**Understanding the roots of worker’s discrimination: Evidence from an online labor market**

**A Proposal for Small Grants, Russel Sage Foundation**

**Motivation and Research Question**

A large body of literature in economics has demonstrated that discrimination - whether it be racial, religious, ethnic or gender in origin - is widespread in labor markets. However, almost all the literature has tended to investigate the issue on the premise that the employers drive discrimination, i.e. either employers have some animus (Becker, 1957) or negative beliefs/stereotypes about the productivity of workers (Arrow, 1973; Phelps, 1972) from a group, and that leads them to discriminate against the equally productive workers from this group in favor of workers from the other group. In this study, we propose to investigate the issue from a different angle and see whether discrimination can run in the opposite direction, i.e., whether a *worker* from one group may exhibit a bias towards the *employer* from the other group.

A large literature in behavioral economics has established that other-regarding or social preferences play an important role in economic interactions (Fehr and Fishbacher 2002). In the environment when contracts cannot be perfectly defined or enforced, social preferences play a crucial role. There is widespread empirical evidence on the existence of these preferences all over the world (Falk et al. 2018). However, there is not much evidence on whether workers exhibit a difference in these preferences based on their employer’s group identity.

Therefore, we intend to explore whether workers exhibit discrimination in social preferences based on employer's racial identity? To our knowledge, the possibility of discrimination in social preferences from the worker side has not been explored in the economics literature.

It is important to understand what we mean by discrimination from the worker side and why is it an important issue that merits investigation. Worker’s discrimination is defined as when an employer from one group is treated differently (less favorably) by the worker than an employer from another group, with otherwise identical characteristics. For example, a worker may discriminate if she under-provides effort for an employer from one group relative to one from the other group, despite both employers having identical characteristics (such as wage offers, job conditions, etc.). The investigation of this issue is important for several reasons. First, in the absence of perfectly enforceable contracts, this form of discrimination directly affects the profitability of the employers because of workers under-performance. Second, it can provide a possible explanation for why employers tend to have lower callbacks for workers from the opposite group, as observed in studies such as Bertrand and Mullainathan (2004). That is, if employers expect that workers from a particular group are going to under-provide effort then it is rational for even unbiased employers to not hire from that group. Finally, this line of research can also explain why discrimination, even after various affirmative action policies by governments all over the world, continue to exist in one form or another (Bayer & Charles, 2017). One possible explanation for why those policies haven't achieved the discrimination-free society could be that those policies were aimed at employers and they were perceived as the only entity responsible for causing discrimination. However, our research aims to investigate if the worker side can independently drive discrimination and if it can, then one needs to target both sides of the market to address the issue of discrimination.

Fundamentally, economists view discrimination as arising in one of two ways. Becker (1957) introduced the notion of taste-based discrimination postulating that discrimination exists because of prejudice/animus of the advantaged group toward the disadvantaged group. Phelps (1972) and Arrow (1973) demonstrated that discrimination might be statistical, where an employer, lacking information about the worker's productivity, forms a belief about the worker's productivity based on worker's group identity using the aggregate distribution of worker's group traits. For our research, we make a similar distinction about the discrimination from the worker side. We define taste-based discrimination as the discrimination that results because of animus or prejudice of a worker towards the employer's group identity. For example, if a White worker prefers working for a White employer compared to a Black employer, for an equally rewarding opportunity, then we call this taste-based discrimination against the Black employer. An example of statistical discrimination from the worker side is the discrimination that results when a worker, lacking information on the employer, forms beliefs about the desirability of the job with the employer using stereotypes about the group of employers. For example, a female worker may believe that a male-dominated firm may not have an environment suitable for women to work and thrive and therefore a female worker may discriminate against the male-dominated firm in favor of a job that is “friendlier” for females. As mentioned earlier, we are interested in studying discrimination in social preferences, so we are essentially studying the possibility of taste-based discrimination in the absence of any statistical discrimination.

Our proposed research question is close to Glover, Pallais, and Pariente (2017); in their study, the authors found that disadvantaged-group workers under-provide effort when working under biased managers. However, our study is different in the sense that we argue that workers may under-provide effort even in the absence of bias from the employer. Another closely related study is by Ayalew, Manian, and Sheth (2018), in which authors find evidence of statistical discrimination from the worker side towards women leaders in Ethiopia. Ours is the only study which explores the possibility of the bias in social preferences driven from the worker side in the absence of any discrimination or anticipation of discrimination from the employer side. Another closely related study is Craig and Fryer (2018), in which the authors build a theoretical model allowing for the possibility of statistical discrimination from both the worker and employer side. However, the authors do not allow for the possibility of taste bias from the worker side. They also do not provide any empirical evidence to support the claim. To the best of our knowledge, ours will be the first study to explore the possibility of taste bias from the worker side, and we aim to present some experimental evidence to test the claim.

The discrimination by workers can be on various margins, however, in this paper, we explore the discrimination in social preferences (as measured from their effort choices) by the workers towards the employer's racial identity. Specifically, we are interested in answering whether workers provide more/less effort for White employers as compared to Black employers given that they are already working for the employer and thus, there is no option of choosing an employer. So, we need a setting in which 1) workers work on a task in which productivity is measurable 2) they do not choose their employer and 3) employer identity can be unobtrusively revealed to workers.

To summarize, we propose to answer whether workers discriminate in social preferences (altruism and reciprocity) towards the employer? The investigation into the worker’s side of discrimination is important to better understand discrimination in labor markets. Our findings can then help us come up with potential policy prescriptions targeted to address discrimination on both sides of the market.

**Methodology**

To answer our research question, we propose an experiment using subjects from Amazon’s Mechanical Turk (MTurk) and student subjects from Iowa State University. The student subjects will be recruited in the role of “Employers” while MTurk subjects in the role of “Workers”. Workers will be given a Qualtrics based real effort task, where they have to alternate ‘a’ and ‘b’ presses on their keyboard. The worker’s performance in the task will have a bearing on how much he/she earns and how much the matched employer earns. It is important to note at this point that the employer in our setting does not make any strategic choice such as wage offer, minutes of work, etc. This design choice ensures that worker’s first order beliefs do not determine his/her effort choice about employer’s decisions and thus, eliminates possibilities of statistical discrimination to the extent possible. Discrimination, if any, in this setting may be attributed to taste based prejudice.

Our experimental design is different from early gift exchange experiments in one important sense. We use a real-effort based task which means that both effort and cost of effort are real as opposed to nominal or monetary. This, in turn, means that we need to estimate the cost of effort function using structural estimation techniques.

To run this experiment, we will first need to recruit employers each of whom will be later matched to multiple workers. We will recruit black and white students from Iowa State University and assign them the role of the employer for this experiment. These students will arrive at the lab one at a time and take a seat at a terminal. Each employer’s role will be to clearly explain and demonstrate the real effort task in a video to the matched workers. The terminal will be specially designed and fitted with a camera to capture both the audio and the video of the demonstration. It is important to note that the camera placement will only capture the forearm of the Employer along with the movement of the fingers alternating ‘a’ and ‘b’ button presses. Other identifiers, such as the face, will not be shown in the video. A video screen grab will simultaneously capture the on-screen changes as the demonstration of the task proceeds. The script used by the employer for video-recording will vary depending on the assigned treatment. The employer’s hand and forearm will be bare or covered (with full sleeves and typing gloves) depending on the assigned treatment (treatments are explained below). The audio in the video will be partially digitized to reduce race markers from the voice.

After we have video-recorded the Employers, we will recruit subjects from MTurk to work on the task of alternating ‘a’ and ‘b’ button presses on the keyboard. Before a worker starts with the task, he/she will watch the randomly selected video explaining the task. The randomly selected video determines the treatment assignment for the worker (treatments are explained below). Each worker will be matched with one employer and will be given up to 10 minutes to work on the task. After workers are done working on the task, they will be asked some questions aimed at eliciting their beliefs about the matched employer, their racial preference and their social preferences towards the two racial groups.

Our experiment will comprise of ten treatments, and each worker will be randomly assigned to one of these ten treatments.

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| **Treatment** | **Description** |
| Piece Rate – 0 cents | A worker’s payment will not be affected by the number of points he/she scores in the task.  There will not be any matched employer. |
| Piece Rate – 3 cents | A worker will be paid 3 cents for every 100 points he/she scores in the task.  There will not be any matched employer. |
| Piece Rate – 6 cents | A worker will be paid 6 cents for every 100 points he/she scores in the task.  There will not be any matched employer. |
| Piece Rate – 9 cents | A worker will be paid 9 cents for every 100 points he/she scores in the task.  There will not be any matched employer. |
| Altruism Baseline | A worker’s payment will not be affected by the number of points he/she scores in the task.  Worker’s matched employer will be paid 1 cent for every 100 points scored by the worker. The employer will be wearing full sleeves and typing gloves to make sure that the race/skin-color is not revealed in the video. |
| Altruism Black | A worker’s payment will not be affected by the number of points he scores in the task.  Worker’s matched employer will be paid 1 cent for every 100 points scored by the worker. The employer’s forearm and hand will be black in the video. |
| Altruism White | A worker’s payment will not be affected by the number of points he scores in the task.  Worker’s matched employer will be paid 1 cent for every 100 points scored by the worker. The employer’s forearm and hand will be white in the video. |
| Reciprocity Baseline | A worker’s payment will not be affected by the number of points he scores in the task. The worker will be paid 20 cents extra as a reward before starting to work on the task.  Worker’s matched employer will be paid 1 cent for every 100 points scored by the worker. The employer will be wearing full sleeves and typing gloves to make sure that the race/skin-color is not revealed in the video. |
| Reciprocity Black | A worker’s payment will not be affected by the number of points he scores in the task. The worker will be paid 20 cents extra as a reward before starting to work on the task.  Worker’s employer will be paid 1 cent for every 100 points scored by the worker. The employer’s forearm and hand will be black in the video. |
| Reciprocity White | A worker’s payment will not be affected by the number of points he scores in the task. The worker will be paid 20 cents extra as a reward before starting to work on the task.  Worker’s employer will be paid 1 cent for every 100 points scored by the worker. The employer’s forearm and hand will be white in the video. |

We designed these treatments based on a simple model where workers maximize utility from providing effort . The worker ’s utility from working with employer is given as;

Where is the fixed payment from participating in the study, is the intrinsic motivation of a worker from working, is the reciprocity towards the employer when the worker is rewarded with the gift from the employer, is the altruism parameter which measures worker’s altruistic preference towards the employer given that employer earns from each unit of worker’s effort. is the piece rate per unit of effort. represents the cost of effort function. The data from piece rate treatments will allow us to estimate parameters of cost function and . Altruism treatments will help backout altruism parameters separately for Black and White employers. Similarly, reciprocity treatments will enable us to backout reciprocity parameter for Black and White employers. We will also be able to calculate the welfare implications of discrimination in social preferences in our experimental setting once the parameters of model are estimated.

The data from the experiment will also allow us to calculate treatment effects as driven from the social preference towards each race. Our principal outcomes of interest are the effort provision of workers when facing a black employer, a white employer and a neutral employer. For example, the effort choices under Altruism treatments will give us the treatment effects for discrimination in altruism. i.e.

Data from Altruism baseline treatment can further indicate whether the discrimination (if any) is driven by the in-group favoritism or out-group animosity.

We have performed an extensive power calculation for our experiment. We will recruit 50 Employers and 6,000 MTurk based Workers for our experiment (justification in the appended budget). The IRB for this project is being sought at Iowa State University. This project will also be registered with the AEA RCT registry.

**Project’s relevance to the foundation’s programs and how it would contribute to RSF's mission to improve social and living conditions in the U.S.**

This project is directly related to the foundation’s program on “Behavioral Economics”. Our proposal takes an interdisciplinary approach by integrating tools from psychology and economics to understand one of the pressing issues concerning American society, namely, racial discrimination. RSF has played an instrumental role in anchoring research on issues concerning with race and ethnicity as well as behavioral economics. Much of this research has attempted to understand discrimination by employers towards workers. As opposed to the standard literature, our study is aimed to help understand whether workers exhibit differences in preferences depending on the race of their employer. These results may have far-reaching implications when it comes to understanding the so urces of employer discrimination and affirmative action policies. Behavioral Economics and experimental methods provide us with interesting possibilities and paradigms in which data can be collected, which otherwise would not have been possible. The identification is also clean, thereby, making causal inference credible. The fact that we can use these tools not only to understand but also to ameliorate the social and living conditions of people in the US inspires us all the more to take up this research.