

W241 - Essay 2: Experiment proposal

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Craigslist: Are There Racial Biases When Applying for Rental Homes Online?

In a world where cost of living has skyrocketed and student debt has reached insurmountable heights, shared housing has become a solution for many; especially among young working professionals. At the cost of one's privacy, splitting housing expenses has offered opportunities for young professionals to live in trendy areas at reasonable rates. In San Francisco, and many other major cities around the world, applying to live in houses where someone has vacated one of the rooms has become a common practice. When applying to shared living situations such as these, the landlord is generally interested in getting to know the candidate before meeting them in person for an interview. For this reason, many craigslist ads request information about the individual when applying to their ad, much like applying for jobs. This is to get a sense of who the individual is, what they may be like as a prospective roommate, and to see if the candidate would be a good fit for the home. Although in an ideal world everyone would have a fair chance when applying to live in these shared homes, it is likely that there are racial biases among landlords. In the Craigslist world, where the internet serves as a barrier between the landlord and prospective applicant, it is important to evaluate whether or not there are racial biases among landlords who are evaluating applications. Understanding whether there is a racial bias can help bring awareness to the Craigslist community and shape policies around how individuals are allowed to post and evaluate advertisements. For this reason, we have generated the following research question:

When applying to a shared home, are there racial biases among landlords that would cause them to favor one ethnicity over another?

To test this question, an **ideal experiment** would involve recruiting individuals from each ethnic race to apply to a large number of shared living advertisements. The landlord reviewing the application would be the subjects in the experiment and the outcome variable measured would be whether the landlord provides a positive response to the application. A positive response will be defined as any interaction that shows the landlord is interested in evaluating the candidate further. Our control group in this experiment would be caucasian individuals, with all other ethnicities being treatment groups. Each prospective applicant would have a biography with a photo of themselves appended to the application that is emailed to the landlord. To control for variability in biographies and to ensure that each applicant's outcomes are comparable, the content of the biographies will contain similar information (e.g., similar jobs, passions, hobbies) for each confederate. Ensuring that the majority of the content in the biography are exactly the same will be important in evaluating whether or not there are racial biases that arise when the landlord sees the ethnicity of the individual through the photo in the application. When applying for a shared living home, it is likely that there are gender biases as some homes will aim to only allow men or women to live in them. In this ideal experiment, we

would control for this by having a male and female confederate for each ethnic group. This would help mitigate the number of false negatives in the outcome analysis. For the subject recruitment phase, we would leverage data mining techniques. Our team will use specific enrollment criteria to scour the internet for shared living advertisements and identify candidate subjects. There would be specific criteria that the candidate subject would have to fit. The ad would have to be considered a new ad so that we are some of the first applicants to apply to the home. In this way we would help mitigate the number of false negatives in our outcome variable, "positive response rate". This algorithm would also filter through the advertisements and ensure that the information requested by the landlord matches the information included in the standardized biographies so that each applicant has a similar chance of receiving a response from the landlord. Utilizing randomization techniques, we would apply treatment or control at a 1:1 ratio to at least 50 subjects in each treatment group and 50 subjects in the control group. Great care would be taken to ensure that each subject is only administered a single treatment (either treatment or control) as to not confound the findings or bias the results. At the end of the experiment, we would record the total number of treatment and control applications submitted, and the treatment and control response rates (outcome variable) for each confederate. These data would be used to calculate the average response rate for each confederate/ethnic group. As mentioned previously, there is the possibility of gender playing a role in whether we are able to elicit a response from the subject. For this reason, we would use blocking on gender and see if the average response rate varied between treatment and control groups.

Although some aspects of this ideal experiment are not feasible for the scope of this class, much of the proposed ideal experiment is executable. Therefore, we plan to conduct an experiment where our primary outcome will be to see if the rental application is able to successfully elicit a positive response from a prospective landlord, and to see if there is a difference in response rates depending on the ethnicity of the applicant; judged by the appended picture. To ensure that we obtain sufficient statistical power and an ample sample size, we will limit our analysis to Caucasian and African American males. In order to generate data and test whether the ethnicity of the individual (revealed in a photograph) results in a different response rate, we will need to create a standardized biography for the hypothetical applicants. For this part, we will conduct research on 50 randomly selected craigslist shared housing ads to see what information the landlord covers in these ads, and what information is requested of the applicant. Based on these findings, we will create an "ideal" biography of the hypothetical applicant, which will be used to apply to these ads in the experiment phase. Some of the information we plan to include would be profession, hobbies, and general interests. For these biographies, the typed content for the treatment and control will be very similar, but the control image will contain a picture of a caucasian male, while the treatment will contain a picture of an African-American male. The information that will differ between treatment and control biographies will be the names, phone numbers, and associated emails. As mentioned previously, great care will be taken to ensure that each subject (the landlord) will only receive either treatment or control, but never both.

For subject recruitment, we plan to leverage Craigslist's "rooms / shared" page so that our hypothetical applicant may apply to the pool of advertisements for vacant rooms in shared homes. There are a number of new ads that are created daily, so subject recruitment will be relatively easy and cost effective. Each advertisement that meets our enrollment criteria will be a separate subject where we will randomize the subject and apply either treatment or control conditions. It is likely that there is some selection bias among landlords whose homes are occupied by only females or only males. To control for this, we plan to strictly apply to homes that have male tenants. We acknowledge that there are situations where both females and males share a home. In these situations we will omit the home altogether by not subjecting any treatment. Applications will be strictly limited to ads that request emailing information about the applicant so that we may limit our actual interactions with the subject. Our outcome that will be measured is whether the landlord responds positively to the application. Once again, a positive response is defined as any interaction that shows the landlord is interested in evaluating the candidate further. We will use two sample proportion test to measure whether or not there is a statistically significant difference between the landlord response rates among treatment and control groups. There is a possibility that we observe a difference in response rates depending on how much the room costs. For this reason, we may consider blocking the analysis on room rates.

In order to ensure that the samples for the group that receives treatment and the group that receives control are comparable, we plan to collect key covariates. Some of these covariates include date and time the ad was posted, date and time the application was submitted, monthly cost of room, size of home, and number of current tenants. Ensuring that these covariates are evenly distributed across treatment and control groups will allow us to confidently estimate whether or not there is a difference in positive response rates based on ethnicity.

There are some key limitations to this proposed experiment that may confound the results. For one, it is possible that information covered in the standardized biographies do not cover all facets of information that the landlord is requesting. This could cause the landlord to dismiss an application without regard to race. As discussed previously, we may run into the issue of applying to ads too late, whereby the landlord is no longer accepting applications. This may inflate our false negative rates, but our hope is that increasing the number of observations and setting a time limit for application submission will help mitigate this issue. Another factor that is not taken into account is the number of other applicants that may be applying to each home. Some homes may have fewer applicants, while other homes may have dozens within a few hours. This may affect our response rates that we receive from landlords. Another potential confounding factor could be that the image never loads in an email for the landlord, which would mean the landlord only reviews the application based on the content. This could lead to an inflated FP and FN rate. It is likely that there will be a bias towards those that have more attractive pictures as their photo as well. Lastly, there is the possibility that the landlord is biased to different races depending on the race of the landlord. Our hope is that the applications

designed for this experiment are robust to these potential pitfalls, and our randomization will help mitigate the variability that may occur because of these issues.

It is important to note that during the experimentation phase we may yield unforeseen issues or results. A possible outcome could be that we receive no responses in treatment, control, or both. This could be because the biography we create does not resonate with the subjects in any way. Another reason could be that our randomization technique and subject selection process has an issue. For these reasons, we plan to conduct a small pilot study where we will generate an ideal biography, synthesized from the first 15 ads we review on craigslist. We will randomize and administer treatment and control to a subset of 30 ads that meet our ad criteria to ensure that we are in fact able to elicit a response, and that the results are robust and analyzable.

Cost of living has skyrocketed around the world; especially in major cities. As a result, many individuals have resorted to renting rooms in shared homes to save money. Securing a room in an “ideal” home can be competitive in busy cities like San Francisco. In a world where the internet serves as a barrier between the landlord and applicant, it is important to understand whether or not racial biases play a role in how a landlord picks a potential candidate. Highlighting these potential racial biases and bringing awareness to such issues could have a major impact on the internet community. The implications of this research could lead to policy changes on Craigslist and other websites alike in an effort to combat racial biases.