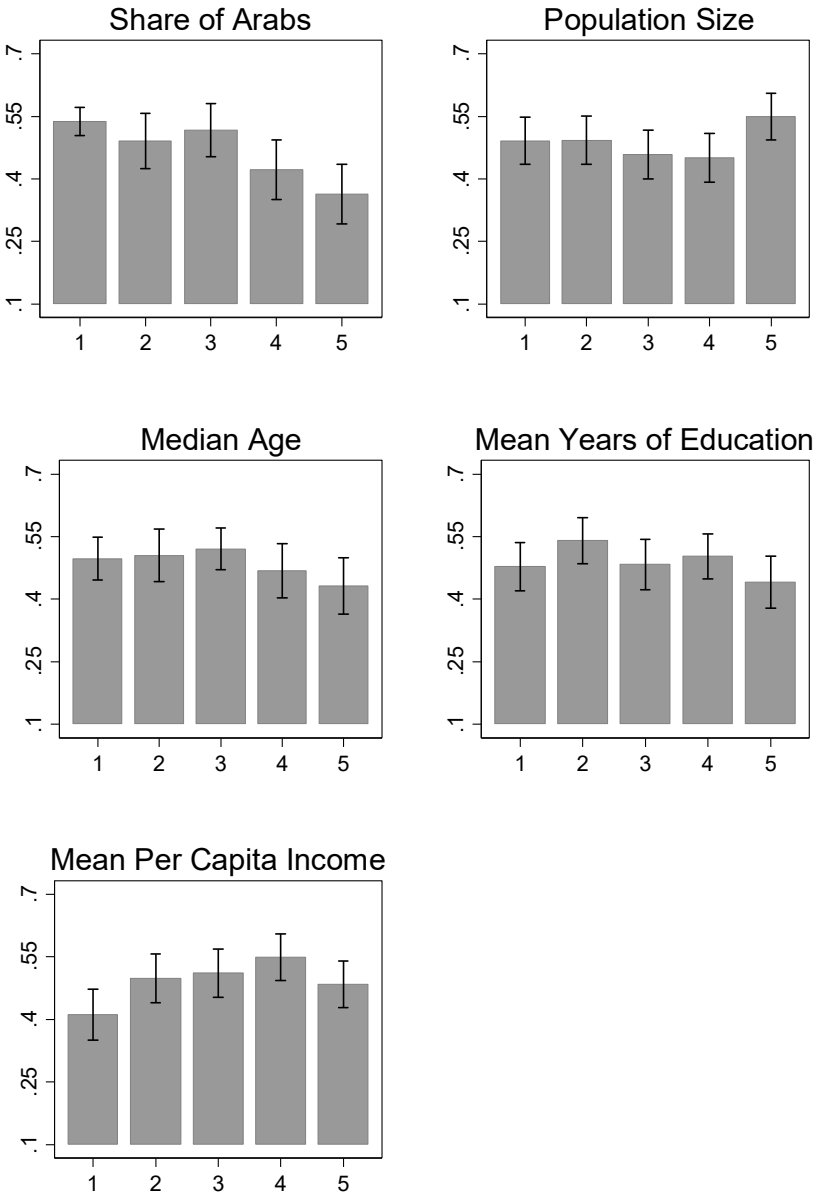
Appendix G: Cross neighborhood variation in the extent of ethnic discrimination

Appendix Table G1
Summary Statistics of Neighborhoods

	Mean	Standard deviation	Min	Max	N
	(1)	(2)	(3)	(4)	(5)
Share of voters for left wing parties	0.252	0.187	0.002	0.942	432
Share of Arabs	0.034	0.105	0.000	0.912	431
Population size (thousands)	3.793	1.081	1.080	10.19	405
Median Age	32.95	6.533	8.000	51.39	400
Mean years of education	13.88	1.371	8.100	17.10	400
Mean per-capita income (thousand NIS)	5.459	2.100	0.766	16.15	400

Sources: Voting data for the 21th Parliament (Knesset) elections held in 2015 were obtained from the Central Elections Committee. Data on neighborhoods' sociodemographic characteristics were obtained from the Israeli Central Bureau of Statistics.

Appendix Figure G1
The Extent of Ethnic Discrimination by
Quintiles of Neighborhood Characteristics



Sources: Data on neighborhoods' sociodemographic characteristics were obtained from the Israeli Central Bureau of Statistics.
Note: The extent of ethnic discrimination is defined as the share of positive replies to queries sent by Jewish fictitious renters minus the share of positive replies to queries sent by Arab fictitious renters.

Appendix H: Confounds and robustness

Appendix Table H1
Personal Determinants of Ethnic Discrimination – Redefining Landlord Replies

Dependent variable:	Positive reply to text message			
	(1)	(2)	(3)	(4)
Arab	-0.328***	-0.336***	-0.309***	-0.315***
	(0.099)	(0.093)	(0.097)	(0.094)
Left wing	-0.055	-0.037	-0.043	-0.061
	(0.050)	(0.051)	(0.049)	(0.051)
Left wing x Arab	0.211***	0.171**	0.180**	0.203***
	(0.079)	(0.079)	(0.080)	(0.073)
Violent crime	0.007	0.005	0.006	0.001
	(0.016)	(0.018)	(0.016)	(0.018)
Violent crime x Arab	0.023	0.020	0.035	0.017
	(0.030)	(0.031)	(0.030)	(0.028)
Property crime	0.004	0.006	0.004	0.010
	(0.017)	(0.018)	(0.017)	(0.018)
Property crime x Arab	-0.040	-0.035	-0.048	-0.035
	(0.030)	(0.033)	(0.032)	(0.028)
Terrorism fatalities	0.018*	0.016	0.016	0.019
	(0.011)	(0.010)	(0.010)	(0.012)
Terrorism fatalities x Arab	-0.035	-0.034	-0.023	-0.038*
	(0.022)	(0.022)	(0.022)	(0.021)
Personal characteristics	Yes	Yes	Yes	Yes
Apartment properties	Yes	Yes	Yes	Yes
Observations	807	807	875	875
R-squared	0.280	0.268	0.221	0.270

Notes: The analysis in column 1 uses the original definition of a positive reply (see Table 2). In column 2, replies by text messages that ask the renter to call the landlord by phone are defined as a negative reply (the indicator for a positive reply equals 0). In column 3, replies that were classified as "unclear" are classified as positive replies and in column 4 replies that were classified as "unclear" are classified as negative replies. "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Left wing" is an indicator that equals 1 if the participant rated his political orientation between 1 and 3 and 0 otherwise (if the participant rated his political orientation between 4 and 10). To minimize the effect of outliers, participants' responses to the "Violent crime", "Property crime" and "Terrorism fatalities" questions (see survey text for details) were each translated into quintiles. "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3. The analysis in this table is restricted to survey participants who answered all the political orientation and statistical perception questions.
Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Appendix Table H2
Personal Determinants of Ethnic Discrimination –
Using the Original Opinion and Statistical Perception Variables

Dependent variable:	Positive reply to text message				
	(1)	(2)	(3)	(4)	(5)
Arab	-0.227***	-0.428***	-0.430***	-0.424***	-0.220***
	(0.078)	(0.029)	(0.028)	(0.032)	(0.079)
Political orientation	0.007				0.007
	(0.009)				(0.009)
Political orientation x Arab	-0.035**				-0.034**
	(0.013)				(0.014)
Violent crime		0.001			0.002
		(0.001)			(0.003)
Violent crime x Arab		-0.002			-0.002
		(0.002)			(0.003)
Property crime			-0.000		-0.002
			(0.001)		(0.002)
Property crime x Arab			-0.001		0.001
			(0.002)		(0.003)
Terrorism fatalities				0.014**	0.013**
				(0.006)	(0.006)
Terrorism fatalities x Arab				-0.017	-0.013
				(0.026)	(0.024)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Apartment properties	Yes	Yes	Yes	Yes	Yes
Observations	807	807	807	807	807
R-squared	0.273	0.264	0.264	0.264	0.276

Notes: "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Political orientation" is a categorical variable ranging from 1 to 10 and refers to the survey participant's response to the question: "What is your political orientation on a scale of 1 to 10, with 1 referring to a left-leaning political orientation and 10 referring to a right-wing political orientation?" "Violent crime" ("Property crime") is the number of adult Arab men (out of every 10,000 Arab men) that the participant estimates were convicted in violent (property) crime during 2014 (the participant stated this number after being told that during the same year, 12 (14) adult Jewish men were convicted in violent (property) crime). "Terrorism fatalities" is the number of Israelis that the participant believed were killed in terrorist attacks between October 2015 and December 2016. "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3.
Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Appendix Table H3
Personal Determinants of Ethnic Discrimination –
Using Z-scores for Opinions and Statistical Perceptions

Dependent variable:	Positive reply to text message					
	(1)	(2)	(3)	(4)	(5)	(6)
Arab	-0.436***	-0.437***	-0.437***	-0.436***	-0.438***	-0.436***
	(0.026)	(0.027)	(0.028)	(0.028)	(0.027)	(0.026)
Political orientation z-score x Arab	-0.084**					-0.082**
	(0.032)					(0.033)
Violent crime z-score x Arab		-0.030				
		(0.025)				
Property crime z-score x Arab			-0.022			
			(0.023)			
Terrorism fatalities z-score x Arab				-0.035		
				(0.055)		
Statistical perceptions unified z-score x Arab					-0.051	-0.026
					(0.033)	(0.032)
Opinions and perceptions z-scores	Yes	Yes	Yes	Yes	Yes	Yes
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Apartment properties	Yes	Yes	Yes	Yes	Yes	Yes
Observations	807	807	807	807	807	807
R-squared	0.273	0.264	0.264	0.264	0.264	0.273

Notes: "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Political orientation z-score" is the standardized score of the political orientation variable which is a categorical variable ranging from 1 to 10 and refers to the survey participant's response to the question: "What is your political orientation on a scale of 1 to 10, with 1 referring to a left-leaning political orientation and 10 referring to a right-wing political orientation?". "Violent crime z-score" ("Property crime z-score") is the standardized score of the ratio between the number of adult Arab men (out of every 10,000 Arab men) that the participant estimates were convicted of violent (property) crime during 2014 and the number of adult Jewish men who were convicted of violent (property) crime. "Terrorism fatalities z-score" is the standardized score of the ratio between the number of Israelis that the participant believed were killed in terrorist attacks between October 2015 and December 2016 and the true number of Israelis killed in terrorist attacks during that period (39). "Statistical perceptions unified z-score" is the mean of the statistical perception z-scores: "Violent crime z-score", "Property crime z-score" and "Terrorism fatalities z-score". "Opinions and perceptions z-scores" includes the variables "Political orientation z-score" (in column 1), "Violent crime z-score" (in column 2), "Property crime z-score" (in column 3), "Terrorism fatalities z-score" (in column 4) and "Statistical perceptions unified z-score" (in columns 5-6). "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3. The analysis in this table is restricted to survey participants who answered all the political orientation and statistical perception questions.

Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

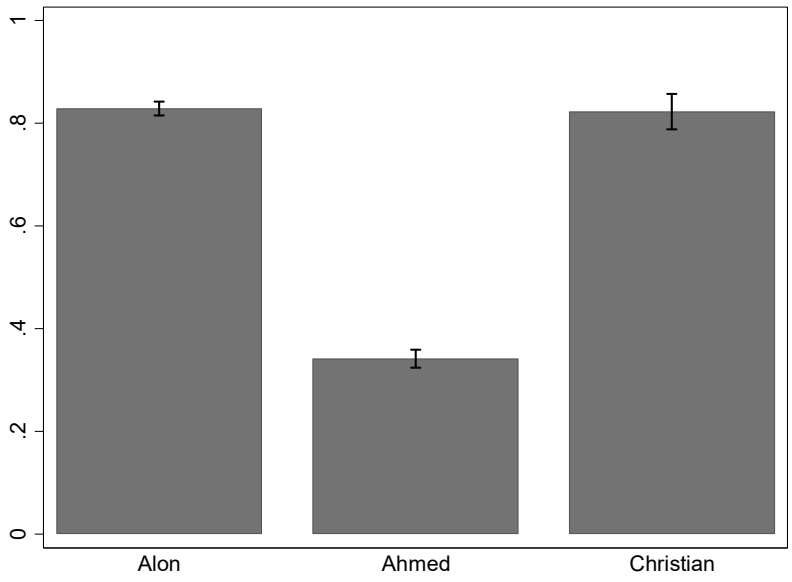
Appendix Table H4
Personal Determinants of Ethnic Discrimination – Possible confounds

Dependent variable:	Positive reply to text message									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Arab	-0.485***	-0.452***	-0.465***	-0.479***	-0.522***	-0.495***	-0.508***	-0.476***	-0.479***	-0.467***
	(0.031)	(0.036)	(0.072)	(0.055)	(0.045)	(0.044)	(0.039)	(0.055)	(0.033)	(0.099)
Left wing x Arab	0.180**	0.189**	0.179**	0.179**	0.167**	0.174**	0.178**	0.177**	0.173**	0.168**
	(0.077)	(0.077)	(0.077)	(0.078)	(0.081)	(0.078)	(0.077)	(0.077)	(0.078)	(0.082)
Female x Arab		-0.094*								-0.081*
		(0.048)								(0.047)
Age x Arab			-0.000							-0.001
			(0.001)							(0.002)
Married x Arab				-0.007						-0.022
				(0.058)						(0.068)
Secular x Arab					0.062					0.060
					(0.061)					(0.060)
High education[1] x Arab						0.016				0.012
						(0.053)				(0.053)
High income[2] x Arab							0.051			0.029
							(0.055)			(0.058)
Children x Arab								-0.003		0.008
								(0.018)		(0.024)
New immigrant[3] x Arab									-0.101	-0.079
									(0.113)	(0.116)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Apartment characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119
R-squared	0.252	0.255	0.255	0.252	0.256	0.256	0.258	0.254	0.255	0.272

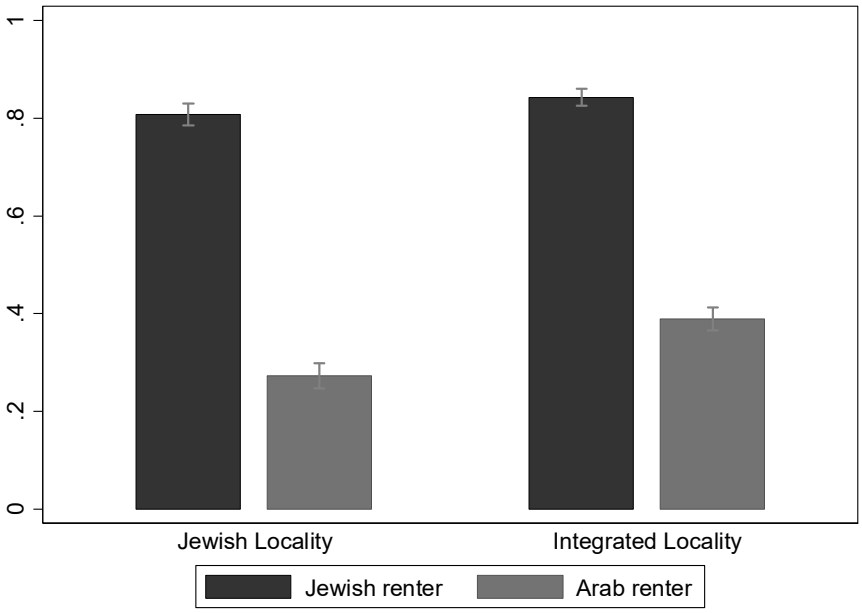
Notes: [1] Holds a bachelor's, master's or doctoral degree. [2] Reported having an above average income. [3] Immigrated to Israel since 1989. "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Left wing" is an indicator that equals 1 if the participant rated his political orientation between 1 and 3

and 0 otherwise (if the participant rated his political orientation between 4 and 10). "Personal characteristics" include a set of indicators for whether the participant is female, married, a new immigrant (immigrated to Israel since 1989), secular, holds an academic degree and earns an above average income; and the participant's number of children. "Apartment characteristics" include the characteristics detailed in Table 3.
Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.
*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.

Appendix Figure H1
Share of Positive Replies by Renter Ethnicity



Appendix Figure H2
Share of Positive Replies by Renter Ethnicity
in Integrated vs. Jewish Localities



Notes: A locality is defined by the Israeli Central Bureau of Statistics as integrated if the share of Arabs residing in it is between 4 and 50 percent (cities with more than 50 percent Arab residents is defined as Arab).

Appendix Table H5
The Extent of Ethnic Discrimination by Locality Type

Dependent variable:	Positive reply to text message		
	(1)	(2)	(3)
Arab	-0.528***	-0.530***	-0.530***
	(0.020)	(0.020)	(0.020)
Integrated locality	0.046***	0.042**	0.007
	(0.017)	(0.017)	(0.043)
Integrated locality x Arab	0.070**	0.073**	0.072**
	(0.028)	(0.028)	(0.028)
Apartment characteristics	No	Yes	Yes
Locality characteristics	No	No	Yes
Observations	5,008	5,008	5,008
R-squared	0.252	0.264	0.269

Sources: Data on localities' sociodemographic characteristics were obtained from the Israeli Central Bureau of Statistics.

Notes: "Arab" is an indicator for whether the ad was responded to by an Arab fictitious renter. "Integrated locality" is an indicator that equals 1 if the posted property is in a locality in which the share of Arabs is between 4 and 50 percent and 0 otherwise (for Jewish localities). "Share of voters for left wing parties" is the share of voters in the locality who voted for left wing parties in the 2015 parliamentary elections. These parties include "HaMahane HaZioni" and "Meretz", and the Arab party "HaReshima HaMeshutefet". "Apartment characteristics" include the characteristics detailed in Table 3. "Locality characteristics" include the share of Arabs, the share of voters for left wing parties, population size, median age, mean monthly per capita income and mean number of years of education for people between the ages of 25 and 54 residing in the locality.

Estimated using OLS. Standard errors, clustered by locality*month, are in parentheses.

*, **, *** represent statistical significance at the 10%, 5%, and 1% levels.