



Referrals and information flow in networks increase discrimination: A laboratory experiment

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ABSTRACT

Referrals and information flow distort market mechanisms of hiring in the labor market, but they might assist employers under asymmetric information in finding better alternatives. This paper investigates whether an impartial information flow between employers in a cyclic network structure could generate more discrimination than when no information is exchanged between employers. We set up an artificial labor market in which there was no average quality difference between two categories of workers. We asked participants to play the role of employers and examined the partiality of their hiring choices. Results showed that discrimination was prevalent in all conditions. Higher standards by the employers for the quality of workers increased discrimination as did the presence of referrals from workers. Unexpectedly, impartial information flow in a cyclic network of employers did not help to decrease discrimination. We also showed that these mechanisms interact with and subdue each other in complex ways.

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Introduction

Hiring discrimination means differential treatment of a certain social category, based on category membership rather than individual merit. Differential treatment is recurrent in hiring choices characterized by asymmetry of information between the organization and the applicant (Petersen and Saporta, 2004; Rooth, 2010). Given that the true worker's quality cannot be accurately predicted during hiring decisions, organizations might use recognizable traits (e.g., race and gender) as inexpensive screening devices when hiring for jobs, particularly skilled jobs, in the belief (correct or not) that race and sex status are, on average, related to productivity' (Kaufman 2002, p. 550). When there is no or little statistical basis to distinguish the quality of members of different categories, following recognizable traits cannot help to estimate the applicant's quality. In these cases, understanding why discrimination could persist is of paramount importance (Bertrand et al., 2005).

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Hiring decisions might reflect signals and information that channel through social networks. The important role of referrals in particular is well documented for getting a job (Granovetter, 1973, 1974; Lin et al., 1981; Wegener, 1991; Elliott, 2001; Mouw, 2002; Fernandez and Fernandez-Mateo, 2006; Ponzo and Scoppa, 2010; Fountain and Stovel, 2014). Many studies argued that getting a job via referrals might distort the perfect market logic and replace meritocratic processes in hiring (Ioannides and Loury, 2004; Petersen et al., 2000; Tassier and Menczer, 2008). For instance, the extended use of informal job search methods may have a negative effect on the rate of mobility from low status to high status jobs (McBrier 2003; 1212). If one of the groups has a better access to informal job search, this is detrimental for the other group, as in the case of referrals from the “old boys” network in a wide range of contexts (Rogers, 2000; McBrier, 2003; McDonald, 2011; Bian et al., 2015).

Research concerning referrals highlighted how the hiring mechanism could enhance inequality of employment and wages (Montgomery, 1991; Krauth, 2004; Fontaine, 2008). Given that contacts might be homophilous with regard to internal quality, the extensive use of referrals lead necessarily to growing inequality (Montgomery, 1991; Beaman and Magruder, 2012). Considering that contacts are homophilous also with regard to social characteristics that are uncorrelated with ability, research showed that initial differences in the employment rate could result in greater wage inequalities over time (Montgomery, 1991; Arrow

and Borzekowski, 2004). Exogenously provided job information that is passed on via network ties also enlarges small initial differences (Calvó-Armengol and Jackson, 2004, 2007).

A few studies looked at referrals (Engström et al., 2012; Beaman and Magruder, 2012; Beaman et al., 2013; Caria and Hassen, 2013; Fernandez and Greenberg, 2013) and other structural mechanisms that affect discrimination (see Olian et al., 1988 for an earlier meta-analysis). Our paper aims to study structural mechanisms that can influence differential hiring practices *experimentally*.

The main advantages of the experimental methodology are that: (a) the hypothesized correlations can be tested unambiguously in a fully controlled environment that excludes confounding effects (e.g., Smith, 1991; Roth, 1993; Webster and Sell, 2007); (b) generative relations can be identified; (c) replication of findings is possible (e.g., Chapin, 1932; Falk and Fehr, 2003; Willer and Walker, 2007; Fehr and Gintis, 2007; Bohnet, 2009; Falk and Heckman, 2009; Smith, 2010). It is worth noting that experimental studies might help us to identify mechanisms that can be empirically examined in different contexts (Camerer, 2003; Ostrom, 2010; Ariely, 2008; Falk and Heckman, 2009).

Classical and recent small group experiments in social psychology testified to the human tendency to discriminate unknown partners based on category membership (e.g., Brewer, 1979, 1996; Dovidio et al., 2002; Fiske, 2009). Similarly, recent laboratory and field studies in economics and sociology confirmed the existence of discriminative practices (e.g., Solnick and Schweitzer, 1999; Pager et al., 2009; Jackson, 2009; Midtbøen, 2014; Agerström, 2014; Lee et al., 2015). Some laboratory studies were able to isolate important behavioral effects and interactional influences in discrimination (e.g., Keuschnigg and Wolbring, 2015; Takács et al., 2015; Lane, 2016).

Very few studies have tried to analyze factors related to social capital in hiring experimentally (Godechot, 2016). This can be explained as it is very difficult to depict the complex characteristics of social capital in the laboratory, causing concerns of external validity. But exactly due to the complex nature of social capital related processes, field research cannot fully disentangle the informational aspects of social capital from other mechanisms on discrimination. By contrast, carefully designed experiments using simple network structures can provide us a truly causal account by focusing on specific mechanisms inherent in the relational structure (Kosfeld, 2004; Willer and Walker, 2007; Gërkhani et al., 2013; Brashears and Quintane, 2015; Brashears and Gladstone, 2016). In our case, the experimental design can concentrate and rely on some elementary and empirically relevant mechanisms that potentially determine discrimination in hiring. One of these mechanisms covers referrals coming from workers. Another one summarizes the information flow coming from other employers who are very much in the same situation and have similar goals. Acquiring, passing on, and exchanging information between employers about employees is very difficult to trace in field studies. Tags and signals that characterize workers are also multi-dimensional, some correlate with internal qualities and skills, while others do not. As our study demonstrates, these mechanisms can be abstracted and used in the lab. In order to allow for causal inference, our laboratory experiments exclude concerns about strategic choices and endogeneity in recommendations and referrals by design.

It analyzes hiring decisions in a controlled setting and is able to reduce the high dimensionality of reality into a straightforward model.

Given the complexity of hiring choices in the labor market, empirical field research is unable to test univocally whether referrals increase discrimination compared to a baseline case without referrals or not. Furthermore, it cannot be explored whether referrals make a difference also without any initial biases or alternatively, observed inequalities are there because of historical path

dependence. Besides, in existing field studies, worker referrals and information flow among employers are considered jointly and their impacts are hardly separated.

In order to overcome these empirical difficulties, following Takács et al. (2015), we have designed a labor market experiment where participants (university students) were asked to play the role of *employers* and select *fictive workers* belonging to two categories. In our experiment, by excluding contextual effects and other important aspects of the hiring process, we tested the net and the joint effects of *referrals*, *information flow from other employers*, and *quality standards* on discrimination.

Referrals have been defined as recommendations for hiring by workers in-house (Montgomery, 1991; Fountain and Stovel, 2014). Referrals are naturally biased towards members of the in-group. This characteristic feature has been depicted in our experimental design. *Information flow* has been conceptualized as an automated process in a simple directed network of employers. This conceptualization covers multiple mechanisms according to which employers get to know the true qualities of workers employed at connected firms; such as recommendation letters, information exchange, and observations that take place as a result of established contact between the organizations. *Quality standards* were evaluation thresholds set up exogenously to determine whether it is economical to keep workers in house or not.

In our experiment, representing an idealistic world, there was *no difference* in the mean and distribution of quality of workers in the two categories; hence the impact of historical path dependence and initial biases could be excluded. Note that significant elements of everyday interactions were neglected in our labor market laboratory. For instance, there was no recruitment procedure in the experiment as we were interested in discrimination when hiring decisions are made. Recruitment itself can add an extra layer of discrimination by selectively targeting certain groups or using biased information channels. Moreover, in reality, workers themselves could apply selectively by expecting discrimination. These complications are present in the field and would distort the evaluation of impartiality of hiring decisions in the lab.

Our research questions were as follows.

1. Does discrimination occur in an artificial labor market with balanced and fair conditions?
2. Do higher quality standards create more discrimination? Or in other words, if employers are rewarded only for high quality workers, will discrimination increase?
3. Do worker referrals increase discrimination?
4. Does flow of accurate information in a network of employers decrease discrimination?

These questions concern primarily the behavior of individual employers. In addition, we were also able to analyze whether occasional individual biases balance each other out or they add up to inequality of employment between groups in our artificial labor market with balanced and fair conditions.

Hypotheses

An inclination towards discrimination

As suggested by Takács and Squazzoni (2015), who built a simple model of an idealized labor market in which there was no objective difference in average quality between groups and hiring decisions were not biased, a certain level of discrimination could be expected also in an ideal world with impartial employers. Judgment errors of this kind could be the consequence of “rational” adaptive sampling of available information (cf. Simon, 1955; Denrell, 2005; Fiedler

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