Social Science Research 41 (2012) 637–645

Contents lists available at SciVerse ScienceDirect

Social Science Research

journal homepage: www.elsevier.com/locate/ssresearch

A lay-statistician explanation of minority discrimination

Brent Simpson [a,*], Kimmo Eriksson [b,c]

[a] Department of Sociology, University of South Carolina, Columbia, SC 29208, United States
[b] School of Education, Culture and Communication, Mälardalen University, Box 883, SE-72123 Västerås, Sweden
[c] Centre for the Study of Cultural Evolution, Stockholm University, SE-106 91 Stockholm, Sweden

ARTICLE INFO

Article history:
Received 21 December 2010
Revised 1 December 2011
Accepted 22 December 2011
Available online 30 December 2011

Keywords:
Discrimination
Social cognition
Social psychology
Categorization
Hiring
Labor market

ABSTRACT

We outline a new explanation of discrimination against numerical minorities. In contrast to prior work that focuses on how the *content* of categories affects discrimination, our argument describes how the *size* of categories leads to discrimination. Specifically, we argue that, when comparing multiple categories, actors tend to view larger categories as more closely approximating an underlying population than smaller ones. As a result, a decision maker will tend to expect that members of a numerical majority are more likely to be what he/she is searching for, whether it is the best *or worst* candidate. We report the results of two studies designed to test these arguments. To demonstrate the generality of the proposed mechanism, Study 1 tested the argument in a non-social domain. Participants disproportionately favored the majority (vs. minority) category when searching for a single winning lottery ticket, and favored the minority category when the goal was to avoid a single losing ticket. Our second study supported an additional implication of the argument in a social domain: decision makers tended to rank highly qualified majority job candidates as better than equally qualified minority candidates, and relatively unqualified majority candidates as worse than equally unqualified minority candidates.

1. Introduction

Although women and minorities have made important strides in the labor market over the past several decades, they still face discrimination (Pager and Shepherd, 2008; Ridgeway, 2011; Tomaskovic-Devey et al., 2006). For instance, they are less likely than their male and white counterparts to be hired for or promoted to high-ranking positions (Correll and Benard, 2006; National Research Council, 2004). Similarly, research shows high levels of sex- and race-segregation, with females and minorities disproportionately represented in sectors or occupations with lower pay (Reskin, 1993; Tomaskovic-Devey et al., 2006).[1]

When viewed from the vantage point of dominant theoretical perspectives, persistent discrimination is surprising, for a number of reasons. First, there is growing evidence that gender- and racial attitudes have become more egalitarian (e.g., Bobo, 2001; Dovidio and Gaertner, 2004; Foschi and LaPointe, 2002; Pager and Shepherd, 2008). In addition, federal legislation bars discrimination based on social category membership (Burstein and Edwards, 1994; Quillian, 2006). But, as Reskin (2002) notes, policies aimed at barring discrimination tend to assume that discrimination is based on decision-makers' intentional or rational choices. As such, these policies ignore "an even more important reason individuals' sex and race are routinely and illegitimately linked to employment rewards: automatic nonconscious cognitive processes that distort

* Corresponding author.
E-mail address: bts@sc.edu (B. Simpson).

[1] When we refer to "sex" or "gender," we specifically mean *sex-category*, or the "appearance of an individual that results in labeling as male or female by oneself and/or others" (Wiley 1995, 362). Analogously, when we refer to "race" or "ethnicity," we mean *race-category* or *ethnic-category*.

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doi:10.1016/j.ssresearch.2011.12.009

our perceptions and treatment of others." Reskin (2002) and others (e.g., National Research Council, 2004; Quillian, 2006) have called for investigation into these biases and how they produce discrimination in the labor market.

Here we build on the rich tradition of research on cognitive biases and heuristics (Gigerenzer and Gaissmaier, 2011; Kahneman et al., 1982) to outline and test a novel "lay-statistician" approach to discrimination. Our argument is based on two assumptions, explained in detail below: decision-makers (i) categorize others (Macrae and Bodenhausen, 2000) and (ii) view larger categories as more likely than smaller ones to contain whomever they are searching for (Evans et al., 1977). As a result, a decision maker will tend to expect that the best candidate will be in the majority category. This leads decision-makers to favor members of a larger category when comparing top candidates. For instance, an employer considering a pool of applications with a disproportionate number of male candidates will tend to assume that the top male candidate is better than the top female candidate. Our argument also predicts that decision-makers will expect that the *worst* candidate is most likely to be in the majority category. Thus, we expect a preference for members of numerical majorities when selecting the best candidate and a preference for members of numerical minorities when attempting to avoid the worst candidate. These preferences lead to biases and discrimination when the basis of categorization is orthogonal to job qualifications and category size influences employers' treatment of an individual category member. Thus, our lay-statistician approach describes a specific way in which non-statisticians apply basic statistical principles to their decision-making, and how this leads to discrimination.

We develop this account more fully in the two sections to follow, and then present two tests of the arguments. To demonstrate that the hypothesized process reflects a general feature of how people think about categories, our first study addresses a non-social case (strategies for choosing among lottery tickets of two different colors). Our second study involves social categories (ranking job applicants about whom category information is available).

2. Social categories and discrimination

When making decisions about whom to hire or promote, employers often must choose between applicants who differ from each other along a number of dimensions. Some of these dimensions may be job-relevant (e.g., education and prior work experience). But social categories, such as applicants' race- or gender-categories, also have powerful effects on hiring decisions. Previous work has pointed to a number of reasons that social categories like race and gender impact hiring decisions (for reviews, see Correll and Benard, 2006; National Research Council, 2004). Broadly speaking, as suggested by Reskin (2002), most traditional explanations have assumed that category-based discrimination is based on either negative feelings toward a given category (e.g., Allport, 1954; Becker, 1957) or on "rational" responses to the uncertainty employers face. In these latter, "statistical discrimination" approaches (Aigner and Cain, 1977; Arrow, 1973; England, 1992; Lundberg and Startz, 1983), an employer has limited information about a prospective employee's skills or productivity for a given employee. To cope with this uncertainty, the employer may favor candidates from one category (whites, or men) over another (African Americans, or women). This preference can be rational if the employer believes with some degree of certainty that there exist differences in the distribution of skills and talents in one category vs. another.[2]

While these dominant explanations offer important insights into bases of inequality in hiring and promotion, there is growing evidence that much discrimination is based on non-rational and "automatic" biases (National Research Council, 2004; Reskin, 2002). Most of this work addresses how social categories influence evaluations, often outside conscious awareness. For instance, experimental studies show that knowledge of another's race-category can generate stereotypical cognitions (Bodenhausen et al., 1998) and associated expectations (Fiske, 1998). Moreover, subliminally priming race can lead to stereotype-consistent behaviors. For instance, a study by Bargh et al. (1996) showed that white participants primed with black faces subsequently behaved in a more hostile way than did those primed with white faces (see Reskin (2002) for a review and discussion of how these implicit and automatic processes generate category-based discrimination in labor market contexts).

Our goal is to contribute to this growing literature by pointing to a heretofore unidentified process through which category-based discrimination occurs. Consistent with the literature reviewed thus far, the first basic assumption underlying our argument is that decision-makers think categorically. As Allport (1954, 19) put it, humans "cannot possibly avoid" thinking in terms of social categories. Upon meeting another person, we automatically encode the person's race and gender (Fiske, 1998; Taylor et al., 1978). Moreover, an extensive tradition of research on "minimal groups" demonstrates the tendency for humans to attend to, and discriminate on the basis of, even arbitrary categorical distinctions (Brewer, 1979; Hewstone et al., 2002). Due to the tendency for people to treat irrelevant categories *as if* they are meaningful and relevant, categorical distinctions often form the basis of ingroup-favoritism (Turner et al., 1979) and consensual status beliefs (Ridgeway, 1991; Ridgeway et al., 1998). In short, decision-makers categorize others based on characteristics such as race and gender, and these resulting categories influence perceptions of – and behavior toward – category members in a range of ways. As such, as Reskin (2002, p. 221) noted, categorization is the "core cognitive process that links race and gender to workplace discrimination."

[2] Different models of statistical discrimination make different assumptions about whether the employer's beliefs correspond to *actual* category differences in the distribution of skills and productivity. See Correll and Benard (2006) for a review and comparison of existing theories of statistical discrimination. See Altonji and Pierret (2001) for a thorough treatment of the type of data that are required to adequately test these theories, as well as evidence against the hypothesis that employers statistically discriminate based on the race/ethnicity of prospective employees.