Discrimination with Incomplete Information in the Sharing Economy: Evidence from Field Experiments on Airbnb

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The issue of discrimination has come to the center stage in the recent development of sharing economy marketplaces. Using a field experiment, Edelman et al. (2016) showed guests with distinctively African American names are 16% (or 8 percentage points) less likely to be accommodated relative to identical guests with distinctively White names on Airbnb. This problem lies at the heart of sharing economy platforms: social trust. In order to encourage users to share private resources, such as cars (Uber or Lyft) or living spaces (Airbnb), sharing economy platforms have to facilitate trust among their users. Many of these platforms require users to provide their demographics information as a way to build trust in the community. However, such transparency also enables users to access certain demographic information such as gender, race and religion, and then make rental or riding decisions based on it, which may in turn result in discriminatory behavior.

As discrimination in the sharing economy has become a well-known issue to the public, the next important and challenging question is how to effectively reduce or eliminate it. The first step to reduce discrimination is to understand its mechanism. Literature has suggested two fundamental mechanisms: statistical discrimination (Arrow 1973) and taste-based discrimination (Becker 1957).

The statistical discrimination theory posits that the differential treatment of minority groups is driven by imperfect information (Arrow 1973). For example, when prospective Airbnb hosts receive a request from a guest, they view the guest’s available information to infer the guest’s quality, e.g., safety, punctuality, etc. When the guest’s available information is insufficient, group
association such as race serves as a source of information that signals the expected value of the prospective transaction. If hosts have a prior belief that, on average, African American guests are less reliable than White guests, rational hosts would prefer White guests over African American guests, especially when their other source of information about the guest is imperfect. In this case, there might be situations where some African American guests are treated unfavorably due to such stereotyping, even though they are equally as trustworthy and reliable as an otherwise identical White guest. Statistical discrimination can be eliminated when enough information is shared to signal the value of the prospective transaction, because hosts can rely on information other than race to update their beliefs about guests.

In contrast to statistical discrimination, the taste-based discrimination theory suggests that people act as if there is a non-pecuniary dis-utility of associating with a particular ethnic group (Becker 1957). In this case, Airbnb hosts may dislike an African American guest even if they have perfect information and know the guest is equally as trustworthy as an otherwise identical White guest. Hosts will indulge their aversion to African American guests by accepting a request from White guests while rejecting one from African American guests. That is, even with perfect information, taste-based discrimination cannot be eliminated.

In this paper, we study the root cause of discrimination in online marketplaces and explore an operational lever to mitigate discrimination. We explicitly test whether the observed discrimination is statistical or taste-based by introducing review information for guests in a controlled randomized experiment. In particular, we manipulate the observable signal of guest quality by creating online reviews on guests’ respective profile pages. If discrimination is taste-based, it will not disappear no matter how much additional information is shared. If discrimination is statistical, however, a sufficient number of reviews will strengthen the signal of quality so that race is no longer used to infer guest quality because review information reflects the quality of prospective guests. These distinct patterns allow us to identify the root cause of discrimination, and thus, the results can offer managerial insights to correct discriminatory behavior on sharing economy platforms.

We test the existence and mechanism of discrimination by conducting two sets of randomized field experiments on Airbnb. In the first round of experiments, we create two sets of fictitious guest accounts. Each set contains two types of guest accounts that differ only by name and are otherwise identical. The White-sounding names and African American–sounding names are chosen based on name frequency data published by the U.S. Census Bureau’s Population Division. The two sets of guest accounts are identical except that guest accounts in the first set have no reviews, while guests in the second set have one positive review. The review information is the same across guest accounts and the review content resembles common guest reviews on Airbnb. We then randomly assign Airbnb hosts in three major U.S. cities to our fictitious guest accounts and sent out accommodation
requests from the guest accounts to these hosts. We record hosts’ reply messages and compared the acceptance rates across guest accounts. In the second round, we repeat this experiment design with one minor change: the guest accounts in the second set have one identical negative review instead of one positive review.

We find that when guest accounts have no review, the average acceptance rate of White guests is 48%, and the average acceptance rate of African American guests is 29%. In other words, guests with White names are accepted 19 percentage points more often than those with African American names (p-value = 0.0002). The result is qualitatively consistent with Edelman et al. (2016), which finds that the acceptance rate for guests with White names is around 50% while the acceptance rate of guests with African American names is 42%.1

When there is one positive review, the acceptance rate of White guests is 56%, and the acceptance rate of African American guests is 58%. Note that, irrespective of guests’ race, the acceptance rate rises when a guest’s quality is validated by a positive review. In this case, the acceptance rates between White and African American guests are statistically indistinguishable (p-value = 0.8774). That is, discrimination is eliminated in the presence of one positive review. In addition, we repeat the study with a negative review. When each guest account has one negative review, the acceptance rate of White guests is 58.2% and that of African American guests is 57.4%. The difference is also statistically indistinguishable (p-value = 0.9999). This result shows that negative reviews can also strengthen the quality signal and eliminate discrimination.

The fact that discrimination vanishes with only one review shows strong evidence of statistical discrimination on Airbnb. Our paper not only identifies the root cause of discrimination in the context of Airbnb, but more important, our results also suggest a practical path to mitigate discriminatory behavior. For example, we recommend that sharing economy platforms send reminders or offer incentives to motivate users to write reviews of one another, especially when one of them is a first-time user. Moreover, we point out that sharing economy platforms should design a better mechanism to facilitate information sharing—especially information that signals guest quality—so that race is not used to infer quality.

References

1 Our acceptance rates of White guests are similar to that of Edelman et al. (2016), while our acceptance rate of African guests is lower.