

# **Customer Discrimination: Evidence from Israel\***

**Revital Bar and Asaf Zussman**

The Hebrew University of Jerusalem

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This paper studies the extent, sources and consequences of customer discrimination against Arab workers in the Israeli market for labor-intensive services. Relying on surveys, field data and a natural experiment, we show that: (1) a large share of Jewish customers prefer to receive labor-intensive services from firms employing Jewish rather than Arab workers; (2) these preferences are associated with “statistical” considerations (in particular concerns for personal safety); (3) firms employing Arab workers charge lower service prices than those employing only Jews; and (4) customer preferences affect firms’ hiring decisions. The results are consistent with a modified version of Becker’s customer discrimination model.

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# 1. Introduction

The theoretical study of discrimination by economists began with Gary Becker's path-breaking book *The Economics of Discrimination* (1957). Becker argued that inferior labor market outcomes associated with minority groups (such as blacks in the United States) are driven by discriminatory preferences held by either employers, co-workers or customers. Most of the follow-up literature, both theoretical and empirical, has focused on employer discrimination. The role of customer preferences in generating cross-group differences in market outcomes has received relatively little attention. This paper aims to help fill this gap.

Becker's customer discrimination model assumes competitive service and labor markets. All firms provide a homogenous service and all workers have the same productivity. The crucial assumption is that some customers have discriminatory tastes: they prefer to receive the service from majority group workers. This preference lowers the relative demand for minority group workers and therefore their relative wage. As a result, profit-maximizing firms have to choose between (a) employing low-wage minority group workers and charging low service prices from non-discriminating customers or (b) employing high-wage majority group workers and charging high service prices from discriminating customers.

Importantly, these results imply that firms that cater to discriminating customers are not necessarily at a competitive disadvantage and therefore may survive in a market in the long run. This stands in contrast to Becker's employer discrimination model: according to a well-known criticism of this model, discriminating employers will not be able to survive in the market in the long run since they charge the same price as non-discriminating employers while paying a higher wage to their employees.

Our investigation focuses on discrimination by Jewish customers against Arab workers in Israel. Arabs constitute about twenty percent of the country's population and are associated with inferior labor market outcomes relative to Jews, e.g. in terms of wages and the unemployment rate.

Anecdotal evidence suggests that the preference for Jewish labor might be quite widespread. For example, in May 2015 a leading television news program documented instances where Jewish managers in a large movie theater complex demanded that a contracted Arab-owned taxi company send only Jewish drivers to service their employees. Furthermore, it was revealed that the theater was willing to pay higher fares for taxi rides with Jewish drivers. Similarly, in June 2015 the Jewish manager of a prominent ballet company was quoted in a newspaper article as saying that she was willing to pay extra for her dancers to be serviced by Jewish rather than Arab taxi drivers. In both cases, the stated justification for the preference for Jewish drivers was the concern for passengers' safety.

Customer discrimination is certainly not limited to taxi services. For example, *Avoda Ivrit* – “Jewish Labor” or more literally “Hebrew Labor” – is a classified advertisement internet website listing service providers in a wide range of fields who explicitly declare that they employ only Jews. According to the “about” page of the website, since its establishment, it has catered to thousands of “customers interested in information on businesses employing purely Hebrew labor” [the translation from Hebrew is ours].<sup>1</sup>

Anecdotal evidence also suggests that the intensity of the Israeli-Palestinian conflict affects the extent of discrimination by Jewish customers against Arab workers as well as against Arab-owned businesses. For example, in October 2000 Arab Israelis carried out mass demonstrations following the outbreak of the Second Palestinian *Intifada* (uprising). This led many Jews to stop visiting shops and restaurants in Arab localities. A similar chain of events occurred during and after the three major military confrontations between Israel and the Palestinians in the Gaza Strip between 2008 and 2014 and during the latest round of violence that erupted in October 2015.

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<sup>1</sup> The term *Avoda Ivrit* dates back to a controversy within the Zionist movement over the hiring of Arab workers by Jewish employers during the Ottoman rule over Palestine. Jewish immigrants of the *Second Aliyah* (immigration wave), which started in 1904, criticized earlier Jewish immigrant farmers for hiring Arabs to work for them. The critics, including future prime minister David Ben Gurion, claimed that employing Jews in manual labor was essential for the building of a new type of Jewish society.

Motivated by this evidence, we set out to conduct a systematic exploration of discrimination by Jewish customers against Arab workers in Israel. The data gathering effort, carried out from January to December 2015, consisted of several phases. Appendix A provides a timeline.

When deciding where to look for evidence of customer discrimination, one needs to take into account the fact that Israeli society is highly segregated by ethnicity. The population of the vast majority of localities is either all Jewish or all Arab. Even in ethnically-mixed localities, such as Jerusalem, Tel Aviv and Haifa, there is ethnic segregation by neighborhood. This naturally works to limit economic interaction between members of the two ethnic groups. Another important point to consider is that a large share of Arabs are employed in sectors (such as construction and agriculture) where they generally have little direct interaction with Jewish customers. Even in those places where Jewish customers do interact with Arab workers, the ability of the former to discriminate against the latter is limited. For example, when a Jewish customer walks into a pharmacy, she cannot choose to pay more in order to be serviced by a Jewish rather than an Arab pharmacist.

Our investigation focuses on the market for services intensive in manual labor, e.g. painting an apartment. From a methodological perspective, and in light of the considerations discussed above, this market has several appealing features. First, a significant number of Arabs are employed in this sector. Second, the interaction between Jewish customers and Arab workers is direct and often takes place in the customers' homes. Third, in contrast to the pharmacy example discussed above, this context presents an opportunity for Jewish customers to pay higher prices for the service to be provided by Jewish workers. Finally, in this market wages are a major component of production costs, implying that differences in prices likely translate into wage differentials.

The key assumption in Becker's model is that some customers have discriminatory preferences. To test the validity of this assumption in the present context, starting in August 2015 we conducted a survey using a random sample of Jewish individuals listed in a nationwide telephone directory. Our ability to differentiate between Arabs and Jews is based on the distinct naming conventions of the two ethnic groups (see Shayo and

Zussman, 2011). In the survey, we inquired about participants' attitudes and beliefs regarding Arab and Jewish workers, and elicited their willingness to pay a premium to receive a specific manual labor-intensive service from Jewish rather than Arab workers.

In October 2015, as we were conducting the customer survey, a wave of violence broke out between Israelis and Palestinians. We leverage this natural experiment to study the effect of politically-motivated violence on customers' preferences.

To test the predictions of Becker's model, we collected and analyzed data from two leading online directories of firms providing labor-intensive services, *Midrag* ("ranking") and *Miktzoanim* ("professionals"). Our data collection effort, carried out from January to May 2015, was restricted to certain fields. Building on the fact that the vast majority of firms are named after their owners, we further restricted the data collection effort to Jewish-owned firms. We note that firms with distinct Arab names constitute a very small share of those listed on the websites, a fact that by itself may suggest the existence of customer of discrimination.

For each of the Jewish-owned firms, we collected from the websites contact information and average numerical satisfaction ratings (based on customer reviews). Next, we contacted the firms and asked for a price quote for a well-defined task. Once we had a price quote in hand, we inquired whether the owner employs Arabs.<sup>2</sup> Finally, several weeks later we conducted a nominally independent follow-up survey of the firm owners to record their attitudes and beliefs regarding workers from the two ethnic groups, e.g. whether in their view Jewish workers are more efficient than Arab ones.

A large share of participants in the customer survey expressed a willingness to pay a premium to have their apartment painted by a firm employing Jewish rather than Arab workers. This share increased from about one third to roughly forty percent following the eruption in violence in October 2015. For those willing to pay a premium, the average premium level rose from about forty-five to sixty percent. Our analysis further indicates that, in both periods, the willingness to pay a premium is strongly associated with

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<sup>2</sup> Although this question may seem completely inappropriate and offensive, none of the owners we contacted refused to answer it. Some even mentioned that this question is often asked by customers.

participants' belief that Arab workers pose a greater threat to their personal safety than Jewish workers do.

Results of the employer survey (conducted in the early, relatively calm, period) indicate that eighty percent of firm owners agree with the statement "Jewish customers prefer to receive services from Jewish rather than Arab workers". Moreover, among the responses to the various attitude statements we posed, the response to this particular statement is the only significant predictor of the employment of Arab workers by the firm. Finally, consistent with all the previous results, we find that, controlling for customer satisfaction ratings, firms employing Arab workers charge between fifteen to twenty percent lower prices than those employing only Jewish workers.

The empirical literature on the role of customer discrimination in the labor market is relatively thin. Several early influential papers use data on professional sports. Kahn and Sherer (1988) examine the compensation of professional basketball players in the NBA and show that, controlling for a variety of productivity and market-related variables, black players earn significantly less than white players do. Furthermore, they find that home attendance rises with the share of white players in the team, suggesting a role for customer discrimination. Nardinelli and Simon (1990) show that, controlling for objective player performance statistics, baseball cards sold in the United States command lower prices when they feature pictures of nonwhite rather than white players. This suggests that in the market for professional baseball players, nonwhite ones may have lower entertainment value than their white colleagues.

Neumark (1996) conducts a field experiment to detect gender discrimination in the hiring of waiters and waitresses in Philadelphia. He provides strong evidence of discrimination against women in high-price restaurants. The author interprets the observed positive and significant relationship between the proportion male among the clientele and the proportion male among the waiting staff in these restaurants as suggesting that discrimination is driven by customer preferences.

Several papers examine in more general settings how the racial and ethnic composition of the pool of customers affects market outcomes. Holzer and Ihlanfeldt (1998) base their analysis on a survey of employers in four large metropolitan areas in the United States.

They show that the racial composition of an establishment's customers is strongly associated with the race of those hired, particularly in jobs that involve direct contact with customers and in sales or service occupations. Race of customers also affects wages, with employees in establishments that have mostly black customers earning less than those in establishments with mostly white customers. Leonard, Levine and Giuliano (2010) test for customer discrimination with data from a large number of retail stores that belong to the same chain. They find little evidence that matching employee demographics with the demographics of the store's community affects sales. Analyzing French data, Combes et al. (2016) show that customer discrimination contributes to the overexposure of African immigrants to unemployment in jobs that involve customer contact.

One of the main contributions of this paper to the literature on customer discrimination lies in its direct approach. Previous studies rely on observed labor and service market outcomes – such as wages and prices – to deduce whether customers have discriminatory preferences. In contrast, in this paper we directly capture discriminatory attitudes and relate them to market outcomes. Our approach builds on the tense inter-ethnic relations in Israel and on the fact that many Israelis freely express discriminatory attitudes and beliefs.

Our analysis also relates to a growing empirical literature that attempts to determine whether discrimination in the marketplace, to the extent it exists, is taste-based or statistical in nature. Examples include Altonji and Pierret (2001), List (2004), Autor and Scarborough (2008), Charles and Guryan (2008), Pope and Sydnor (2011), Doleac and Stein (2013), and Zussman (2013).<sup>3</sup> While our results seem to provide strong direct evidence in support of Becker's customer discrimination model, they also yield an important and interesting insight. The driving force in Becker's taste-based discrimination model is aversion of employers, co-workers or customers to cross-group contact. Becker did not, however, attempt to model the source of this aversion. Our customer survey enables us to shed light on this question. As noted above, we find that the aversion to the hiring of Arabs seems to be most strongly linked to customers' concerns for their safety. This suggests that rather than reflecting prejudice per se, customer preferences may be driven by "statistical" considerations, as in Arrow (1972) and Phelps (1972).

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<sup>3</sup> Guryan and Charles (2013) and Rich (2014) provide recent surveys of this literature.

Finally, the paper adds to our understanding of the large and persistent differences in labor market outcomes between Jews and Arabs in Israel. We illustrate these differences in Appendix B using the most recent data from the Israeli Central Bureau of Statistics' Income Surveys, focusing on prime working age men employed full time. Without conditioning on any other factor, hourly wages are forty-three log points lower for Arabs. This gap increases slightly when controlling for standard socio-demographic characteristics. The gap falls to seventeen log points (but remains highly statistically significant) once we control for education, sector and occupation. We note, however, that the last set of variables could be viewed as "bad controls" (Angrist and Pischke, 2008) since they may be endogenous. For example, it is possible that Arabs choose not to acquire education if they expect to be discriminated against in the labor market. Similarly, customer discrimination might steer Arab workers into specific sectors and occupations where customer contact is limited and wages are low.

Surprisingly, there is very little research trying to explain these large and persistent gaps in the labor market, and no well identified evidence on the role of discrimination in generating them.<sup>4</sup> Our paper is thus arguably the first to provide credible evidence of discrimination against Arabs in the Israeli labor market.

The rest of the paper is organized as follows. The next section describes our data collection efforts. In Section 3 we present the results of the analysis. Section 4 concludes.

## **2. Data**

### **2.1 Customers**

The key assumption in Becker's model is that some majority group customers have discriminatory tastes, preferring to receive services from majority group workers. Accordingly, the main purpose of the telephone survey we conducted was to uncover to

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<sup>4</sup> Yashiv and Kasir (Kaliner) (2014) provide a recent summary of the relevant facts and a review of the literature.

what extent Jewish Israelis have such a preference with respect to Jewish relative to Arab workers. We also use the survey to identify the sources of this preference.

The survey population consists of all individuals listed in the country's landline telephone directories ("white pages") – thirteen books, each covering a different geographical area. We randomly selected individuals with Jewish names from these books.<sup>5</sup> One potential concern with our approach is that people listed in the directories may not be representative of the adult Jewish population. For example, many young Israelis rely solely on cellular phones and thus do not appear in the "white pages". Another concern is that users of the internet websites *Midrag* and *Miktzoanim* may differ from the general population in terms of their views regarding Arab and Jewish workers. We return to these issues in the next section.

We started the survey effort in early August 2015. On October 1<sup>st</sup> 2015, after we surveyed about one thousand individuals, a wave of ethnic violence erupted in Israel and the Occupied Territories. This ended a period of relative calm that started in autumn 2014. We continued the survey effort until the end of December 2015, reaching about two thousand customer surveys in total.

Our survey questionnaire has two parts (the full text is in Appendix C). The first part focuses on socio-demographic and other personal characteristics of the participants. The second deals with participants' beliefs concerning Jewish and Arab workers. We start this part by asking the participant to imagine the following scenario: her apartment needs re-painting and she considers hiring a professional firm to do the job. The firm owner, who is Jewish, can send a team of either Jewish or Arab workers. We then ask the participant the following questions:

- "Which team do you think will do a higher quality job?"
- "Which team do you think is more likely to complete the job on schedule?"
- "Which team do you think will provide a more courteous service?"

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<sup>5</sup> We drop from the analysis a few cases where we identified an Arab accent during the interview.

- “Which team do you think poses a lower threat for your safety and the safety of your family?”

In each case, the participant can choose one of the teams or state that she believes that there will be no difference between them.

Next, we present the participant with a follow-up scenario: the firm owner proposes to send a team of Arab workers to perform the job for one thousand Israeli shekels (roughly \$250). We then ask the participant “Would you be willing to pay a price higher than one thousand shekels for the job to be performed by a team of Jewish workers?” When the answer is “yes”, we further ask: “how much would you be willing to pay for the job to be performed by a team of Jewish workers?”.

The last question in the survey asks the participant whether she has ever used the internet websites *Midrag* or *Miktzoanim* to contact a service provider. We use this information to compare the attitudes and beliefs of participants who are familiar with the websites and those who are not.

## **2.2 Firms**

Becker’s model predicts that firms that cater to non-discriminatory customers will hire minority group workers and charge lower service prices than firms catering to discriminatory customers. To test these predictions, we examine the online market for manual labor-intensive services in Israel.

### **2.2.1 Directories**

We collected data from *Midrag* and *Miktzoanim*, the two most popular online nationwide directories that list firms providing various labor-intensive services. The listed firms are generally small with a single owner who manages a few workers.<sup>6</sup>

*Midrag*, established in 2003, is the largest directory of its kind. According to its “about” page, *Midrag* currently lists about two thousand service providers, reviewed by over 230,000 customers. *Midrag*’s business model is such that firms pay a monthly fee to be

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<sup>6</sup> From now on, we use the terms “firm owner” and “service provider” interchangeably.

listed, but access to the directory is free for registered customers (high-usage customers pay a small annual fee).

The website strives to list only firms that provide high quality services. In order to enter the website's listing, the firm has to provide verifiable contact information for a large number of previous customers. *Midrag* randomly contacts a subset of these customers and asks them to provide the following ratings, each on a scale of one to ten: overall satisfaction with the service provided and satisfaction with quality, price, courtesy and timeliness. Only firms with an initial average overall rating of at least eight enter the list. To keep the ratings up to date, *Midrag* employees track customer searches for service providers. They then contact the customer to ask which provider was used, if any, and to collect satisfaction ratings. After a firm enters the list, its ratings are constantly updated based on reviews provided by the last one hundred customers. If the firm's average overall rating falls below eight, it is de-listed.

*Miktzoanim* was established in 2004. Like *Midrag*, it applies strict criteria for initially listing service providers, tracks their performance by using customer satisfaction ratings, and de-lists firms if necessary. *Miktzoanim* rates firms solely based on customers' overall satisfaction score, which varies from one to five.

### **2.2.2 Fields and tasks**

We focused on five specific fields of service. For each field we defined a particular task which (a) is routine enough to enable the firm owner to quote a price over the phone and (b) may require the work of more than one person. To find suitable tasks, we carried out a small pilot study and zeroed in on the following five tasks: cleaning a recently renovated two bedroom empty apartment; moving a refrigerator between apartments; painting a two-bedroom apartment; removing a plasterboard partition in an apartment; installing an electric timer for a water heater.

For each of these tasks, we constructed a detailed scenario. For example, the moving job was characterized by the following features: (a) we wanted to move a 270 liter refrigerator; (b) the job was to be done within two weeks; (c) the refrigerator was located in a second floor apartment in a building without an elevator in a specific neighborhood;

and (d) the destination of the move was a first floor apartment in a building without an elevator in a different neighborhood.

### **2.2.3 Collecting contact information and ratings**

In January 2015, we collected contact information and average numerical ratings for all the Jewish-named firms listed in the fields to which our tasks belong.<sup>7</sup> As noted above, the websites use different rating scales. To facilitate comparison, we transform the ratings from the two websites to range from zero to ten.

### **2.2.4 Obtaining price quotes**

From late January to early May 2015, one of our research assistants called all the service providers for which we collected contact information. Phone calls were conducted during regular business hours and followed a pre-specified uniform script.

At the start of the call, the research assistant said she was interested in a price quote for a particular task and provided the detailed description of this task.<sup>8</sup> If the firm owner refused to quote a price over the phone (e.g. because he wanted to estimate in person the amount of work required), the research assistant ended the call. In those cases where the firm owner quoted a range rather than a specific price, we use the middle of the range.<sup>9</sup>

In the next stage of the call, the research assistant asked the firm owner whether he plans to perform the job by himself. If so, the research assistant thanked the firm owner and ended the call. In those cases where the firm owner answered that he would either bring along with him or send workers to do the job, the research assistant said “I feel a bit uncomfortable asking this, but do you employ Arabs?” Once she obtained the answer to this question, the research assistant thanked the firm owner and ended the call.

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<sup>7</sup> Ratings were available for all firms in *Midrag* but were missing for some of the *Miktzoanim* firms. One reason for this is that, unlike *Midrag*, *Miktzoanim* does not provide initial rating when a firm is first listed.

<sup>8</sup> Firm owners are required by law to pay a value added tax of eighteen percent for the services they provide. When contacting the service providers, we specifically asked for a tax-inclusive price quote.

<sup>9</sup> We show below that results are robust to using alternative coding methods.

### 2.2.5 Surveying service providers

From early April to early August 2015, a different research assistant made a second round of calls to the same service providers. The purpose of this call, carried out in each case several weeks after the initial one, was to conduct a nominally independent survey, i.e. we did not alert the service providers to the fact that we already contacted them. Like the customer survey, this survey had two parts (the full text is in Appendix D). The first part collects socio-demographic information while the second deals with firm owner perceptions concerning Arab and Jewish workers. Specifically, we asked each firm owner to what extent he agrees with the following statements regarding Arab and Jewish workers in his field of work:

- “Jewish workers are more efficient than Arab workers”
- “Jewish workers are more trustworthy than Arab workers”
- “Jewish workers pose a lower threat for the safety of the employer than Arab workers”
- “Jewish workers prefer not to work alongside Arab workers and vice versa”
- “Jewish customers prefer to receive services from Jewish rather than Arab workers”

## 3. Customer Discrimination – The Evidence

### 3.1 Customer survey

In this sub-section we provide summary statistics on characteristics of participants in the customer survey and analyze their views with respect to Arab and Jewish workers.<sup>10</sup> Columns 1 and 2 of Table 1 report the means and standard deviations of participants’ sociodemographic characteristics across two periods: August-September 2015 – before the eruption of violence – and October-December 2015. In column 3, we test for differences in means across periods. In all cases but one, we are unable to reject the null hypothesis of equal means.

[Table 1]

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<sup>10</sup>The response rate was 29 percent.

In column 5 we present for all characteristics the corresponding “population” means obtained from two large-scale representative surveys conducted by the Israeli Central Bureau of Statistics. Comparing the figures in the first two columns with those in column 5 suggests that our sample is not representative of the adult Jewish population in Israel.<sup>11</sup> For example, the share of females is about sixteen percentage points higher in our survey than in the population. The fact that the sample is not representative might be a cause for concern since it makes it difficult for us to infer from our survey results what share of the population has discriminatory preferences. We deal with this issue below.

Recall that in the second part of the customer survey we used a hypothetical scenario (involving the painting of an apartment) to elicit participants’ beliefs concerning Arab and Jewish workers. Panel A of Table 2 displays summary statistics on these beliefs, where again, we differentiate between surveys conducted before and after the outbreak of violence. In the early period (column 1), 20.8 percent of participants believed that Jewish workers will do a higher quality job than Arab workers, while 7.4 percent held the opposite view; the rest, more than seventy percent, thought that the two types of workers will do an equally good job. Thus, one can claim that as far as job quality is concerned, there is a “net preference” for Jewish labor of only 13.4 percentage points. This corresponding “net preference” measure is even smaller when examining beliefs concerning timeliness and courtesy (5.7 and -0.6 percentage points, respectively).

### **[Table 2]**

In contrast, the “net preference” measure for the response to the safety question stands at a whopping 55.9 percentage points. Apparently, even in the relatively calm period, a large share of Jewish survey participants viewed Arab workers as a threat to their personal safety. Summarizing the patterns in column 1, we find that Jewish potential customers view Arab and Jewish workers as overall similar in their job-related attributes except that Arabs are perceived as posing a greater threat to personal safety.

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<sup>11</sup> This problem is most likely related to the use of landline telephones. See Gordoni, Oren and Shavit (2011) for discussion of this issue in the Israeli context.

Column 2 presents the corresponding figures for surveys conducted during the violent period, while column 3 tests for differences in customers' beliefs across the two periods. We find that the eruption of violence led to an across-the-board increase in customers' "net preference" for Jewish labor.

The most important assumption in Becker's model is that majority group customers prefer – and are willing to pay more – to receive services from members of their own group. In panel B of Table 2, we examine participants' willingness to pay a premium to have their apartment painted by Jewish rather than Arab workers.<sup>12</sup> In the period preceding the outbreak of violence, a third of survey participants expressed a willingness to pay a premium (first row, column 1). Among these participants, the average premium level stood at about forty-six percent (second row).<sup>13</sup> Thus, the key assumption in Becker's model receives strong direct empirical validation in the context we study. The evidence presented in columns 2 and 3 of panel B suggests that violence raised both the share of participants willing to pay a premium and the mean premium level.

In Appendix Table E1 we replicate the analysis, focusing on participants who declared that they are familiar with the internet websites *Midrag* and *Miktzoanim*. These make up about thirteen percent of the total. The observed patterns are almost identical to those presented in Table 2.

What do the results tell us about the sources of discrimination? If discrimination were exclusively taste-based, we would have expected to see similar (positive) levels of "net preference" for Jewish labor across the different customer beliefs. The fact that the

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<sup>12</sup> Although to an outside observer the question regarding the willingness to pay a premium may seem highly provocative, only three percent of participants refused to answer it (we measure the decline in the response rate relative to the immediately preceding question in the survey). To put things in perspective, we note that about thirteen percent of the participants refused to state whether their income is above or below the median income in the population.

<sup>13</sup> Eighty five percent of the participants who were willing to pay a premium further stated an exact premium level. Most of the remaining fifteen percent actually said that they would be willing to pay *any price* to receive the service from a Jewish rather than an Arab team. We excluded these participants from the calculation of the mean premium level.

preference for Jewish labor is much stronger with respect to the personal safety question than with respect to the other questions seems to suggest that discrimination is “statistical” in nature. Jewish customers’ concern for personal safety could stem from Arabs’ involvement in politically-motivated violence as well as from their relatively high levels of participation in violent criminal activities.<sup>14</sup>

The across-the-board increase in the “net preference” for Jewish labor following the outbreak of violence (columns 2 and 3) can similarly be interpreted as being consistent with statistical considerations. The increase in customers’ safety-related preference for Jewish labor seems obvious. However, it may also be reasonable for Jewish customers to expect violence to affect the behavior of Arab workers in a way that makes them less desirable employees. For example, Jewish customers could believe that in times of elevated ethnic tensions, Arab workers will be relatively less courteous.<sup>15</sup>

Next, we analyze the sociodemographic correlates of participants’ beliefs regarding Arab and Jewish labor and their willingness to pay a premium. In Table 3, we pull together surveys conducted before and after the eruption of violence. Several sociodemographic characteristics correlate strongly and consistently with participants’ beliefs regarding Arab and Jewish labor (columns 1-4).<sup>16</sup> Older, more highly educated, secular and higher income participants hold more favorable views of Arab workers. New immigrants – most of whom emigrated from the former Soviet Union – seem to hold Arab workers in particularly low

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<sup>14</sup> According to police statistics, involvement in violent crime is much more prevalent among Arabs than among Jews in Israel; see Zussman (2013) for details.

<sup>15</sup> An alternative interpretation of these patterns is that violence increases the salience of ethnicity and heightens customers’ animus towards Arabs, regardless of their expectations concerning the performance of Arab relative to Jewish workers.

<sup>16</sup> The dependent variables in these regressions are indicators taking the value of one when the participant stated that she believes that the Jewish team will outperform the Arab team along the relevant domains and zero otherwise. We estimate the regressions using OLS. In Appendix Table E2 we replicate this analysis with the original (ordinal) variables using Ordered Logit. The results are very similar to those reported in Table 3.

regard. The number of children – a standard proxy for religiosity in the Israeli context – also correlates with unfavorable views of Arab workers.<sup>17</sup>

### [Table 3]

These patterns are in line with results reported in previous studies examining the views of Jewish Israelis towards Arabs (see Zussman, 2013, and references therein) and may shed additional light on the sources of discrimination. Statistical discrimination is driven by lack of economically relevant information – in our context, information regarding the relative performance of Arab workers. The fact that we find significant differences across sociodemographic groups in beliefs concerning Arab workers, may suggest that discrimination is not exclusively statistical in nature. For example, it is not clear why secular customers would differ from religious customers in their assessment of the relative productivity of Arab workers. Assuming that the two groups share the same information set, their diverging beliefs could reflect differences in tastes.

Focusing on the sociodemographic correlates of the willingness to pay a premium to receive services from Jewish rather than Arab workers (column 5) yields a very similar picture to that observed in columns 1-4. The willingness to pay a premium is low for older, highly educated, secular and higher income participants and high for new immigrants and participants with more children. In contrast, when examining the sociodemographic correlates of the premium level, most of the coefficients turn out to be insignificant (column 6). Finally, the results reported in the last row show that violence had a causal effect on attitudes: participants' views of Arab workers became more negative while the willingness to pay a premium, as well as the premium level itself, increased.

In Appendix Tables E3 and E4 we analyze the sociodemographic correlates of participants' attitudes separately for the two sub-periods. In most cases, we do not observe a qualitative difference between the two periods in the sign and magnitude of the

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<sup>17</sup> Indeed, when including in the analysis indicators for each level of religiosity, we find that the strength of unfavorable views concerning Arab workers increases monotonically with religiosity. Moreover, including this set of controls dramatically reduces the size and statistical significance of the coefficient for the number of children.

coefficients. In some cases, however, we see major changes. For example, females' willingness to pay a premium was slightly lower than that of males in the period before the outbreak of violence. In contrast, during the violent period, females were 9.3 percentage points more willing than males to pay a premium. Similarly, in the first period age was correlated strongly and negatively with the willingness to pay a premium. This correlation disappears in the second period.

Recall from Table 1 that our sample is not representative, e.g. the share of females is much higher in our sample than in the population. To estimate what share of the adult Jewish population in Israel is willing to pay a premium, we use the "population" means for the sociodemographic characteristics reported in the last column of Table 1 together with the coefficients for the corresponding variables estimated separately for each period (column 5 of Tables E3 and E4). This adjustment raises the share of those willing to pay a premium from 33.4 to 41.3 percent in the period preceding the outbreak of violence and from 40.5 to 42.1 percent in the following period. The adjustment thus suggests that for the adult Jewish population as a whole, violence did not have much of an influence on the willingness to pay a premium.<sup>18</sup>

Using the "population" means for the sociodemographic characteristics together with the coefficients reported in column 6 of Tables E3 and E4, we conducted a similar adjustment for the mean premium level. In this case, however, we see a slightly larger violence-induced increase in the population-adjusted than in the original figures: between the first and second period, the average premium level increases from 45.7 to 60.2 percent in the sample (panel B of Table 2) and from 43.4 to 61.0 percent after the adjustment.

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<sup>18</sup> We note that while the sociodemographic characteristics of participants in our sample did not change across periods (column 4 in Table 1), the association between these characteristics and the willingness to pay a premium did in fact change. For example, as noted above, women's willingness to pay a premium was not different from men's in the first period but became much higher than men's after violence erupted. This implies that the over-representation of women in our sample did not matter much in the first period, but had a significant effect in the second, pulling up the mean willingness to pay a premium in the sample relative to the population.

In Table 4 we examine which customers' views are most strongly correlated with the willingness to pay a premium for Jewish labor. We regress an indicator for this willingness on indicators capturing participants' beliefs concerning Jewish and Arab workers, pulling together data from the two periods. The right hand side indicators take the value of one when the participant stated that Jewish workers would outperform Arab workers in a specific domain.

**[Table 4]**

Participants who believe that Jewish workers will provide a higher quality job are fifty-five percentage points more likely than others to state that they are willing to pay a premium (column 1). We observe a qualitatively similar pattern for the other three belief indicators (columns 2-4). In column 5 we include all the indicators together and add an indicator for the violent period. The coefficients for all customer preferences indicators drop in size but three of them remain highly statistically significant. The belief concerning personal safety seems to be the strongest predictor of the willingness to pay a premium, which is consistent with our previous results. We also find that the coefficient for the violent period is insignificant, which implies that the effect of violence is completely absorbed in the preferences indicators. These patterns are robust to controlling for sociodemographic characteristics (column 6).<sup>19</sup>

In sum, the results presented in this sub-section indicate that a large share of Jewish customers are willing to pay a premium to receive services from Jewish rather than Arab workers. This willingness is largely driven by the belief that Arab workers pose a greater threat to the safety of customers, thus suggesting that rather than reflecting animus per se, customer preferences might be driven by “statistical” considerations.

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<sup>19</sup> We observe similar patterns when conducting this analysis separately for each of the periods (Appendix Tables E5 and E6).

## 3.2 Firms

### 3.2.1 Price quotes and ratings

We start our investigation with a total of 389 Jewish-owned firms that were listed in *Midrag* or *Miktzoanim* in the five selected fields. Of these, fourteen firms were cross-listed in the two directories and we contacted them only once (through *Midrag*). The analysis excludes seventy-two other cases where the service provider was either unreachable or refused to quote a price over the phone, leaving us with 303 firms with a quoted price.

Summary statistics for these firms, 146 from *Midrag* and 157 from *Miktzoanim*, are provided in Tables 5 and 6, respectively. Of the firm owners reached through *Midrag*, one-hundred indicated that they will either bring along or send workers to do the job (second row, second to last column). Of these firm owners, twenty-three indicated that they employ Arabs while the rest stated that they employ only Jews (fourth row, last two columns). Average price quotes seem to be significantly lower for firms employing Arab workers in two of the five tasks: cleaning an apartment and removing a plasterboard partition. For two other tasks (moving a refrigerator and installing an electric timer), quoted prices are somewhat lower for firms employing Arab workers. For the remaining task (painting an apartment), prices are almost the same across the two types of firms.

#### [Table 5]

For all the tasks, differences in overall ratings between firms employing Arabs and those employing only Jews seem to be quite limited. The same is true for the quality, price, timeliness and courtesy ratings. This suggests that the price differences observed across the two types of firms do not reflect differences in customer satisfaction.

Relative to *Midrag*, a somewhat lower share of firm owners from *Miktzoanim* indicated that they would either bring along or send workers to do the job. The share of these firms that employ Arabs is similar in *Miktzoanim* (twenty-five percent) and in *Midrag* (twenty-three percent). In *Miktzoanim*, average price quotes seem to be significantly lower for firms employing Arab workers in two tasks (moving a refrigerator and removing a plasterboard partition) and similar in two tasks (cleaning and painting an apartment). We have overall customer satisfaction ratings for sixty-four out of the ninety-one providers who bring along

or send workers to do the job. For all tasks, the ratings appear to be either equal across the two types of firms or somewhat higher for firms employing Arab workers.

**[Table 6]**

We next use regression analysis to test for differences in customer satisfaction ratings between firms that employ Arabs and those that employ only Jews (Table 7). In all cases, we fail to reject the null hypothesis of equal ratings. We note that the number of reviews varies greatly between firms. Since the accuracy of the average rating is likely higher for firms with many reviews, in Appendix Table E7 we redo the analysis using the number of reviews as a weight. The results are very similar to those presented in Table 7.

The results presented in Tables 5-7 are in line with the Becker model assumption that firms employing minority group workers and those employing only majority group workers provide services of similar quality. The results are also consistent with the findings of the customer survey, which show that a large majority of participants believe that Arab and Jewish workers would perform equally well in terms of quality, timeliness and courtesy (Table 2).

**[Table 7]**

A central prediction of the customer discrimination model is that firms employing minority group workers will charge lower service prices. We next use regression analysis to examine this predication. We find that for firms listed in *Midrag*, those that employ Arab workers quote 15.7 percent lower prices on average than firms employing only Jews (column 1 of Table 8). When we control for the average overall rating of the firm, the gap drops to 15.4 percent; the rating itself is positively correlated with the price quote (column 2). A similar pattern is observed for firms listed in *Miktzoanim* (columns 3 and 4). When we combine data from the two directories, the correlations are more tightly estimated (columns 5 and 6). All else being equal, quoted prices are on average 18.5 percent lower for firms employing Arab workers than for those employing only Jews.

**[Table 8]**

We conduct several robustness checks for our baseline results. First, as mentioned above, the number of customer reviews varies across firms. It is plausible that prices quoted by firms with many reviews are more representative of market conditions. In Table 9, we take this into account by weighting observations by the number of customer reviews. The coefficients of interest are now estimated with more precision, but qualitatively the results turn out to be very similar to those obtained in Table 8.

**[Table 9]**

Second, one may be concerned that a single field (task) is driving our results. To address this issue we exclude from the analysis one field at a time (Table 10). The results are robust to this change and show that firms employing Arabs charge between twelve and twenty-three percent lower prices than those employing only Jews.

**[Table 10]**

Finally, we note that eighteen service providers quoted a price range rather than a particular price. The analysis so far has used the middle of the price range as the price quote. Results are almost identical when using instead either the minimum or the maximum of the range (Appendix Tables E8 and E9).

### **3.2.2 Survey of firm owners**

Our survey of firm owners yields an additional interesting perspective on the Becker customer discrimination model. The survey population consists of all firm owners listed in *Midrag* or *Miktzoanim* in the five tasks we examined (375 after excluding the cross-listed firms). Table 11 provides summary statistics on the 203 firm owners we managed to survey. In many respects firm owners seem quite similar to the average Jewish Israeli adult – last column of Table 1 – with some obvious exceptions (e.g. practically all firm owners are male).

**[Table 11]**

How do employers view Arab as compared to Jewish workers? We find that about a third of firm owners agree (strongly or otherwise) with the statement “Jewish workers are more efficient than Arab workers” (Table 12). Roughly sixty percent agree that Jewish

workers are “more trustworthy” and “pose a lower threat for the safety of the employer” than Arab workers. In light of our previous findings – both from the customer survey and based on the firm satisfaction ratings – these patterns might suggest the existence of employer discrimination. About a third of firm owners agreed with the statement “Jewish workers prefer not to work alongside Arab workers and vice versa”. This may indicate the existence of co-worker discrimination.

**[Table 12]**

Crucially for our investigation, four out of five firm owners expressed agreement with the statement “Jewish customers prefer to receive services from Jewish rather than Arab workers”. This share is more than twice as large as the share of participants in our customer survey who expressed a willingness to pay a premium for Jewish labor. This discrepancy could possibly imply that some participants in the customer survey were reluctant to reveal their true preferences and that the actual demand for Jewish labor is stronger than what we have previously estimated. Regardless of the magnitude of this phenomenon, our results strongly indicate that employers are aware of customers’ preference for Jewish over Arab labor, a finding that is again consistent with Becker’s model.

We next investigate how the decision to employ Arabs relates to the firm owners’ views discussed above (Table 13). Employers that agree (strongly or otherwise) with the statement “Jewish workers are more efficient than Arab workers” are 15.5 percentage points less likely than others to employ Arabs (column 1). Similarly, employers that do not trust Arab workers or think that they pose a security threat to them are less likely to employ Arabs (columns 2 and 3). In contrast, the likelihood of employing Arabs does not seem to be strongly correlated with employers’ beliefs about co-worker preferences (column 4).

**[Table 13]**

The strongest single predictor of the employment of Arabs turns out to be customer preferences: firm owners who agree with the statement “Jewish customers prefer to receive services from Jewish rather than Arab workers” are 31.9 percentage points less likely than others to employ Arabs (column 5). Interestingly, when we run a “horse race” specification (column 6) and additionally include sociodemographic controls in the analysis (column 7),

the indicator for customer preferences maintains its size and statistical significance while all other indicators become statistically insignificant. This finding strongly suggests that, as predicted by Becker's customer discrimination model, customer preferences are a crucial input into firm owners' decisions concerning the hiring of minority employees.

## **4. Conclusions**

Becker's customer discrimination model assumes competitive service and labor markets. The key assumption of the model is that some customers prefer to receive services from majority group workers. This preference lowers the relative demand for minority group workers and their relative wage. As a result, in equilibrium there are two types of firms: some employ low-wage minority group workers and charge low service prices from non-discriminating customers; the others employ high-wage majority group workers and charge high service prices from discriminating customers.

Israel seems to be an ideal setting to test Becker's customer discrimination model. Whereas previous studies rely on observed wages, prices and employment patterns to infer whether customers have discriminatory preferences, our paper directly captures discriminatory attitudes and relates them to market outcomes. This approach builds on the tense inter-ethnic relations in Israel and on the fact that many Israelis freely express discriminatory attitudes and beliefs. We focus on the market for labor-intensive services, where the interaction between Jewish customers and Arab workers often takes place in the customers' homes; there is an opportunity for Jewish customers to pay higher prices for services provided by Jewish workers; and wages are a major component of production costs.

The results of our customer survey suggest that about forty percent of adult Jewish Israelis are willing to pay a premium to receive services from Jewish rather than Arab workers. This willingness is most strongly associated with customers' belief that Arab workers pose a greater threat to their personal safety than Jewish workers do. Leveraging the outbreak of violence in October 2015 as a natural experiment, we find that violence heightens negative views of Arab workers.

We rely on field data collected from Israel's two most popular online directories listing service providers to examine price differentials. Controlling for customer satisfaction ratings, we find that firms that employ Arab workers charge between seventeen and nineteen percent lower prices than those employing only Jews.

Finally, in our survey of firm owners, eighty percent stated that Jewish customers prefer to receive services from Jewish rather than Arab workers. We additionally find that firm owner's belief about these customer preferences is the only significant predictor of the employment of Arab workers by the firm.

Taken as a whole, the results presented in this paper provide strong direct evidence in support of Gary Becker's classic customer discrimination model. Becker's model is silent about the sources of customers' discriminatory preferences. Our results indicate that these preferences are associated, at least in part, with "statistical" considerations.

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**Table 1**  
**Customer Survey**  
**Sociodemographic Characteristics**

	Before violent period	During violent period	Difference	N - total (before violent period)	Comparison mean
	(1)	(2)	(3)	(4)	(5)
Female	0.696 (0.460)	0.668 (0.471)	-0.028 (0.020)	2,130 (983)	0.520 (0.500)
Age	55.32 (16.21)	55.89 (17.66)	0.576 (0.742)	2,084 (959)	45.46 (18.29)
New immigrant <sup>1</sup>	0.080 (0.272)	0.091 (0.288)	0.011 (0.012)	2,093 (961)	0.215 (0.411)
Sephardic <sup>2</sup>	0.295 (0.456)	0.310 (0.463)	0.016 (0.020)	2,099 (964)	0.325 (0.468)
Higher education degree <sup>3</sup>	0.474 (0.500)	0.475 (0.500)	0.001 (0.022)	2,112 (974)	0.304 (0.460)
Secular	0.538 (0.499)	0.533 (0.499)	-0.005 (0.022)	2,107 (972)	0.436 (0.496)
Married	0.737 (0.440)	0.696 (0.460)	-0.041** (0.020)	2,105 (966)	0.608 (0.488)
Number of children	2.814 (1.689)	2.842 (1.876)	0.029 (0.079)	2,054 (950)	2.183 (1.813)
Employed <sup>4</sup>	0.567 (0.496)	0.543 (0.498)	-0.025 (0.022)	2,094 (968)	0.693 (0.461)
High income	0.342 (0.475)	0.309 (0.462)	-0.033 (0.022)	1,840 (831)	0.327 (0.469)

*Notes.* <sup>1</sup> Immigrated to Israel since 1989. <sup>2</sup> Following a convention adopted by the Israeli Central Bureau of Statistics, we use continent of origin in order to identify ethnic divisions within the Jewish community: Ashkenazic (Western) Jews are associated with Europe and America and Sephardic (Eastern) Jews are associated with Asia and Africa. This applies to either the individual or his or her father. Additionally, we classify as “third generation Sabra (native-born)” individuals who were born in Israel and whose fathers were born in the country. <sup>3</sup> Holds a bachelor’s, master’s or doctoral degree. <sup>4</sup> Either salaried employee or self-employed. Column 1 presents means (and standard deviations) for the sociodemographic characteristics of participants surveyed during August-September 2015. Column 2 presents means (and standard deviations) for the sociodemographic characteristics of participants surveyed during October-December 2015. Column 3 presents coefficients for the indicator variable “violent period” (which equals 1 for surveys conducted after October 1<sup>st</sup>, 2015 and 0 otherwise) when each of the sociodemographic controls is regressed on it. Column 5 presents means (and standard deviations) for the sociodemographic characteristics of adult Jews in the 2013 Labor Force Survey conducted by the Israeli Central Bureau of Statistics (except for the variables “secular” and “number of children”, which do not appear in the Labor Force Survey and were derived from the 2013 Social Survey, also conducted by the Israeli Central Bureau of Statistics).

**Table 2**  
**Customer Survey**  
**Customer Beliefs and Willingness to Pay a Premium for Jewish Labor**

		Panel A: Customer Preferences			N - total (before violent period)
		Before violent period	During violent period	Difference	
		(1)	(2)	(3)	(4)
Quality	Jewish team	0.208 (0.406)	0.285 (0.452)	0.077*** (0.019)	2,033 (960)
	Same	0.718 (0.450)	0.613 (0.487)	-0.104*** (0.021)	
	Arab team	0.074 (0.262)	0.102 (0.302)	0.028** (0.013)	
Timeliness	Jewish team	0.179 (0.383)	0.244 (0.430)	0.065*** (0.018)	1,996 (956)
	Same	0.699 (0.459)	0.665 (0.472)	-0.033 (0.021)	
	Arab team	0.122 (0.328)	0.090 (0.287)	-0.032** (0.014)	
Courtesy	Jewish team	0.185 (0.389)	0.254 (0.436)	0.069*** (0.018)	2,013 (955)
	Same	0.624 (0.485)	0.601 (0.490)	-0.023 (0.022)	
	Arab team	0.191 (0.393)	0.145 (0.352)	-0.046*** (0.017)	
Safety	Jewish team	0.569 (0.496)	0.643 (0.479)	0.075*** (0.022)	2,020 (946)
	Same	0.422 (0.494)	0.352 (0.478)	-0.070*** (0.022)	
	Arab team	0.010 (0.097)	0.004 (0.068)	-0.005 (0.004)	

Panel B: Willingness to Pay a Premium, by violent period

	Before violent period	During Violent period	Difference	N - total (Before violent period)
	(1)	(2)	(3)	(4)
Willing to pay a premium	0.334 (0.472)	0.405 (0.491)	0.072*** (0.022)	1,998 (953)
Premium level	0.457 (0.375)	0.602 (0.595)	0.145*** (0.039)	631 (274)

*Notes.* The table summarizes responses to a hypothetical scenario presented to survey participants where they had to compare the performance of an Arab and a Jewish team in providing a particular service (Panel A) and to state whether they are willing to pay a premium to receive the service from the Jewish team (Panel B).

Panel A: “Quality” refers to the question “which team do you think will do a higher quality job?”. “Timeliness” refers to the question “which team do you think is more likely to complete the job on schedule?”. “Courtesy” refers to the question “which team do you think will provide a more courteous service?”. “Safety” refers to the question “which team do you think poses a lower threat for your safety and the safety of your family?”. “Jewish team” is an indicator that equals 1 if the customer believes that the Jewish team will outperform the Arab team and 0 otherwise. “Same” is an indicator that equals 1 if the customer believes that both teams will perform equally well and 0 otherwise. “Arab team” is an indicator that equals 1 if the customer believes that the Arab team will outperform the Jewish team and 0 otherwise.

Panel B: “Willing to pay a premium” is an indicator which equals 1 if the participant is willing to pay a premium to receive the service from the Jewish rather than the Arab team and 0 otherwise. “Premium level” is the additional amount (in percentage terms) that the participant is willing to pay to receive the service from the Jewish rather than the Arab team.

In both panels, column 1 presents the means (and standards deviations) of the responses of participants surveyed during August-September 2015. Column 2 presents the means (and standards deviations) of the responses of participants surveyed during October-December 2015. Column 3 presents coefficients for the indicator variable “violent period” (which equals 1 for surveys conducted since October 1<sup>st</sup>, 2015 and 0 otherwise) when each of the indicators representing the participants’ answers is regressed on it.

Columns 3 is estimated using OLS. Robust standard errors in parentheses.

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

**Table 3**  
*Correlates of Customer's Beliefs*

	Quality	Timeliness	Courtesy	Safety	Willing to pay a premium	Premium level
	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.006 (0.020)	0.009 (0.020)	0.040** (0.019)	0.017 (0.024)	0.041* (0.023)	0.036 (0.058)
Age	-0.001* (0.001)	-0.002** (0.001)	-0.003*** (0.001)	-0.005*** (0.001)	-0.002** (0.001)	-0.003 (0.002)
New Immigrant	0.219*** (0.040)	0.176*** (0.040)	0.167*** (0.040)	0.135*** (0.037)	0.108*** (0.042)	-0.006 (0.085)
Sephardic	-0.000 (0.022)	0.003 (0.022)	-0.007 (0.021)	0.002 (0.025)	-0.008 (0.025)	0.105** (0.047)
Higher Education Degree	-0.076*** (0.020)	-0.069*** (0.019)	-0.106*** (0.019)	-0.027 (0.024)	-0.053** (0.023)	0.033 (0.045)
Secular	-0.151*** (0.021)	-0.100*** (0.021)	-0.154*** (0.020)	-0.179*** (0.025)	-0.232*** (0.025)	0.030 (0.055)
Married	-0.007 (0.024)	0.002 (0.023)	0.004 (0.023)	0.007 (0.028)	-0.009 (0.027)	0.090* (0.049)
# of children	0.036*** (0.007)	0.034*** (0.007)	0.032*** (0.007)	0.021*** (0.006)	0.043*** (0.007)	0.002 (0.010)
Employed	-0.030 (0.023)	-0.006 (0.023)	-0.023 (0.022)	-0.005 (0.026)	0.046* (0.025)	-0.012 (0.048)
High Income	-0.078*** (0.022)	-0.028 (0.022)	-0.046** (0.021)	-0.049* (0.027)	-0.065** (0.025)	-0.092* (0.051)
Violent period	0.058*** (0.019)	0.057*** (0.018)	0.065*** (0.018)	0.066*** (0.022)	0.060*** (0.021)	0.130*** (0.042)
R <sup>2</sup>	0.121	0.081	0.131	0.098	0.133	0.049
Observations	1,887	1,852	1,867	1,872	1,859	598

*Notes.* The dependent variables in columns 1-4 refer to the participant's responses to questions regarding the performance of Jewish relative to Arab workers (see Table 2 for the full text of the questions). These variables are indicators that equal 1 when the participant believes that the Jewish team will outperform the Arab team and 0 otherwise (i.e. when the participant believes that Arab team will outperform the Jewish team or when the participant believes both teams will perform equally well). The dependent variable in column 5 is an indicator which equals 1 if the participant is willing to pay a premium to receive the service from a Jewish rather than an Arab team and 0 otherwise. The dependent variable in column 6 is the additional amount (as share of the original NIS 1,000 price) that the participant is willing to pay to receive the service from a Jewish rather than an Arab team. See Table 1 for explanations and summary statistics for the independent variables. The sociodemographic controls include an indicator variable for missing income. The variable "violent period" is an indicator that equals 1 if the survey was conducted since October 1<sup>st</sup> 2015 and 0 otherwise. Estimated using OLS. Robust standard errors in parentheses.

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

**Table 4**  
*Correlates of the Customers' Willingness to Pay a Premium*

	Dependent variable: will pay a premium for a Jewish team					
	(1)	(2)	(3)	(4)	(5)	(6)
Quality	0.550*** (0.022)				0.268*** (0.032)	0.225*** (0.033)
Timeliness		0.443*** (0.025)			0.034 (0.032)	0.039 (0.032)
Courtesy			0.537*** (0.023)		0.179*** (0.033)	0.167*** (0.034)
Safety				0.533*** (0.016)	0.367*** (0.020)	0.355*** (0.022)
Violent period					0.002 (0.017)	0.006 (0.018)
Sociodemographic controls	No	No	No	No	No	Yes
R <sup>2</sup>	0.240	0.141	0.213	0.290	0.398	0.415
Observations	1,966	1,942	1,956	1,965	1,898	1,766

*Notes.* The dependent variable is an indicator which equals 1 if the participant stated that he would be willing to pay a premium to receive the service from a Jewish rather than an Arab team and 0 otherwise. The independent variables are indicators capturing participants' beliefs concerning Jewish and Arab workers. The indicators equal 1 when the participant believes that the Jewish team will outperform the Arab team in a specific domain and 0 otherwise (see Table 2 for the full text of the questions). Columns 5 and 6 include an indicator for surveys conducted during the violent period (since October 1<sup>st</sup> 2015). The regression in column 6 includes the same set of sociodemographic controls as in Table 3. Estimated using OLS. Robust standard errors in parentheses.

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

**Table 5**  
***Midrag – Summary Statistics***

	Task											
	Cleaning an apartment		Moving a refrigerator		Painting an apartment		Removing a plasterboard partition		Installing an electric timer		All tasks	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Solo job?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
# of firms	17	1	34	0	18	8	24	7	7	30	100	46
Employs Arabs?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
# of firms	12	5	31	3	14	4	14	10	6	1	77	23
Average Price Quote	1,527	1,250	272	250	2,645	2,688	765	568	244	220	-	-
Average Ratings:												
Overall	8.9	9.1	9.3	9.2	9.3	9.5	9.6	9.5	9.5	9.5	9.3	9.3
Quality	8.7	9.0	9.4	9.3	9.3	9.4	9.6	9.4	9.6	9.6	9.3	9.3
Price	9.0	9.1	9.3	9.2	9.5	9.2	9.5	9.3	9.3	9.3	9.3	9.2
Timeliness	9.4	9.5	9.4	9.5	9.5	9.7	9.7	9.5	9.3	9.3	9.4	9.6
Courtesy	9.4	9.4	9.4	9.4	9.6	9.7	9.7	9.6	9.5	9.7	9.5	9.5

*Notes.* The table reports summary statistics for firms listed in *Midrag*. The top two rows pertain to firm owners who provided a price quote, while the rows below pertain only to firm owners who indicated that they plan to bring along or send workers to perform the task specified in the column heading.

**Table 6**  
***Miktzoanim – Summary Statistics***

	Task											
	Cleaning an apartment		Moving a refrigerator <sup>1</sup>		Painting an apartment		Removing a plasterboard partition		Installing an electric timer <sup>1</sup>		All tasks	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Solo job?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
# of firms	24	0	31	2	24	13	10	12	4	37	93	64
Employs Arabs?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
# of firms	20	4	28	2	12	12	5	5	3	0	68	23
Average Price Quote	1,487	1,477	304	225	2,465	2,412	1,745	1,047	224	n/a	-	-
Average Ratings:												
Overall	8.4	9.5	9.1	9.3	9.6	9.6	9.7	10.0	8.8	n/a	9.0	9.6
# of Rated Firms <sup>2</sup>	13	1	23	2	9	7	4	2	3	0	52	12

*Notes.* The table reports summary statistics for firms listed in *Miktzoanim*. The top two rows pertain to firm owners who provided a price quote, while the rows below pertain only to firm owners who indicated that they plan to bring along or send workers to perform the task specified in the column heading.

<sup>1</sup> In two cases – one for the moving task and the other for the electric timer task – the firm owner cut off the conversation before we were able to ask whether he employs Arabs.

<sup>2</sup> Unlike in *Midrag*, not all *Miktzoanim* firms have customer satisfaction ratings; the number of rated firms is indicated in the last row.

**Table 7**  
***Arab Employment and Rating Differences***

Dependent variable: average customer satisfaction ratings						
	<i>Midrag</i>					<i>Miktzoanim</i>
	Overall	Quality	Price	Timeliness	Courtesy	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Employs Arabs	-0.020 (0.102)	-0.004 (0.109)	-0.113 (0.099)	0.055 (0.086)	-0.011 (0.081)	0.229 (0.305)
Task fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.198	0.294	0.149	0.067	0.125	0.058
Observations	100	100	100	100	100	64

*Notes.* Customer satisfaction ratings vary from 0 to 10. *Midrag* publishes five different ratings while *Miktzoanim* publishes only overall satisfaction rating. “Employs Arabs” is an indicator that equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Estimated using OLS. Robust standard errors in parentheses.

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

**Table 8**  
***Arab Employment and Quoted Price Differences***

Dependent variable: Log price quote						
	<i>Midrag</i>		<i>Miktzoanim</i>		Both directories	
	(1)	(2)	(3)	(4)	(5)	(6)
Employs Arabs	-0.157*	-0.154*	-0.139	-0.196*	-0.147**	-0.185**
	(0.091)	(0.091)	(0.106)	(0.115)	(0.073)	(0.075)
Average overall rating		0.147		0.034***		0.047***
		(0.089)		(0.012)		(0.015)
Task fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Directory fixed effect	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.886	0.890	0.886	0.914	0.874	0.886
Observations	100	100	91	64	191	164

*Notes.* The dependent variable is based on the price quotes we received from service providers. “Employs Arabs” is an indicator which equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Average overall ratings vary from 0 to 10. Columns 1 and 2 use only providers listed in *Midrag*; columns 3 and 4 use only providers listed in *Miktzoanim*; columns 5 and 6 use providers listed in both directories.

Estimated using OLS. Robust standard errors in parentheses.

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

**Table 9**  
**Arab Employment and Quoted Price Differences –**  
**Weighting Firms by the Number of Ratings Received**

Dependent variable: Log price quote						
	<i>Midrag</i>		<i>Miktzoanim</i>		Both directories	
	(1)	(2)	(3)	(4)	(5)	(6)
Employs Arabs	-0.173*** (0.061)	-0.168*** (0.061)	-0.169* (0.085)	-0.185** (0.079)	-0.173*** (0.059)	-0.168*** (0.059)
Average overall rating		0.048 (0.058)		0.054*** (0.018)		0.053* (0.030)
Task fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Directory fixed effect	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.953	0.953	0.959	0.964	0.952	0.953
Observations	100	100	64	64	164	164

*Notes.* The dependent variable is based on the price quotes we received from service providers. “Employs Arabs” is an indicator which equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Average overall ratings vary from 0 to 10. Columns 1 and 2 use only providers listed in *Midrag*; columns 3 and 4 use only providers listed in *Miktzoanim*; columns 5 and 6 use providers listed in both directories. Each firm (observation) is weighted using the number of customer reviews it had on the website.

Estimated using OLS. Robust standard errors in parentheses.

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

**Table 10**  
***Arab Employment and Quoted Price Differences –***  
***Excluding Fields***

Excluded field:	Dependent variable: Log price quote				
	Cleaning	Moving	Painting	Renovations	Electricity
	(1)	(2)	(3)	(4)	(5)
Employs Arabs	-0.189** (0.092)	-0.190** (0.078)	-0.189** (0.091)	-0.231** (0.096)	-0.117** (0.054)
Average overall rating	0.064*** (0.024)	0.046*** (0.015)	0.047* (0.028)	0.041*** (0.012)	0.042*** (0.014)
Task fixed effects	Yes	Yes	Yes	Yes	Yes
Directory fixed effect	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.877	0.878	0.778	0.823	0.960
Observations	133	154	105	130	134

*Notes.* The dependent variable is based on the price quotes we received from service providers. “Employs Arabs” is an indicator which equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Average overall ratings vary from 0 to 10. All columns use providers listed in both directories. Each column excludes one field (indicated by the column heading).

Estimated using OLS. Robust standard errors in parentheses.

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

**Table 11**  
***Firm Owners Survey***  
***Summary Statistics on Sociodemographic Characteristics***

	Mean	Standard deviation	N
	(1)	(2)	(3)
Female	0.025	0.155	203
Age	41.83	10.29	202
New immigrant	0.134	0.341	202
Sephardic	0.453	0.499	203
Higher education degree	0.164	0.371	201
Secular	0.550	0.499	202
Married	0.703	0.458	202
Number of children	2.218	1.670	202
Employed	0.995	0.071	199
High income	0.113	0.317	178

*Notes.* See Table 1 for the definitions of the sociodemographic variables. The only difference is that in this case “higher education” refers to participants with post-high school education.

**Table 12**  
***Firm Owners Survey***  
***Firm Owners' Beliefs***

		Mean	Standard deviation	N
		(1)	(2)	(3)
Efficiency	Strongly agree	0.139	0.347	194
	Agree	0.206	0.406	
	Disagree	0.309	0.463	
	Strongly disagree	0.345	0.477	
Trustworthiness	Strongly agree	0.292	0.456	195
	Agree	0.318	0.467	
	Disagree	0.215	0.412	
	Strongly disagree	0.174	0.380	
Security threat	Strongly agree	0.212	0.410	193
	Agree	0.342	0.476	
	Disagree	0.218	0.414	
	Strongly disagree	0.228	0.421	
Co-workers' preference	Strongly agree	0.082	0.276	194
	Agree	0.247	0.433	
	Disagree	0.299	0.459	
	Strongly disagree	0.371	0.484	
Customers' preference	Strongly agree	0.449	0.499	196
	Agree	0.352	0.479	
	Disagree	0.122	0.329	
	Strongly disagree	0.077	0.267	

*Notes.* “Efficiency” refers to the statement “In your field of work, Jewish workers are more efficient than Arab workers”. “Trustworthiness” refers to the statement “In your field of work, Jewish workers are more trustworthy than Arab workers”. “Security threat” refers to the statement “In your field of work, Jewish workers pose a lower threat for safety of the employer than Arab workers”. “Co-workers’ preference” refers to the statement “In your field of work, Jewish workers prefer not to work alongside Arab workers and vice versa”. “Customers’ preference” refers to the statement “In your field of work, Jewish customers prefer to receive services from Jewish rather than Arab workers”.

**Table 13**  
***Determinants of Arab Employment***

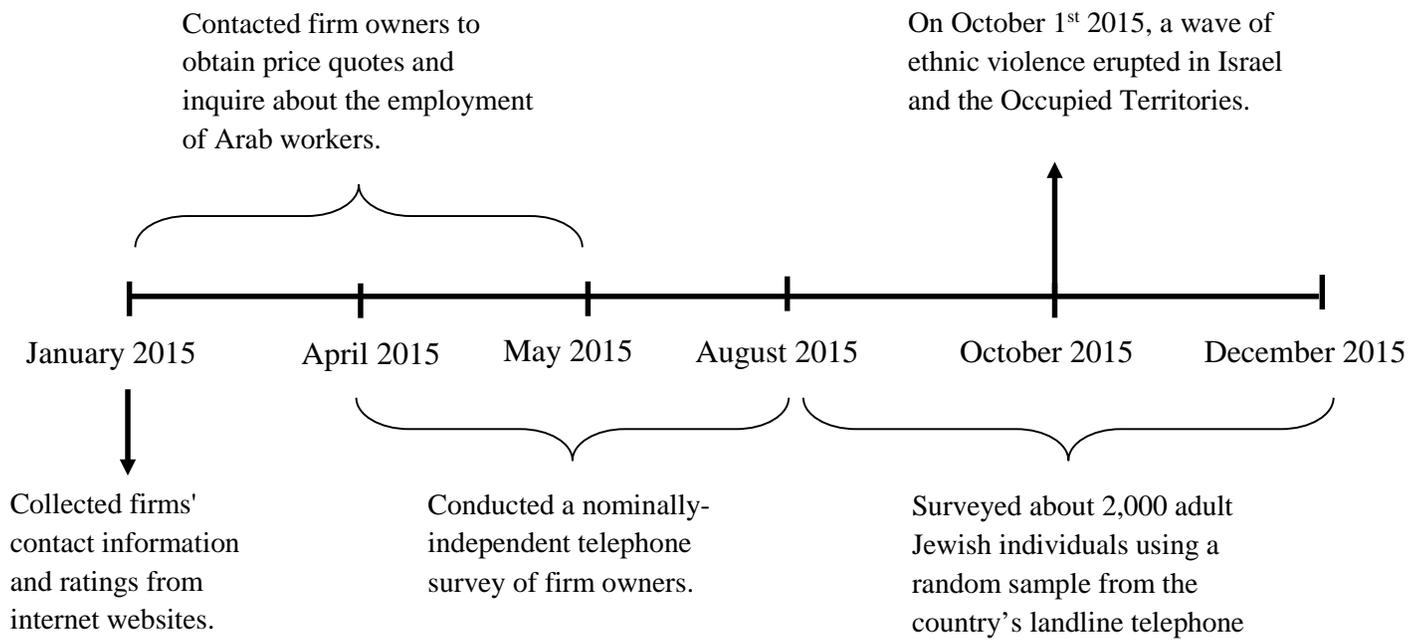
	Dependent variable: Employs Arabs						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Efficiency	-0.155* (0.084)					-0.149 (0.099)	-0.120 (0.103)
Trustworthiness		-0.171* (0.094)				-0.006 (0.109)	0.042 (0.107)
Security threat			-0.223** (0.089)			-0.206* (0.120)	-0.191 (0.125)
Co-workers preference				-0.114 (0.092)		0.047 (0.116)	0.007 (0.123)
Customers preference					-0.319** (0.130)	-0.356*** (0.126)	-0.296** (0.118)
Task fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Directory fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sociodemographic controls	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.125	0.133	0.134	0.099	0.149	0.227	0.299
Observations	102	103	102	102	104	97	94

*Notes.* The dependent variable is an indicator which equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. The explanatory variables are indicators capturing the participant's agreement with a particular statement concerning Arab and Jewish workers. The indicators equal 1 when the participant agreed (strongly or otherwise) with a statement and 0 otherwise. See Table 12 for the full text of the statements. The regression in column 7 includes the same set of sociodemographic controls as in Table 3.

Estimated using OLS. Robust standard errors in parentheses.

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

## Appendix A – Project Timeline



## Appendix B – Wage Gaps between Arabs and Jews

**Appendix Table B1**  
*Wage Gaps between Arab and Jewish Salaried Workers*

	<i>Dependent variable: log hourly wage</i>			
	(1)	(2)	(3)	(4)
Arab	-0.427*** (0.027)	-0.482*** (0.029)	-0.302*** (0.027)	-0.173*** (0.027)
Socio-demographic controls	No	Yes	Yes	Yes
Education	No	No	Yes	Yes
Sector and occupation FEs	No	No	No	Yes
R <sup>2</sup>	0.058	0.174	0.351	0.440
Observations	3,412	3,412	3,412	3,412

*Source.* Israeli Central Bureau of Statistics, 2013 Income Survey.

*Notes.* Hourly wage is calculated by dividing the average monthly gross salary by the average monthly number of hours worked. The sample is restricted to prime working age (25-54) men employed full time. Socio-demographic characteristics include indicators for age group, for being married and for being a new immigrant (immigrated to Israel since 1989). Education is controlled for by a set of indicators for highest diploma received.

Estimated using OLS. Robust standard errors in parentheses.

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

## Appendix C: Survey of Customers

This appendix contains the text of the telephone survey of Jewish customers. Text in bold face was read out loud to the survey participant. Text in brackets provides additional information.

**Hello, this is [name of research assistant] calling from The Hebrew University of Jerusalem. We are conducting a short survey for research purposes. Your answers will be kept secret. You can refuse to answer any question. I would appreciate your participation.**

Gender [identified from conversation]: male / female

**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]?**
- **What is the name of the locality in which you reside?**
- **Are you: married / single / divorced / widowed?**
- **How many children do you have?**
- **Are you: self-employed / salaried employee / unemployed**
- **The mean net monthly income for an Israeli family is NIS 14,600. Is your family's income: higher than / roughly equal to / less than NIS 14,600?**

Assume that your apartment needs re-painting and you consider hiring a professional firm to do the job. The firm owner, who is Jewish, can send a team of either Jewish or Arab workers.

- Which team do you think will do a higher quality job?  
a team of Jewish workers / a team of Arab workers / no difference
- Which team do you think is more likely to complete the job on schedule?  
a team of Jewish workers / a team of Arab workers / no difference
- Which team do you think will provide a more courteous service?  
a team of Jewish workers / a team of Arab workers / no difference
- Which team do you think poses a lower threat for your safety and the safety of your family?  
a team of Jewish workers / a team of Arab workers / no difference
  
- Imagine that the firm owner proposes to send you a team of Arab workers to perform the job for NIS 1,000. Would you be willing to pay a higher price than NIS 1,000 for the job to be performed by a team of Jewish workers?  
yes / no
  - If yes, how much would you be willing to pay for the job to be performed by a team of Jewish workers?
- Have you ever used the internet websites *Midrag* or *Miktzoanim* to contact a service provider?  
neither website / *Midrag* / *Miktzoanim* / both websites

Thank you very much.

## Appendix D: Survey of Firm Owners

This appendix contains the text of the telephone survey of firm owners. Text in bold face was read out loud to the survey participant. Text in brackets provides additional information.

**Hello, this is [name of research assistant] calling from The Hebrew University of Jerusalem. We are conducting a short survey for research purposes. Your answers will be kept secret. You can refuse to answer any question. I would appreciate your participation.**

Gender [identified from conversation]: male / female

**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 high-school, without a certificate of matriculation / up to high-school, with a certificate of matriculation / post-secondary, non-academic / academic degree / other**
- **Do you consider yourself: secular / traditional / religious / haredi [ultra-orthodox]?**
- **What is the name of the locality in which 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 14,600. Is your family's income: higher than / roughly equal to / less than NIS 14,600?**
- **Are you: self-employed / salaried employee / unemployed**

- o [If participant is self-employed or a salaried employee] **What is your field of work?**

**Our research deals with characteristics of Jewish and Arab workers. For each of the following statements, I will 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.**

1. **“In your field of work, Jewish workers are more efficient than Arab workers”**  
**strongly agree / agree / somewhat disagree / strongly disagree**
2. **“In your field of work, Jewish workers are more trustworthy than Arab workers”**  
**strongly agree / agree / somewhat disagree / strongly disagree**
3. **“In your line of work, Jewish workers pose a lower threat for the safety of the employer than Arab workers”**  
**strongly agree / agree / somewhat disagree / strongly disagree**
4. **“In your field of work, Jewish workers prefer not to work alongside Arab workers and vice versa”**  
**strongly agree / agree / somewhat disagree / strongly disagree**
5. **“In your field of work, Jewish customers prefer to receive service from Jewish rather than Arab workers”**  
**strongly agree / agree / somewhat disagree / strongly disagree**

**Thank you very much.**

## Appendix E – Additional Results

**Appendix Table E1**  
*Customer Beliefs and Willingness to Pay a Premium for Jewish Labor –  
 Restricted sample*

		Panel A: Customer Preferences			N - total (Before violent period)
		Before violent period	During violent period	Difference	
		(1)	(2)	(3)	(4)
Quality	Jewish team	0.165 (0.373)	0.271 (0.446)	0.106** (0.051)	255 (115)
	Same	0.730 (0.446)	0.671 (0.471)	-0.059 (0.058)	
	Arab team	0.104 (0.307)	0.057 (0.233)	-0.047 (0.035)	
Timeliness	Jewish team	0.139 (0.348)	0.217 (0.414)	0.078 (0.048)	253 (115)
	Same	0.739 (0.441)	0.688 (0.465)	-0.051 (0.057)	
	Arab team	0.122 (0.328)	0.094 (0.293)	-0.028 (0.040)	
Courtesy	Jewish team	0.148 (0.356)	0.221 (0.416)	0.073 (0.049)	251 (115)
	Same	0.635 (0.484)	0.610 (0.489)	-0.024 (0.062)	
	Arab team	0.217 (0.414)	0.169 (0.376)	-0.048 (0.050)	
Safety	Jewish team	0.584 (0.495)	0.743 (0.439)	0.159*** (0.060)	253 (113)
	Same	0.407 (0.493)	0.257 (0.439)	-0.150** (0.059)	
	Arab team	0.009 (0.094)	0 (.000)	-0.009 (0.009)	

Panel B: Willingness to Pay a Premium, by violent period

	Before violent period	During Violent period	Difference	N - total (Before violent period)
	(1)	(2)	(3)	(4)
Willing to pay a premium	0.339 (0.476)	0.413 (0.494)	0.074 (0.062)	250 (112)
Premium level	0.380 (0.297)	0.639 (0.579)	0.259** (0.101)	79 (35)

*Notes.* Results in this table are based on surveys of participants who stated that they are familiar with one or both of the internet websites we use (*Midrag* or *Miktzoanim*). The table summarizes responses to a hypothetical scenario presented to survey participants where they had to compare the performance of an Arab and a Jewish team in providing a particular service (Panel A) and to state whether they are willing to pay a premium to receive the service from the Jewish team (Panel B).

Panel A: “Quality” refers to the question “which team do you think will do a higher quality job?”. “Timeliness” refers to the question “which team do you think is more likely to complete the job on schedule?”. “Courtesy” refers to the question “which team do you think will provide a more courteous service?”. “Safety” refers to the question “which team do you think poses a lower threat for your safety and the safety of your family?”. “Jewish team” is an indicator that equals 1 if the customer believes that the Jewish team will outperform the Arab team and 0 otherwise. “Same” is an indicator that equals 1 if the customer believes that both teams will perform equally well and 0 otherwise. “Arab team” is an indicator that equals 1 if the customer believes that the Arab team will outperform the Jewish team and 0 otherwise.

Panel B: “Willing to pay a premium” is an indicator which equals 1 if the participant is willing to pay a premium to receive the service from the Jewish rather than the Arab team and 0 otherwise. “Premium level” is the additional amount (in percentage terms) that the participant is willing to pay to receive the service from the Jewish rather than the Arab team.

In both panels, column 1 presents the means (and standards deviations) of the responses of participants surveyed during August-September 2015. Column 2 presents the means (and standards deviations) of the responses of participants surveyed during October-December 2015. Column 3 presents coefficients for the indicator variable “violent period” (which equals 1 for surveys conducted since October 1<sup>st</sup>, 2015 and 0 otherwise) when each of the indicators representing the participants’ answers is regressed on it.

Columns 3 is estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E2**  
*Correlates of Customer's Beliefs, Using Ordered Logit*

	Quality	Timeliness	Courtesy	Safety
	(1)	(2)	(3)	(4)
Female	0.047 (0.107)	0.056 (0.108)	0.325*** (0.105)	0.090 (0.110)
Age	-0.002 (0.004)	-0.003 (0.004)	-0.015*** (0.003)	-0.024*** (0.004)
New Immigrant	1.074*** (0.189)	0.980*** (0.174)	0.829*** (0.187)	0.669*** (0.206)
Sephardic	-0.034 (0.118)	-0.087 (0.122)	-0.077 (0.112)	-0.035 (0.118)
Higher Education Degree	-0.224** (0.105)	-0.190* (0.106)	-0.331*** (0.100)	-0.118 (0.109)
Secular	-0.716*** (0.113)	-0.487*** (0.114)	-0.830*** (0.106)	-0.805*** (0.113)
Married	-0.046 (0.121)	0.053 (0.127)	0.045 (0.119)	0.022 (0.129)
# of children	0.162*** (0.034)	0.168*** (0.034)	0.140*** (0.032)	0.112*** (0.036)
Employed	-0.157 (0.120)	0.054 (0.124)	-0.224** (0.112)	-0.046 (0.124)
High Income	-0.345*** (0.121)	-0.169 (0.122)	-0.252** (0.113)	-0.232* (0.124)
Violent period	0.160 (0.097)	0.379*** (0.100)	0.425*** (0.095)	0.320*** (0.100)
Pseudo R <sup>2</sup>	0.055	0.041	0.066	0.073
Observations	1,887	1,852	1,867	1,872

*Notes.* The dependent variables refer to participants' responses to questions regarding the performance of Jewish relative to Arab workers (see Table 2 for the full text of the questions). These categorical variables equal 1 when the participant believes that the Arab team will outperform the Jewish team, 2 when the participant believes that the Arab and Jewish teams will perform equally well and 3 when the participant believes that the Jewish team will outperform the Arab team. See Table 1 for explanations and summary statistics for the independent variables. The variable "violent period" is an indicator that equals 1 if the survey was conducted since October 1<sup>st</sup> 2015 and 0 otherwise. Estimated using Ordered Logit. Robust standard errors in parentheses.

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

**Appendix Table E3**  
*Correlates of Customer's Beliefs, Before violent period*

	Quality	Timeliness	Courtesy	Safety	Willing to pay a premium	Premium level
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.041 (0.030)	-0.006 (0.029)	0.028 (0.027)	-0.007 (0.036)	-0.026 (0.034)	0.086* (0.050)
Age	-0.002** (0.001)	-0.002** (0.001)	-0.003*** (0.001)	-0.006*** (0.001)	-0.003*** (0.001)	-0.002 (0.002)
New Immigrant	0.195*** (0.059)	0.130** (0.056)	0.158*** (0.057)	0.148** (0.059)	0.093 (0.064)	-0.144* (0.074)
Sephardic	-0.052* (0.030)	-0.029 (0.030)	-0.041 (0.030)	-0.047 (0.038)	-0.066* (0.037)	0.085 (0.051)
Higher Education Degree	-0.111*** (0.028)	-0.075*** (0.027)	-0.133*** (0.026)	-0.075** (0.035)	-0.100*** (0.034)	0.103* (0.053)
Secular	-0.091*** (0.029)	-0.089*** (0.028)	-0.116*** (0.028)	-0.186*** (0.036)	-0.213*** (0.036)	0.004 (0.054)
Married	0.054 (0.033)	0.039 (0.030)	0.057* (0.031)	0.008 (0.042)	-0.032 (0.039)	-0.015 (0.058)
# of children	0.020* (0.010)	0.018* (0.010)	0.008 (0.010)	0.017* (0.010)	0.040*** (0.010)	0.004 (0.016)
Employed	-0.068** (0.033)	-0.029 (0.032)	-0.020 (0.032)	-0.039 (0.039)	0.017 (0.038)	-0.098* (0.057)
High Income	-0.074** (0.032)	0.015 (0.032)	-0.018 (0.031)	-0.049 (0.041)	-0.056 (0.037)	-0.024 (0.061)
R <sup>2</sup>	0.088	0.049	0.086	0.094	0.110	0.065
Observations	896	892	891	883	875	263

*Notes.* Results in this table are based on surveys conducted during August-September 2015, i.e. before the outbreak of violence. The dependent variables in columns 1-4 refer to the participant's responses to questions regarding the performance of Jewish relative to Arab workers (see Table 2 for the full text of the questions). These variables are indicators that equal 1 when the participant believes that the Jewish team will outperform the Arab team and 0 otherwise (i.e. when the participant believes that Arab team will outperform the Jewish team or when the participant believes both teams will perform equally well). The dependent variable in column 5 is an indicator which equals 1 if the participant is willing to pay a premium to receive the service from a Jewish rather than an Arab team and 0 otherwise. The dependent variable in column 6 is the additional amount (as share of the original, NIS 1,000 price) that the participant is willing to pay to receive the service from a Jewish rather than an Arab team. See Table 1 for explanations and summary statistics for the independent variables. The sociodemographic controls include an indicator variable for missing income. Estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E4**  
*Correlates of Customer's Beliefs, During violent period*

	Quality	Timeliness	Courtesy	Safety	Willing to pay a premium	Premium level
	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.047* (0.027)	0.022 (0.027)	0.051* (0.027)	0.033 (0.033)	0.093*** (0.031)	-0.011 (0.103)
Age	-0.001 (0.001)	-0.002 (0.001)	-0.004*** (0.001)	-0.005*** (0.001)	-0.000 (0.001)	-0.002 (0.003)
New Immigrant	0.252*** (0.055)	0.216*** (0.055)	0.179*** (0.054)	0.136*** (0.048)	0.140*** (0.054)	0.087 (0.133)
Sephardic	0.055* (0.032)	0.037 (0.032)	0.029 (0.031)	0.046 (0.033)	0.048 (0.035)	0.129* (0.071)
Higher Education Degree	-0.044 (0.028)	-0.061** (0.028)	-0.080*** (0.027)	0.014 (0.031)	-0.014 (0.032)	-0.002 (0.072)
Secular	-0.200*** (0.031)	-0.110*** (0.030)	-0.185*** (0.029)	-0.169*** (0.033)	-0.247*** (0.034)	0.053 (0.090)
Married	-0.061* (0.033)	-0.032 (0.034)	-0.043 (0.032)	0.003 (0.038)	0.005 (0.038)	0.180** (0.081)
# of children	0.048*** (0.009)	0.046*** (0.009)	0.050*** (0.009)	0.025*** (0.008)	0.045*** (0.009)	-0.001 (0.014)
Employed	-0.004 (0.033)	0.010 (0.032)	-0.034 (0.030)	0.022 (0.035)	0.064* (0.034)	0.058 (0.077)
High Income	-0.083*** (0.030)	-0.068** (0.031)	-0.074*** (0.029)	-0.050 (0.037)	-0.072** (0.034)	-0.127 (0.080)
R <sup>2</sup>	0.173	0.113	0.183	0.104	0.165	0.047
Observations	991	960	976	989	984	335

*Notes.* Results in this table are based on surveys conducted during October-December 2015, i.e. after the outbreak of violence. The dependent variables in columns 1-4 refer to the participant's responses to questions regarding the performance of Jewish relative to Arab workers (see Table 2 for the full text of the questions). These variables are indicators that equal 1 when the participant believes that the Jewish team will outperform the Arab team and 0 otherwise (i.e. when the participant believes that Arab team will outperform the Jewish team or when the participant believes both teams will perform equally well). The dependent variable in column 5 is an indicator which equals 1 if the participant is willing to pay a premium to receive the service from a Jewish rather than an Arab team and 0 otherwise. The dependent variable in column 6 is the additional amount (as share of the original, NIS 1,000 price) that the participant is willing to pay to receive the service from a Jewish rather than an Arab team. See Table 1 for explanations and summary statistics for the independent variables. The sociodemographic controls include an indicator variable for missing income. All columns are estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E5**  
***Correlates of the Willingness to Pay a Premium, before the Outbreak of Violence***

	Dependent variable: will pay a premium for a Jewish team				
	(1)	(2)	(3)	(4)	(5)
Quality	0.536 <sup>***</sup> (0.035)				0.239 <sup>***</sup> (0.048)
Timeliness		0.442 <sup>***</sup> (0.039)			0.106 <sup>**</sup> (0.049)
Courtesy			0.479 <sup>***</sup> (0.038)		0.109 <sup>**</sup> (0.051)
Safety				0.487 <sup>***</sup> (0.025)	0.332 <sup>***</sup> (0.031)
Sociodemographic controls	No	No	No	No	Yes
R <sup>2</sup>	0.208	0.127	0.153	0.261	0.374
Observations	932	929	929	924	860

*Notes.* Results in this table are based on surveys conducted during August-September 2015, i.e. before the outbreak of violence. The dependent variable is an indicator which equals 1 if the participant stated that he would be willing to pay a premium to receive the service from a Jewish rather than an Arab team and 0 otherwise. The independent variables are indicators capturing participants' beliefs concerning Jewish and Arab workers. The indicators equal 1 when the participant believes that the Jewish team will outperform the Arab team in a specific domain and 0 otherwise (see Table 2 for the full text of the questions). The regression in column 5 includes the same set of sociodemographic controls as in Table 3.

Estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E6**  
***Correlates of the Willingness to Pay a Premium, During the Violent Period***

	Dependent variable: will pay a premium for a Jewish team				
	(1)	(2)	(3)	(4)	(5)
Quality	0.555*** (0.028)				0.203*** (0.045)
Timeliness		0.437*** (0.033)			-0.020 (0.041)
Courtesy			0.573*** (0.028)		0.227*** (0.046)
Safety				0.572*** (0.022)	0.376*** (0.030)
Sociodemographic controls	No	No	No	No	Yes
R <sup>2</sup>	0.260	0.148	0.260	0.311	0.460
Observations	1,034	1,013	1,027	1,041	906

*Notes.* Results in this table are based on surveys conducted during October-December 2015, i.e. after the outbreak of violence. The dependent variable is an indicator which equals 1 if the participant stated that he would be willing to pay a premium to receive the service from a Jewish rather than an Arab team and 0 otherwise. The independent variables are indicators capturing participants' beliefs concerning Jewish and Arab workers. The indicators equal 1 when the participant believes that the Jewish team will outperform the Arab team in a specific domain and 0 otherwise (see Table 2 for the full text of the questions). The regression in column 5 includes the same set of sociodemographic controls as in Table 3.

Estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E7**

***Arab Employment and Rating Differences – Weighting Firms by the Number of Ratings Received***

Dependent variable: average customer satisfaction ratings						
	<i>Midrag</i>					<i>Miktzoanim</i>
	Overall	Quality	Price	Timeliness	Courtesy	Overall
	(1)	(2)	(3)	(4)	(5)	(6)
Employs Arabs	-0.107 (0.152)	-0.082 (0.160)	-0.126 (0.102)	-0.032 (0.100)	-0.084 (0.096)	0.297 (0.259)
Task fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.283	0.368	0.181	0.147	0.273	0.043
Observations	100	100	100	100	100	64

*Notes.* Customer satisfaction ratings vary from 0 to 10. *Midrag* publishes five different ratings while *Miktzoanim* publishes only overall satisfaction rating. “Employs Arabs” is an indicator that equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Each firm (observation) is weighted using the number of customer reviews it had on the website.

Estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E8**  
***Effect of Arab Employment on Quoted Price Differences***  
***Robustness – Using the Minimum of the Price Range***

Dependent variable: Log price offer						
	<i>Midrag</i>		<i>Miktzoanim</i>		Both directories	
	(1)	(2)	(3)	(4)	(5)	(6)
Employs Arabs	-0.148 (0.095)	-0.145 (0.095)	-0.138 (0.104)	-0.222** (0.109)	-0.142* (0.073)	-0.187** (0.076)
Average overall rating		0.130 (0.092)		0.036*** (0.010)		0.047*** (0.014)
Task fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Directory fixed effect	No	No	No	No	Yes	Yes
R2	0.875	0.878	0.888	0.917	0.869	0.880
Observations	100	100	91	64	191	164

*Notes.* The dependent variable is based on the price quotes we received from service providers. In cases where the firm owner quoted a price range instead of a specific price, we use the minimum of the price range as the price quote. “Employs Arabs” is an indicator which equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Average overall ratings vary from 0 to 10. Columns 1 and 2 use only providers listed in *Midrag*; columns 3 and 4 use only providers listed in *Miktzoanim*; columns 5 and 6 use providers listed in both directories. Estimated using OLS. Robust standard errors in parentheses.

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

**Appendix Table E9**  
***Effect of Arab Employment on Quoted Price Differences***  
***Robustness – Using the Maximum of the Price Range***

Dependent variable: Log price offer						
	<i>Midrag</i>		<i>Miktzoanim</i>		Both directories	
	(1)	(2)	(3)	(4)	(5)	(6)
Employs Arabs	-0.164*	-0.161*	-0.141	-0.193	-0.154**	-0.190**
	(0.089)	(0.088)	(0.107)	(0.116)	(0.072)	(0.074)
Average overall rating		0.161*		0.032**		0.046***
		(0.087)		(0.014)		(0.017)
Task fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Directory fixed effect	No	No	No	No	Yes	Yes
R2	0.892	0.897	0.886	0.913	0.877	0.890
Observations	100	100	91	64	191	164

*Notes.* The dependent variable is based on the price quotes we received from service providers. In cases where the firm owner quoted a price range instead of a specific price, we use the maximum of the price range as the price quote. “Employs Arabs” is an indicator which equals 1 when the firm owner indicated that he employs Arabs and 0 otherwise. Average overall ratings vary from 0 to 10. Columns 1 and 2 use only providers listed in *Midrag*; columns 3 and 4 use only providers listed in *Miktzoanim*; columns 5 and 6 use providers listed in both directories. Estimated using OLS. Robust standard errors in parentheses.

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