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## Spillover bias in diversity judgment

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#### 1. Introduction

Diversity sharpens the opportunities and the challenges for groups, organizations, and societies (Apfelbaum et al., 2014; Levine et al., 2014; March and Simon, 1958; Page, 2007b). As diversity increases, groups can access a larger variety of information sets and decision processes with which to accomplish their objectives (e.g. Hackman, 2002; LiCalzi and Surucu, 2012; Lorenz et al., 2011; Page, 2007a; Wuchty et al., 2007). However, at the same time, greater differences in preferences and beliefs can make it harder for groups to overcome agency and coordination problems (e.g. Cronin and Weingart, 2007; Klein and Harrison, 2007; Van den Steen, 2010). Thus, diverse and homogeneous groups have different strengths and weaknesses (e.g. Mannix and Neale, 2005). This means that optimal managerial decisions about creating and managing groups can require accurate judgments of diversity i.e., unbiased assessments of levels of diversity.<sup>1</sup> Conversely, if judgments of diversity are systematically biased (e.g. Kahneman et al., 1982), some managerial decisions about groups will be wrong (e.g. Bazerman and Moore, 2013).

In diversity research, perceptions of diversity have long been assumed to be essentially accurate (with some exceptions that we discuss below). While perceived diversity has played a central role in definitions and theories of diversity (e.g. van Knippenberg et al., 2004; Mannix and Neale, 2005; Williams and O'Reilly,

#### ABSTRACT

Diversity research has long assumed that individuals' perceptions of diversity are accurate, consistent with normative theories of judgments in economics and decision theory. We challenge this assumption. In six experiments, we show that when there is more diversity along one dimension (e.g., race, clothing color), people also perceive more diversity on other dimensions (e.g., gender, skill) even when this cannot reflect reality. This spillover bias in diversity judgment leads to predictable errors in decision making with economic incentives for accuracy, and it alters support for affirmative action policies in organizations. Spillover bias in diversity scholars have found inconsistent associations between objective diversity and team outcomes.

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1998), these theories have usually been tested with data on objective diversity (cf. Shemla et al., 2016). Similarly, neoclassical models in economics and decision theory (e.g. Luce and Raiffa, 1957; Mas-Collel et al., 1995; von Neumann and Morgenstern, 1947) would assume that diversity judgments, like other judgments, are unbiased.<sup>2</sup> These assumptions are surprising in light of the fact that many studies have documented strong biases in human judgment processes, especially when the situation is ambiguous and when the situation includes information that is salient but normatively irrelevant (Kahneman, 2011).

We assert that both of these catalysts for judgment bias ambiguous situations and the presence of salient but normatively irrelevant information - are likely to characterize the typical formation of diversity judgments. First, when people form judgments of diversity, the definition of "diversity" is usually ambiguous and multidimensional (Bell and Hartmann, 2007; Harrison and Klein, 2007; Klein and Harrison, 2007; Williams and O'Reilly, 1998); in particular, it is often uncertain exactly which dimensions of diversity are relevant and which dimensions of diversity are irrelevant. For instance, it might seem implausible that in business contexts the definition of "diversity" would include diversity of height, but height diversity does meet a standard definition of diversity in the literature - differences among individuals on any attribute (Mannix and Neale, 2005; Williams and O'Reilly, 1998) - and people would certainly be able to form judgments of height diversity if they were asked to do so. Second, when people are forming

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 $<sup>^{1}</sup>$  In this paper, we use the terms "judgment," "perception," "assessment," and "estimate" interchangeably.

<sup>&</sup>lt;sup>2</sup> Research in behavioral economics, with its central focus on biases in judgments and decisions, has been careful to provide objective diversity information explicitly (e.g. Niederle et al., 2013). However, even this may not be sufficient to ensure that judgments of diversity are unbiased, as the results of Experiment 2 will suggest.

judgments of a certain type of diversity, there virtually always exists diversity information that is salient but normatively irrelevant: information about *other* types of diversity. If diversity judgment processes involve heuristics that place some weight on irrelevant diversity information (Kahneman et al., 1982), this could produce a systematic bias in diversity judgment.

This paper challenges traditional assumptions about the accuracy of diversity judgments. We argue that diversity judgments on a single dimension will often be biased towards diversity levels on other salient dimensions. In six experiments, we find evidence of such a spillover bias in diversity judgment. We demonstrate that when there is more diversity along one dimension (e.g., race, clothing color), people also perceive more diversity on other dimensions (e.g., gender, skill) even when this cannot reflect reality. Experiment 1 shows that an increase in objective racial diversity causes an increase in judgments of gender diversity, using a face perception paradigm where objective gender diversity is held constant. Experiment 2 demonstrates that an increase in even a "minimal" type of diversity (e.g. Loyd et al., 2012) - randomly assigned shirt colors can cause an increase in judgments of gender diversity among members of real interacting teams who have just completed a substantial team task together (and where objective gender diversity was also held constant). Experiment 3 shows that spillover bias leads to predictable errors in decision making with economic incentives for accuracy; the bias is strong, reversing the decision preferences of about 46% of participants. Experiment 4 demonstrates that programming skill diversity can spill over to distort judgments of racial/ethnic diversity. Experiment 5 documents additional evidence of spillover bias using a larger sample size for higher statistical power. Experiment 6 shows that spillover bias can alter people's support for affirmative action policies in organizations.

#### 1.1. Contribution

Our investigation of spillover bias has implications for three strands of research: managerial decision making, diversity judgment processes, and research on diversity and performance. First, if managers believe a team is diverse when it is actually homogeneous (or vice versa), this can lead to errors in managerial decision making, such as giving a homogeneous group a task that requires a diverse set of perspectives, knowledge, and/or skills. Spillover bias may thus help explain why managerial decisions about teams often appear to be suboptimal (e.g. Bazerman and Moore, 2013). Second, while most diversity research has implicitly assumed that perceptions of diversity are accurate, this paper contributes to an emerging literature on the microfoundations of diversity perceptions (e.g. Homan et al., 2010; Loyd et al., 2012; Phillips and Loyd, 2006; Phillips et al., 2004; Phillips et al., 2006; Phillips et al., 2014; Zellmer-Bruhn et al., 2008) suggesting that people's assessments of diversity may not always be veridical. Third, diversity scholars have not found consistent associations between objective diversity and team outcomes (for overviews, see, e.g. van Dijk, van Engen, and van Knippenberg, 2012; van Knippenberg and Schippers, 2007). However, if team outcomes are strongly affected by biased diversity judgments, it does not necessarily follow that team outcomes will be strongly correlated with actual levels of diversity. Thus, a better understanding of biases in diversity judgment (such as spillover bias) has the potential to open up new productive and interesting avenues for future research on diversity and outcomes.

### 2. Theoretical framework

Diversity refers to differences among individuals on any 1attribute (Mannix and Neale, 2005; Williams and O'Reilly,

1998). Managers are often interested in how diverse a team is on a single attribute (e.g. Thomas and Ely, 1996); e.g., if racial issues are a sensitive and/or performance-related concern in a team, then racial diversity will probably be more important than other types of diversity. In such a case, a manager may wish to estimate how racially diverse the team is. Note that the manager has information about both relevant inputs that should affect the focal judgment, i.e. the team's objective racial diversity configuration (a function of the racial composition of the team), and irrelevant inputs that should not affect the focal judgment, e.g. the team's gender diversity, the team's skill diversity, and so on. If a manager's assessment of diversity on a single attribute (e.g., race) is unbiased, as normative judgment theories in economics and decision theory would predict (Baron, 2004), it will be affected by diversity on the relevant attribute (i.e., race) but completely unaffected by diversity on all irrelevant attributes (e.g., gender, skill).

In contrast to normative (i.e. idealized) judgment processes, behavioral (i.e. human) judgment processes often do take into account inputs that are salient even if they are normatively irrelevant, as has been shown by 40 years of research in psychology and economics (for overviews, see, e.g., Kahneman, 2003; Kahneman, 2011). We propose that managers use heuristics when assessing the level of diversity in their teams. Because of heuristic judgment processes, individuals' judgments of the level of diversity on a single attribute in a group may reveal a spillover bias towards levels of diversity on other salient attributes.

Two prominent heuristics in judgment and decision making which may drive spillover bias are anchoring and representativeness. Suppose managers intuitively use the anchoring heuristic when assessing diversity on a single target attribute, such that their judgments are distorted towards salient but irrelevant starting points called anchors (e.g. Chapman and Johnson, 1999; Epley and Gilovich, 2006; Tversky and Kahneman, 1974; Northcraft and Neale, 1987; Simmons et al., 2010). When attempting to estimate the level of diversity on a single target attribute, evidence about the levels of diversity on other attributes may come to mind and serve as anchors for the target judgment, thereby distorting the diversity judgment on the target dimension towards levels of diversity on other, irrelevant dimensions. For example, when assessing the amount of gender diversity in a team, evidence regarding the amount of racial diversity or skill diversity may come to mind and "pull" a manager's judgment of gender diversity towards their judgments of racial diversity or skill diversity.

Alternatively, assume managers intuitively use the representativeness heuristic when assessing diversity on a single target attribute (e.g. Kahneman and Frederick, 2002; Tversky and Kahneman, 1974). Assume further that levels of diversity across different attributes prototypically associated with the idea of diversity - e.g., race/ethnicity and gender (e.g. Mannix and Neale, 2005) - are positively correlated in individuals' prototype of a group. For example, a racially diverse team might be presumed to be also gender diverse, given that both types of diversity have a strong association with the broader prototype of diversity. (Recent studies support this idea, suggesting that "race is gendered" and "gender is racialized" in people's minds (e.g. Carpinella et al., 2015; Freeman et al., 2013; Galinsky et al., 2013; Johnson et al., 2012; Sesko and Biernat, 2010). For instance, prototypical Asian faces are viewed as feminine, whereas prototypical Black faces are viewed as masculine (e.g. Johnson et al., 2012; Sesko and Biernat, 2010). Conversely, prototypical feminine faces are viewed as White, whereas prototypical masculine faces are viewed as Black (e.g. Carpinella et al., 2015).) This means that if managers were to rely on the representativeness heuristic when making diversity judgments, perceptions of gender and racial diversity would be likely to spill over onto each other. For example, if a manager knows a team has a high level of racial diversity, our two assumptions imply that the Download English Version:

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