Discrimination in Reciprocity: Evidence from an Online Labor Market

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Abstract

Add abstract at the end.

1 Introduction

A large body of literature in economics has demonstrated that prejudice or bias – whether it be racial, religious, ethnic or gender in origin – is widespread in labor markets. Frequently, such biases reveal themselves as deliberate discrimination in actual labor market decision-making. The most common form of such discrimination studied is of the employer-to-employee kind, that shown by an employer from one group toward a potential or existing employee from another group. Such discrimination can be along an "extensive" margin (e.g., unwarranted low interviewing or hiring of job-seekers from a certain group) or along an "intensive margin" (e.g. deliberate unfairness in compensation, pecuniary or otherwise). Researchers have established that discrimination along either margin is emphatically costly and demoralizing to those being discriminated against: it may cause inefficiently-low job seeking or suboptimal investment in skill or human capital by minority workers (Coate & Loury, 1993); it may directly reduce their performance (Glover, Pallais, & Pariente, 2017).

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 majority toward the minority. Phelps (1972) and Arrow (1973) instead view discrimination as statistical, in which, say, a majority group-employer, lacking information, say, on a minority group-worker, forms rational beliefs about the worker in terms of the aggregate distribution of group traits.

Almost all of this literature on discrimination has tend to investigate the issue on the premise that discrimination is always driven by the employer i.e. employers have some animus or beliefs about the productivity of minority workers and that leads them to discriminate against the equally productive minority workers in favor of workers from the majority group. In this study we investigate the issue from a different angle and see whether discrimination can run in opposite direction i.e. whether a worker from the majority (minority) group may exhibit bias towards the employer from the minority (majority) group when considering to work for opposite group employers. To our knowledge the possibility of discrimination from this direction has never been explored in the economic literature.

The purpose of this research is twofold, first to investigate whether the discrimination can be driven from the worker side and second what is the nature of this discrimination - taste or statistical? Is it that workers exhibit distaste towards the employers from opposite group or is it that the discrimination is statistical in nature where workers have some beliefs or stereotypes towards the opposite group employer and they invoke those when working for the employer. The distinction is important because each kind of discrimination warrants different policy prescriptions for addressing the problem of discrimination. So in a nutshell this paper aims to first document whether racial discrimination exists from employee-to-employer in the biggest online labor market, and if it exists which economic theory best explains the existence of discrimination.

Discrimination from coworkers (add relevant arguments here distinguishing it from discrimiantion towards employers).

Discrimination in labor markets is a decades old problem and even after various affirmative action policies by governments all over the world it continue to exist in one form or another. 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 identified that discrimination can also be driven by those who are traditionally "discriminated against" and if one is to tackle the issue it needs to target both sides of market i.e. employers and workers. For example we find that workers discriminate against the employers from minority group, then the right prescription to deal with the problem would be to address workers concerns that may discourage them for working with the opposite group employers (aim of future research).

To address our research question we make use of the gift exchange framework pioneered by Akerlof (1982) and in an experimental setting by Fehr, Kirchsteiger, and Riedl (1993).

2 Experiment Design

2.1 Recruitment of Subjects

The subjects for this experiment will be recruited from an online labor market upwork (formerly Elance-oDesk). Upwork is one of the largest online labor market in the world with over twelve million registered freelancers, earning more than a billion dollars via the site each year (Upwork.com, n.d.). Unlike Amazon's Mechanical Turk, another online labor market used in economics research, upwork employers have complete discretion in whom they hire and they have real relationships with hired workers. Another benefit of using Upwork is that employers can monitor the workers' progress while the task is being performed. Workers log in to upwork applicaiton that shows employers when they are working. The application records keystroke volume and shows screenshots of the worker's computer screen, taken six times per hour.

We will post the job listing on upwork with very little description of the experiment, only that "We need people to participate in an experiment for an economics research project. The task involves making economic decisions in a strategic environment." Potential subjects will also be told that "In this experiment you will be randomly matched with another participant. You will be paid 3 dollars for participating in this experiment. On top of that you may earn anywhere from zero dollars to 10 dollars based on the choices/decisions that you and your matched participants make during the experiment. There are no specific skills required for this project."

We will invite subjects to participate in this experiment who meet the following criteria (1) are from United States, (2) speack fluent english , (3) list an hourly wage of \$10 or less (4) have earned more than a dollar on upwork and (4) have a job success rate of 75% or more. For every application that we receive from worker, we will examine the profile picture of the applicant to see if the subject fall into a any of the two races that we are interested in i.e. Black or White (Figure 1 shows an example profile of a worker on upwork). We restrict to Black and White, english speaking people from United States because we want to study racial discrimination in the context of United States.

2.2 Treatments

This experiment is designed to measure whether workers discrininate in reciprocity based on the race of the employer and which economic theory explains the source of discrimination. The experiment is a 2-factor design with treatments as follows;

2.2.1 Baseline Treatment

In this treatment, we rely on a version of bilateral gift-exchange game in which each participant play the game 10 times/periods (Fehr, Kirchler, Weichbold, & Gächter, 1998). This is a two-person game consisting of two stages. In the first stage, an employer decide how much wage to offer to a worker. Worker observes the wage offer in the second stage and choose effort level. Effort is costly to workers but profitable to employers. Wage is costly to employer but profitable to worker. All earnings in the experiment will be calculated in the unit of points which will be converted to US dollars at the end of experiment with the exchange rate of 1 point = 10 cents. The effort cost function is specified as in Table 1;

The profit for employer and workers are given by;

$$\text{Employer Profits} = w - c - c(e) \tag{1}$$

$$\text{Worker Earnings} = (v - w)e \tag{2}$$

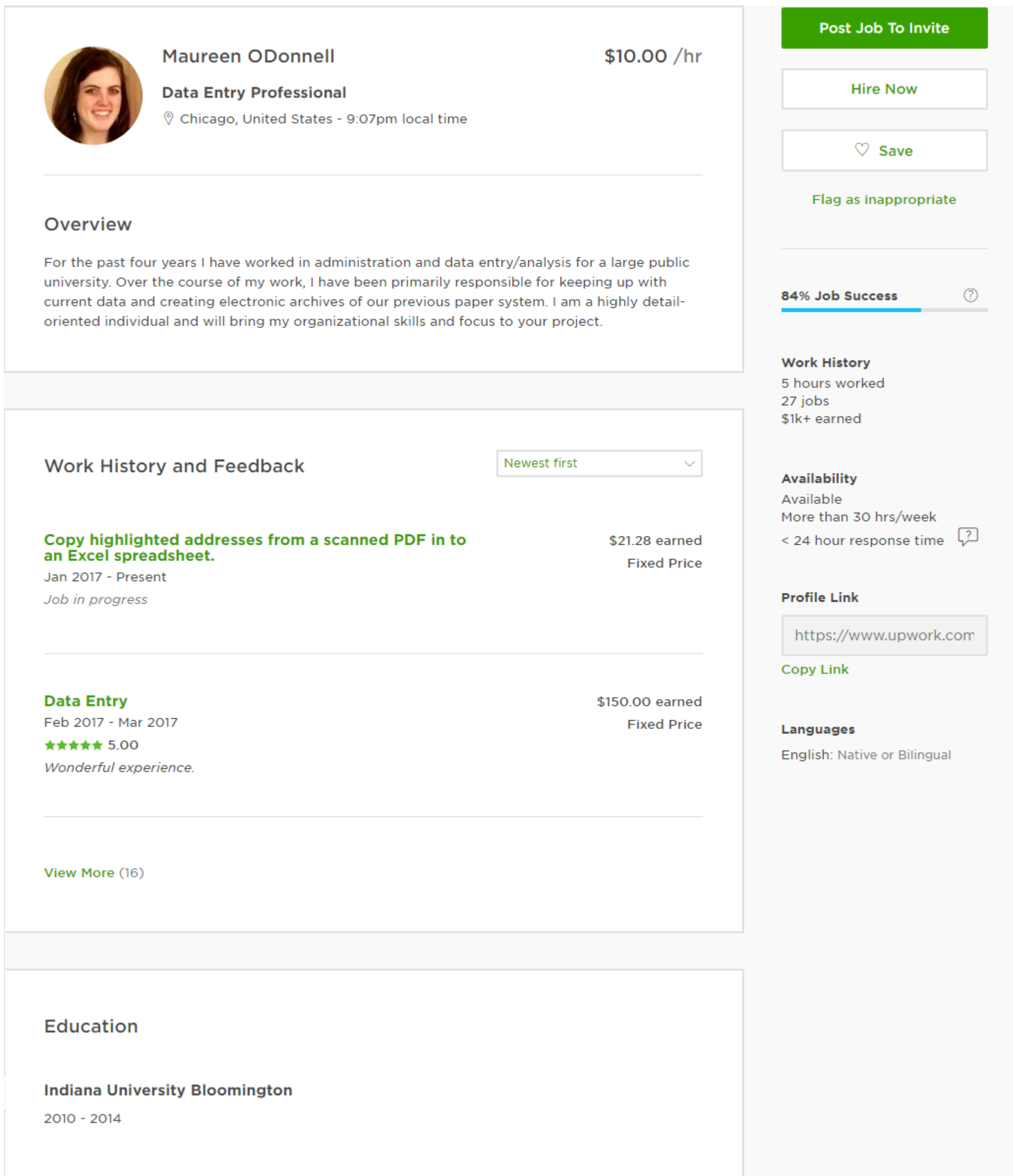

Figure 1: Upwork example profile.

e	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$c(e)$	0	1	2	4	6	8	10	12	15	18

Table 1: Cost of Effort

We use $v = 120$, and $c = 20$. The choice of payoff functions (1 and 2) and parameters (v and c) is made following Fehr et al. (1998). To ensure that payoffs are always positive and to avoid concerns about expectations of loss aversion $w \in \{20, 35, 40, ..., 120\}$. As mentioned earlier, subjects will play this game for 10 periods, one of those 10 periods will be randomly selected and the payment to the subject will be determined on the basis of payoff in that period.

To avoid reputation effects, a worker in each period will be told that it is partnered with a new employer i.e. a worker will be told that it will never be matched with the same employer again. Worker will also be told that the game will proceed anonymously i.e. employer will never observe the identity of a worker. In the absence of social preference, a worker should always choose minimum effort (e_{min}) irrespective of the wage offer. As once the wage is determined there is no pecuniary incentive to choose $e > e_{min}$. In this experiment we are only interested in the worker's problem, therefore there will be no real employers and wages by the employers will be randomly determined. Random wages are introduced to give more control on the experiment and to avoid any confounds from employer choice that may influence worker's effort choice.

While we agree that deception should be discouraged in labortary experiments, our experiment does not violate any of the ethical concerns associated with deception. We were careful to follow APA guidelines for deception. There appear to be three concerns at stake regardign deception. First, there is the argument that deception will harm the subjects. This argument is not relevant in this case because we don't see how subjects can be harmed by the deception in this case. The earnings of the subjects are not affected because of this deception as compared to having real people playing the game. Second, there is the argument that deception will "poison" the subject pool for future experiments. We avoid this problem by not debriefing the subjects about this deception. Debriefing the subjects can broadcast the deception to other potential subjects and hence potentially affect their behavior in future experiments. Third, the suspicion of deception may bias the results of the experiment. If such a bias exist it will bias the results in the direction of null effect.

2.2.2 Race Salient Treatment

This treatment will be same as baseline treatment except that when workers see the wage offer, they will see the picture of an employer who made the wage offer. We use neurtal pictures of Blacks and Whites from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015). Chicago Face Database (CFD) is a free resource consisting of 158 high-resolution, standardized photographs of Black and White males and females between the ages of 18 and 40 years. These photographs are rated on a number of different psychological dimensions (e.g. attractiveness and trustworthiness). Using pictures from CFD (compared to using pictures of real people) offer us the better experimental control and is also cost-effective. Figure 2 presents the layout of interface that the worker will see while making the effort choice. Each worker will see 5 White and 5 Black pictures in the random order.

Layout of Interface (Race Salient Treatments for Workers)

In this period, you are matched with the following employer. Before you can see the actual wage selected by the employer, you need to make a guess of the selected wage. If your guess is exactly right, you will get 5 extra points. If it deviates by 5 points you will get 3 extra points. If it deviates by 10 points you will get 1 extra point. If it deviates by more than 10, you won't get any extra points.

Employer ID:		
Guessed Wage	Enter your guess here and click submit.	
Wage selected by the employer:	Submit your guess above to view this.	

Now select the effort level for the above employer.

Effort Level	Input values between 0.1 and 1 in the increment of 0.1.
Your Earning	Pre-Calculated Field
Your Employer Earning	Pre-Calculated Field
	Submit Effort Choice

Figure 2: Layout of the Race Salient Treatment

2.2.3 Bonus Treatment

Bonus treatment will be same as Baseline except that there will be an additional stage to the game. Workers will be told that "In the third stage employer will observe your effort choice and decide whether to reward you bonus of 10 points or not." The payoff functions will be same as 1 and 2 if the bonus is not rewarded. If the bonus is rewarded only the worker's earnings will change as follows;

$$\text{Worker Earnings} = (v - w)e + \text{Bonus} \tag{3}$$

Notice that the bonus amount is not coming off from the payoff of the employer, workers will know this. Hence workers should expect the employer to reward the bonus becuase it is costless to employers. However if workers expect employers to have negative reciprocity towards a worker, it may expect employers to withhold the bonus. Worker may think that if the employer is not satisfied with the effort choice, it may decide to punish the worker by not rewarding the bonus. So workers should choose higher effort to not trigger this spite from the employer. We expect the effort to be higher in Bonus treatment as compared to the baseline treatement. The way the expectations will form in this case is not very clear. Workers may also take into account the wage offer from the first stage to form expectations about the conditional probability of rewarded a bonus. For example workers may expect an employer with higher wage offer to be willing to reward the bonus more easily than the employer who offered lower wage in the first stage or the relationship may be opposite becuase the wage goes out of the employer's payoff and it is aimed at eliciting more effort from worker but bonus doesn't affect employer payoff. Hence apriori we are not sure on the direction of average effort in the bonus treatment.

2.2.4 Race Salient and Bonus Treatment

This treatment is a combination of Race Salient and Bonus treatments. Workers will see the picture of the person (as in race salient treatment) and will also be informed of the additional stage of the game (as in Bonus treatment).

References

Akerlof, G. A. (1982). Labor Contracts as Partial Gift Exchange. *The Quarterly Journal of Economics*, *97*(4), 543–569.

Arrow, K. J. (1973). The Theory of Discrimination. In *Discrimination in labor markets* (pp. 3–33).

Becker, G. S. (1957). *The economics of discrimination*. University of Chicago Press.

Coate, S., & Loury, G. (1993). Will Affirmative-Action Policies Eliminate Negative Stereotypes ? *The American Economic Review*, *83*(5), 1220–1240.

Fehr, E., Kirchler, E., Weichbold, A., & Gächter, S. (1998). When Social Norms Overpower Competition: Gift Exchange in Experimental Labor Markets. *Journal of Labor Economics*, *16*(2), 324–351.

Fehr, E., Kirchsteiger, G., & Riedl, A. (1993). Does Fairness Prevent Market Clearing ? An Experimental Investigation. *The Quarterly Journal of Economics*, *108*(2), 437–459.

Glover, D., Pallais, A., & Pariente, W. (2017). Discrimination as a Self-Fulflling Prophecy : Evidence from French Grocery Stores. *Quartely Journal of Economics*.

Ma, D. S., Correll, J., & Wittenbrink, B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior Research Methods*, *47*(4), 1122–1135. doi: 10.3758/s13428-014-0532-5

Phelps, E. S. (1972). The Statistical theory of Racism and Sexism. *American Economic Review*, *62*(4), 659–661.

Upwork.com. (n.d.). *Upwork Webpage.* Retrieved May 17, 2018, from `https://www.upwork.com/about/`