Do workers discriminate against their employers? Evidence from an online labor market

Motivation and Research Question

A large body of literature in economics has demonstrated that prejudice or bias of the majority group towards members of an out-group identity – whether it be racial, religious, ethnic or gender in origin – is widespread in labor markets. Such biases often lead to discrimination when, all else same, a *less-favorable* treatment is systematically meted out to the out-group relative to the majority group. Such prejudicial treatment may reveal itself on either the extensive margin (the decision-to-hire stage) or the intensive margin (how much to pay, what sort of job conditions and work hours to offer existing employees, etc.). It is commonly believed that labor market discrimination is one-sided: driven by employers toward their out-group employees. In this research, we restrict attention to racial identity and seek to study possible discrimination on the intensive margin in the *reverse* direction, i.e., we ask, do *workers* discriminate on the intensive margin (say, by shirking or under-providing effort) for an *out*-race employer relative to an otherwise-identical, *own*-race one?

Our research question is important for several reasons. Foremost, the evidence we may uncover could suggest a new mechanism via which employers' discrimination can manifest itself. The mechanism is simple: if a rational, *unbiased* employer expects his out-group employees to exhibit bias (perform poorly), then, as a profit maximizer, it is in his best interest to discriminate against such people in favor of his own-group employees. Taking this line of thinking further, our research may imply that labor-market discrimination, mostly understood by economists to be taste-based (Becker, 1957), may be largely statistical (Arrow, 1973; Phelps, 1972) because it is driven, not by animus, but by beliefs a rational employer holds about his out-group employees.[1] Parenthetically, our research may provide direct evidence on discrimination in social preferences (altruism and reciprocity) by workers in the labor-market setting. Ours is the first study to explore the possibility of bias in social preferences driven from the worker side in the absence of any discrimination or anticipation of discrimination from the employer side.[2]

In the absence of complete and enforceable contracts, those which specify precisely what a worker is supposed to do (and accompanying payments) in each state of nature, social or other-regarding preferences take a central role in determining the productivity of workers. In a setting when preferences are endogenously determined by the worker's environment (Bowles, 1998), the social identity of one's employer directly influence preferences and may lead to a disparate outcome (productivity) based on that identity. Therefore, we test for discrimination in social preferences by workers as a driver for differences in productivity towards an employer of own-group versus

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[1] For example, Bertrand & Mullainathan (2004) argued that observed difference in callback rates between Blacks and Whites are potentially driven by the animus of employers. However, our research can imply that part of this *supposed* 'animus' could be driven due to the employer's anticipation/belief that Black workers, even those equally qualified as White workers, will underperform for their out-group employers.

[2] Glover, Pallais, & Pariente (2017) pose a thematically similar question and find that minority workers under provide effort when working for managers who harbor implicit bias. Relatedly, Ayalew, Manian, & Sheth (2018) find worker subjects statistically discriminate against female leaders, and perform worse as a result. Our study, instead, asks if workers exhibit taste bias when working for unbiased and non-discriminatory employers.

out-group. In a way, we postulate that discrimination in social preferences is a *raison d'etre* of taste-based discrimination on the intensive margin. In this proposal, we restrict to altruism (concern for the well-being of employer) and positive reciprocity (rewarding kind actions of the employer) as two types of social preferences.

To keep the identification clean, our experimental design will shut out the extensive margin – workers will have no choice in determining their employers and can only choose how hard to work for the given employer. Second, there will be no possibility of any beliefs-driven discrimination; this means any discrimination we may detect is necessarily *taste-based*. Specifically, we are interested in answering whether white skin-tone workers (Hersch, 2006) provide more/less effort for white skin-tone employers as compared to those with black skin tone given they had no choice in selecting their employer.

Methodology

Inspired by Dellavigna & Pope (2018), we propose an experiment using subjects from Amazon's Mechanical Turk (M-Turk) and black & white student subjects from Iowa State University. The student subjects will be "Employers" while M-Turk subjects will be "Workers." We will match each worker to an employer. The employer will assign the worker a Qualtrics-based real-effort task which requires the latter to alternately press the 'a' and 'b' buttons on his keyboard. His performance will determine how much he and his matched employer earns. The employer will not get to make any strategic choices (such as wage offer, minutes of work, etc.) thereby eliminating most channels for statistical discrimination by workers. We will use a real-effort task which means both effort and the costs of effort will be *real*, and not monetary, which in turn, will be estimated using our structural model (as do Dellavigna & Pope (2018)).

We take the approach of revealing race via the revelation of skin-color. To that end, "employer-students" will be videotaped while they read off a script explaining and demonstrating the "a-b" task. 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. The employer's hand and forearm will be bare or covered (with full sleeves and typing gloves) depending on the assigned treatment (treatments are given in Table 1). The audio in the video will be partially digitized to reduce race markers from the voice in the relevant treatments.

Having video-recorded the employers, we will recruit subjects from M-Turk to work on the button-pressing task. Each worker will be randomly matched with an employer and will be given up to 10 minutes to work on the task. Before a worker starts, however, he/she will have to watch a pre-recorded video by the matched employer explaining the task. The video in the baseline (race-salient) setting will entirely conceal (reveal) the skin color of the employer. The random assignment of a worker to a video will determine the treatment assignment for the worker. Upon completion, there will be some follow-up questions aimed at eliciting beliefs about the matched employer.

Our experiment will comprise of ten treatments, and each worker will be randomly assigned to one of these. We designed these treatments based on a simple structural model where workers maximize utility from providing effort, e. Worker i's utility from working with an employer of out-group $j \in \{Black, White\}$ is given as

$$u_{ij} = F + \left(s_i + 1_{Gift}\rho_{ij} + \alpha_{ij}v_j + p\right)e_{ij} - c\left(e_{ij}\right),$$

where F is the fixed payment from participating in the study, s_i is the race-blind intrinsic motivation of a worker toward the task per unit effort, ρ_{ij} is the feeling of reciprocity towards the employer activated when the worker is rewarded with a gift from the employer, α_{ij} is the altruism parameter which measures the worker's altruistic preference towards the employer given that the latter earns v_j from each unit of the worker's effort, p is the piece rate per unit of effort, and $c\left(e_{ij}\right)$ represents the cost-of-effort function.

Table 1: Treatments	
Treatment	**Description**
Piece Rate – 0 cents	A worker's payment will be unaffected by the number of points he/she scores in the task. No matched employer.
Piece Rate – 3 cents	A worker will be paid 3 cents for every 100 points he/she scores in the task. No matched employer
Piece Rate – 6 cents	A worker will be paid 6 cents for every 100 points he/she scores in the task. No matched employer
Piece Rate – 9 cents	A worker will be paid 9 cents for every 100 points he/she scores in the task. No matched employer
Altruism Baseline	A worker's payment will be unaffected 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	Earning rule will be the same as in the Altruism Baseline for both the worker and the employer. The employer's forearm and hand will reveal dark/white skin color in the video. The employer's forearm and hand will be black in the video.
Altruism White	Earning rule will be the same as in the Altruism Baseline for both the worker and the employer. The employer's forearm and hand will reveal dark/white skin color in the video. The employer's forearm and hand will be white in the video.
Reciprocity Baseline	A worker's payment is unaffected by the number of points he scores in the task. The worker will be paid 20 cents *extra* as a reward before the task begins. Worker's matched employer will be paid 1 cent for every 100 points scored by the worker. While recording the video, the employer will wear full sleeves and typing gloves to ensure skin-color is not revealed.
Reciprocity Black	Earning rule will be the same as in the Reciprocity Baseline for both the worker and the employer. The employer's forearm and hand will appear dark-skinned in the video.
Reciprocity White	Earning rule will be the same as in the Reciprocity Baseline for both the worker and the employer. The employer's forearm and hand will appear white-skinned in the video.

The data from the piece-rate treatments will allow us to estimate parameters of the cost function and s_i. Altruism and reciprocity treatments will help identify altruism and reciprocity parameters separately for Black and White employers. These parameters will enable us to calculate the welfare implications of discrimination in our experimental setting.

The data we collect will also permit us to calculate treatment effects arising from the race-dependent social preferences of workers. For example, the worker effort choices under the Altruism treatments will identify the treatment effects for discrimination in altruism. i.e.

$$Discrimination\ in\ Altruism = (Effort|Altruism\ White) - (Effort|Altruism\ Black)$$

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

We have performed an extensive statistical power calculation for our experiment. We will recruit roughly 50 Employers and about 6,000 M-Turk based Workers for our experiment (more justification is in the appended budget). To avoid confounds from different social identities, we will restrict only to male employers. Based on our pilot for this study, it is difficult to recruit a representative number of Black workers from M-Turk to make a credible inference. Therefore we restrict to only white workers and study their effort choices for Blacks versus White employers. The IRB approval for this project is being sought from Iowa State University and is currently at the final stage pre-approval. 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" because it uses insights from behavioral and experimental economics to shed a light on a pressing issue in American society, namely, racial discrimination. Almost all of the economics literature assumes that racial discrimination goes from employers to workers. Our research instead asks, could it be that employees discriminate against their out-race employers? Influential work in psychology has demonstrated that social identity, social norms, and social preferences play a key role in the evolutionary process underlying animus. We are proposing to diagnose a novel aspect to an existing and deep-rooted social problem of racial discrimination. Our unobtrusive race-revelation mechanism is based on a psychological finding that unconscious and unintentional forms of biases can lead people to behave in ways that are unrelated or even sometimes opposed to their explicit views or self-interest. This research will help provide evidence for these psychological mechanisms in the setting of an immensely-popular, online labor market. The identification is also clean and state-of-the-art, thereby, making causal inference credible. The RSF is dedicated to "strengthening the methods, data, and theoretical core of the social sciences as a means of diagnosing social problems and improving social policies." Our research proposal fits right into this goal of the RSF.

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