Going It Alone: Competition Increases the Attractiveness of Minority Status

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ABSTRACT: Past research demonstrates that people prefer to affiliate with others who resemble them demographically. However, we posit that the strength of this tendency toward homophily may be moderated by strategic considerations when competing for scarce opportunities. Across six experiments, we find that anticipated competition weakens people’s desire to join groups that include similar others. When expecting to compete against fellow group members, women are more willing to join all-male groups and Black participants are more willing to join all-White groups than in the absence of competition. We show that this effect is mediated both by a belief that being distinct will lead your performance to stand out and by a desire to compete against demographically dissimilar others. Our findings offer a new perspective to enrich past research on homophily, shedding light on the instances when minorities are more likely to join groups in which they will be underrepresented.

KEYWORDS: diversity, gender, race, group selection, competition, homophily

HIGHLIGHTS:
• Women and racial minorities show an increased preference to opt in to token status under competition
• The belief that being demographically distinct will lead one’s performance to stand out from others mediates competition’s effects on preferences for homophily
• The desire to compete against demographically dissimilar others also mediates competition’s effects on preferences for homophily

Link to Online Supplement:
https://osf.io/j8wnt/?view_only=9d83b69e252b4391b1a6faa01d8c58c7
Introduction

People often have opportunities to select which groups they would like to join at work. For example, some organizations have internal talent markets or rotational programs where employees work on a variety of teams before choosing one. In academic contexts, students choose between classes, majors, and research advisors at their educational institution. More commonly, such choices are inter-organizational: for instance, many people choose between job offers.

While research on organizational attractiveness often focuses on how organizational features and individual attitudes interact to shape people’s preferences between jobs (Cable & Judge, 1996; Lievens, Decaesteker, Coetsier, & Geirnaert, 2001; Martins & Parsons, 2007; Turban & Greening, 1997; Turban & Keon, 1993), we explore how people choose between groups or teams based on their anticipated coworkers. Specifically, we examine how underrepresented minorities choose between work groups based on both organizational context and work group composition, and we offer a theory that challenges the idea that minority group members are universally opposed to being tokens (cf. Duguid, 2011; Umphress, Smith-Crowe, Brief, Dietz, & Watkins, 2007). By more closely examining the preferences and choices of members of historically underrepresented populations (namely women and racial minorities), our work contributes to a richer understanding of diversity in organizations.

Most theory and scholarship about why prospective group members are attracted to certain groups over others is based on research on homophily. Homophily describes our tendency to join groups composed of people whose beliefs, attitudes, and demographic traits resemble our

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1 As per Kanter's (1977) definition, we consider tokens to be individuals who constitute less than 15% of their group.
own (see McPherson, Smith-Lovin, & Cook, 2001 for a review). There is particularly strong evidence for homophily among members of underrepresented populations (Baugher, Varanelli, & Weisbord, 2000; Mehra, Kilduff, & Brass, 1998; cf. Umphress et al., 2007), in part due to the aversive consequences that women and racial minorities face when they are tokens (Cohen & Swim, 1995; Kanter, 1977).

We posit that past research may have overlooked an important moderator of the strength of homophily. Specifically, we focus on the consequences of intra-group competition, or competition against fellow work group members, which is a common feature of organizational life (Scheiber, 2015; Steinhage, Cable, & Wardley, 2017). Work group members frequently compete amongst themselves for promotions, recognition, and bonuses. Any organization with limited opportunities for advancement involves some form of competition against peers, but intra-group competition may be particularly common at elite companies, where large numbers of entry-level employees are culled down through consistent cuts until a small number reach senior positions within the firm (Scheiber, 2015).

We theorize that intra-group competition will affect which groups women and racial minorities prefer to join by reducing their desire to work with similar others. Across many domains, competition has been shown to increase people’s focus on strategic thinking and social comparisons, and reduce their focus on maintaining relationships (Camerer, 2003; Halevy, Cohen, Chou, Katz, & Panter, 2014; Kilduff, 2014). If people anticipate that intra-group competition will damage social relationships, they may prefer to compete against peers they do not expect to befriend (e.g., demographically dissimilar others; Byrne, 1997). Further, competition for scarce recognition gives rise to desires for individuation and differentiation from fellow competitors (Maslach, 1974). Because race and gender are highly salient identities for
social categorization (Stangor, Lynch, Duan, & Glas, 1992), the desire to appear different and set oneself apart from competitors may increase the rate at which historically underrepresented minorities in organizations (e.g., female employees, Black employees) prefer to join groups of dissimilar others. Finally, prior work suggests that implicit quotas, which are norms or unstated rules for the number of underrepresented minorities who are offered jobs or promotions, may dictate who managers attempt to attract and retain (Chang, Milkman, Chugh, & Akinola, 2019; Dezső, Ross, & Uribe, 2016). If women and minorities expect managers’ decision-making to be influenced by implicit quotas, they may strategically choose to be tokens in order to increase their chances of success when facing intra-group competition.

Thus, when competing, underrepresented minorities may be more willing to join groups in which they will be tokens for three primary reasons: (1) they believe that, by virtue of being a demographic minority, their performance and point of view will stand out relative to majority group members; (2) they believe that organizations have implicit quotas for minorities and wish to benefit from these quotas; and (3) they prefer to compete against demographically dissimilar others.

Across a series of six experiments, we show that anticipated intra-group competition influences the groups women and underrepresented minorities choose to join. Specifically, we find that competition for scarce opportunities weakens women’s and minorities’ desire to join groups that include similar others. Our work highlights a previously unappreciated moderator of the well-studied preference for homophily — intra-group competition — that is also a common feature of organizational life (Scheiber, 2015; Steinhage et al., 2017).

The Desire for Similar Others in Groups
Homophily, defined as the tendency to affiliate with others who have similar beliefs, attitudes, and personal traits (McPherson et al., 2001), is a powerful phenomenon that has been documented across a wide range of contexts and types of relationships (see McPherson et al., 2001 for a review; McPherson & Smith-Lovin, 1987). Past research on homophily suggests that, all else being equal, people are more likely to join groups composed of people who are similar to them than groups composed of dissimilar others.

There is ample evidence that people exhibit homophily when deciding which groups to join or which people to affiliate with in professional settings. For example, studying the decisions of undergraduates tasked with choosing a group to work with on a semester-long project, Baugher et al. (2000) found that self-selected groups were much more similar, or less diverse, with regard to race, gender, and cultural background than would be expected by chance. Similarly, Hinds, Carley, Krackhardt, and Wholey (2000) found that work groups chosen for a four-month software engineering project were also more similar demographically than would be expected by chance. These patterns have also been identified in non-work decisions: McPherson and Smith-Lovin (1987) found people are driven toward homophily in their choice of social organizations and in their choice of friends.

One force behind homophily is the tendency to like people who resemble us (McPherson et al., 2001). Similarity-attraction theory posits that people prefer to affiliate with those who share their attitudes and beliefs (Byrne, 1969; Byrne et al., 1968) or demographic traits (Byrne, 1997; Montoya, Horton, & Kirchner, 2008; Turban, Dougherty, & Lee, 2002). Not only do we have positive affective responses to those who are similar to us, but we expect increased comfort and trust when interacting with them (Baskett, 1974; Byrne, 1969, 1997). People’s attitudes toward their work groups are also often consistent with the predictions of similarity-attraction
theory. In a survey of employees in a large company, Riordan and Shore (1997) found
employees had more positive attitudes toward their work groups when other members of those
groups were more demographically similar to them. Both homophily and similarity-attraction
theory suggest that, if given the choice, people will be more likely to join groups that include
demographically similar others than groups that do not.

While the previous findings and theorizing apply to all people, racial minorities and
women have particular reasons to exhibit homophily. For members of these groups, homophily
may also be propelled by an aversion to being in the numeric minority in social or organizational
groups. For example, there is evidence that members of historically underrepresented
populations feel isolated, hyper-visible, and pressured to conform to stereotypical roles or
behaviors when they are in the minority in groups (Chatman, Boisnier, Spataro, Anderson, &
Berdahl, 2008; Yoder, 1991). Furthermore, being severely underrepresented in a work group can
harm an individual’s performance (Thompson & Sekaquaptewa, 2002) and reduce their job
satisfaction (Niemann & Dovidio, 1998). Together, these findings suggest that the experience of
being a token in a group can be particularly unpleasant and taxing for historically
underrepresented minorities.

The Effects of Competition on Group Preferences

Competition has been linked to increased motivation and a focus on winning in past
research (Berger & Pope, 2011; Kilduff, 2014; Plass et al., 2013). For example, Berger and Pope
(2011) found in laboratory studies that participants who were told they were competing against
others persisted longer on tedious tasks. Further, past research has shown that when people in
organizations face competition for scarce resources, they are more likely to engage in strategic
thinking (Camerer, 2003; Halevy et al., 2014; Ray, King-Casas, Montague, & Dayan, 2009) and
to make comparative social judgments in order to evaluate their position and status (Ashmore, Jussim, & Wilder, 2001). Thus, the prospect of intra-group competition (i.e., competing against fellow group members) is likely to encourage people to think strategically and engage in social comparison processes as they consider the best ways to achieve success.

One promising strategy in the face of competition for scarce opportunities may be to attempt to stand out from one’s peers. Differentiating oneself from others prompts attention and increases perceptions of status, both of which can be beneficial in competitions (Maslach, Stapp, & Santee, 1985; Snyder & Lopez, 2001). For example, when competing for rewards, people generally engage in more self-differentiating behaviors (Maslach, 1974). In addition, job candidates often attempt to set themselves apart from others by giving unique answers to traditional interview questions, a strategy that leads to more positive outcomes (Roulin, Bangerter, & Yerly, 2011).

We propose that to stand out from peers, people may elect to join groups where their beliefs, attitudes, and personal traits make them distinct. When competing, people are more likely to compare themselves to those who resemble them because they perceive similar others to be more appropriate targets for comparison than dissimilar others (Brewer & Gardner, 1996; Duffy, Scott, Shaw, Tepper, & Aquino, 2012; Hoffman, Festinger, & Lawrence, 1954). Shared attributes are even more likely to be a basis for social comparison when these attributes are relatively rare (Kilduff, Elfenbein, & Staw, 2010; Mehra et al., 1998). If people facing competitive pressure believe that evaluators are likely to make comparisons within social categories, they may prefer to surround themselves with dissimilar others to stand out. This may be a wise strategy for members of certain groups: past research has found that women and racial
minorities tend to stand out in groups, especially when they are numerically underrepresented (Dovidio, Gaertner, & Saguy, 2008).

We propose that being demographically rare in a group can provide those in the numeric minority with three primary benefits. First, people who are tokens may expect their work and behavior to be more visible to colleagues and evaluators (Kanter, 1977; Watkins, Simmons, & Umphress, 2019), and this increased attention to their work could be seen as beneficial in a competitive context. In an experimental study where women were randomly assigned to task-oriented groups such that they would either be the only female in the group (a “solo”) or not, female solos were significantly more likely than female non-solos to expect to stand out in their group (Cohen & Swim, 1995). Furthermore, people expect their perspectives, background, and ideas to be more similar to those who resemble them demographically than those who do not (Dipboye & Colella, 2013; Tajfel & Turner, 1979), so they may expect their performance to be more distinctive and salient to evaluators in work groups in which their social identity is also distinctive and salient. Indeed, in a study of women in state legislatures, token women were found to produce work that was more distinct from that of their coworkers than were non-token women (Bratton, 2005). Thus, women and racial minorities may expect their performance and perspective to be more likely to be noticed when they are tokens in a group.

Second, being a token can be beneficial if managers’ decision-making is affected by implicit quotas. Prior research suggests that some organizations have implicit quotas that affect their demographic composition (Chang et al., 2019; Dezső et al., 2016). This means that standing out as one of the only underrepresented minorities in a group could actually improve an individual’s access to opportunities, particularly when advancement is competitive. Consider, for example, a woman in a male-dominated, competitive, up-or-out organization who is faced with a
choice between joining a work group of all men or a gender diverse group. If she believes that her organization has an implicit quota for the number of women they will promote from each group, she may anticipate that her superiors will be reluctant to promote only men. Thus, it would be strategically beneficial to join an all-male work group, where her token female status increases her chances of earning a promotion. If people believe that managers may be guided by implicit (or explicit) quotas when deciding whom to support or promote, then standing out as one of few minorities in the running for limited opportunities could be strategically beneficial.

Finally, being a token in a group also means avoiding direct competition with similar peers. Past research has shown that the relationally damaging effects of competition and rivalry tend to be strongest when competing against similar others, especially for women (Kilduff, 2014; Lee, Kesebir, & Pillutla, 2016). If women and minorities expect to get along better with similar others in their organizations, as similarity-attraction theory would predict, they may want to preserve these potential relationships by avoiding the damaging effects of competition (Lee et al., 2016; Singleton & Vacca, 2007). Instead, they may prefer to compete against people who differ from them demographically (e.g., men, White people), whom they may be more comfortable beating in a competition for a job or promotion. Further, because similar others are more frequent targets for social comparisons (Hoffman et al., 1954) and resources for members of underrepresented populations may feel more limited (Ely, 1994), women and minorities may expect demographically similar others to be bigger competitive threats. In fact, such threat responses to potential competition with similar peers have led female solos to reject female applicants to preserve their token status and avoid competition with fellow women (Duguid, 2011). They have also led women in male-dominated workplaces to avoid relationships with other women to avoid competitive comparisons (Ely, 1994). Thus, women and minorities may
prefer to compete against men and Whites, respectively, because they find competition against similar others more relationally and strategically aversive.

In sum, we theorize that women and racial minorities may anticipate benefits from being tokens in a group and may find it more attractive to distance themselves from others who share salient identity characteristics when competing for scarce opportunities. In particular, they may believe that being in the minority on a salient identity dimension could help them attain scarce opportunities. This belief — whether due to a perception that it will be easier to differentiate themselves, a sense that they could benefit from implicit quotas, or a preference for competing against those who don’t resemble them demographically — may increase the attractiveness of choosing to be a token or numeric minority in a competitive work group. Taken together, we hypothesize that competition will decrease the tendency for members of historically underrepresented populations to join groups composed of people who share their demographic traits. Further, we predict that this effect will be mediated by (1) a belief that being distinct will allow one’s work or performance to stand out from that of competitors; (2) a belief that being one of the only women or racial minorities in a group will allow one to benefit from implicit quotas; and (3) a desire to compete against demographically dissimilar peers.

Overview of Studies

We present six experiments that test our hypotheses about the influence of competition for scarce opportunities on group preferences. In all of our experiments, we randomly assign participants to anticipate either competing against other group members for scarce opportunities (e.g., promotions, bonuses) or not. Then, we let participants choose between joining one of two work groups: a group where they will be underrepresented or a group where they will be surrounded by similar others. In Study 1, we show that women (Study 1A) and Black
participants (Study 1B) are more likely to join an all-male group or all-White group, respectively, when competing for scarce opportunities than in the absence of competition. In Study 2, we disentangle the effects of competition and scarcity to demonstrate that competition drives the preference shift we document. In Study 3, we investigate the mechanisms underlying this phenomenon and find that (1) a belief that being demographically underrepresented will make your contributions more noticeable and (2) a preference for competing against dissimilar others mediate this shift in preferences. Finally, in Study 4, we extend our findings from scenario studies to two incentive-compatible, real decision studies. Importantly, we do not document a reversal in preferences: women and minorities in our studies prefer working with similar others across conditions. Rather, we document a significant and reliable shift in preferences, such that women and racial minorities facing intra-group competition are more willing to be tokens than those who are not facing competition.

**STUDY 1**

**Study 1A**

In Study 1A, we tested our basic hypothesis that women would be more willing to join an all-male group when facing the prospect of intra-group competition. Women were asked to choose between joining one of two groups for a summer internship, and the groups differed only in their proportion of female members. Competition was experimentally manipulated by altering the percentage of the interns in each group who could expect to receive a full-time job offer at the end of the summer.

*Methods*
Four hundred and ninety-one women in the U.S. were recruited through Amazon’s Mechanical Turk to participate in a 5-6-minute research study for $0.60. This experiment was preregistered on AsPredicted.org (http://aspredicted.org/blind.php?x=rt44qm).

Participants in our experiment were told to imagine they had been offered a summer internship at an organization, and they had to choose which of two different departments to join. They were told that their roles and access to senior colleagues would be the same across departments, so the only difference between the two departments would be their fellow interns. Participants were then asked to report their gender identity.

This experiment was a scenario study in which participants were randomly assigned to one of two experimental conditions: a competitive condition or a control condition. In the competitive condition, participants were told that only 25% of interns would be offered full-time jobs at the end of the summer, so they would be competing intensely against the other interns in the department they chose for a full-time job offer. In the control condition, participants were told that almost all interns would be offered full-time jobs at the end of the summer, so they would not be competing against the other interns in the department they selected for a full-time job offer.

Participants were then asked to choose between the two departments. The information displayed about each department included the photos, names, and college majors of the other summer interns who would be working in the department (see Appendix Figure 1 for an example of our stimuli). One department was composed of seven men. The other department was composed of four men and three women; thus, the composition of this group would be 50% female if the female participant joined that department. The photos of interns displayed were gathered from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015), and college
majors and race were matched across groups, such that the racial composition of the groups was the same and the majors were similar (though not identical, in order to reduce suspicion) in both groups. We stimulus-sampled both the photographs and the college majors associated with each department, creating a total of six stimuli sets. All study materials are available in our Online Supplement.

After choosing a group, participants were asked to answer a free-response question explaining why they had chosen their preferred group. Finally, as a manipulation check, participants indicated to what extent they anticipated competing against the other interns in their department for a full-time job.

Results

Our manipulation appeared to work as intended: on a scale from one (“Not competing at all”) to five (“Competing very intensely”), participants expected to compete against the other interns significantly more in the competitive condition ($M_{competitive} = 4.67$, $SD_{competitive} = 0.61$) than in the control condition ($M_{control} = 1.57$, $SD_{control} = 0.97$; $t(489) = 42.23, p < 0.001$).

The dependent variable of interest was the proportion of women in each condition who chose to join the all-male group. As we predicted, women in the competitive condition were significantly more likely to choose to join the all-male group (46.1%) than were women in the control condition (17.5%), $z = 6.72, p < 0.001$. These results suggest that women’s willingness to join all-male groups increases significantly when they expected to face intra-group competition.\(^2\)

Study 1B

\(^2\) Women in Study 1A chose to join the all-male group significantly less than chance in the control condition (17.5%), $z = 7.53, p < 0.001$. The rate at which women in Study 1A chose to join the all-male group in the competitive condition did not differ significantly from chance (46.1%), $z = 0.77, p = 0.44$. 
In Study 1B, we attempted to extend the results of Study 1A by examining whether they replicated with Black participants instead of women. Specifically, we examined whether Black participants are more willing to join a group whose members are all White when they anticipate competing against other group members for scarce opportunities.

Methods

To recruit enough Black participants in this experiment to reach our preregistered sample size target, we recruited participants on both Prolific and Amazon’s Mechanical Turk. In total, 278 Black participants were recruited via these sites to participate in a 5-6 minute study. Prolific participants were paid $0.70, while Mechanical Turk participants were paid $0.60 due to the different pricing thresholds on the two services. This study was a two condition (competitive vs. control) scenario study pre-registered on AsPredicted.org (http://aspredicted.org/blind.php?x=g3cs9e).

The study design was nearly identical to the design of Study 1A. Participants again were invited to choose which department they would prefer to join at a company where they had been offered a summer internship. However, in this experiment, participants were asked about their racial identity instead of their gender identity, and the racial (rather than gender) composition of the other interns was the primary difference between the two departments. As in Study 1A, participants in the competitive condition learned that only 25% of interns would be offered full-time jobs at the end of the summer, while those in the control condition were told that almost all interns would be offered full-time jobs.

When choosing which department to join, participants again were shown the photos, names, and college majors of the other summer interns in each department. Both intern groups included four men and three women. In one group, all interns were White; in the other group,
three were Black and four were White, such that the more diverse group would be 50% Black if a participant chose to join it. All study materials are available in our Online Supplement.

**Results**

A manipulation check confirmed that our manipulation of intra-group competition was successful: on a scale from one to five, participants expected to compete against their fellow interns for jobs significantly more in the *competitive* condition ($M_{\text{competitive}} = 4.49$, $SD_{\text{competitive}} = 0.82$) than in the *control* condition ($M_{\text{control}} = 1.50$, $SD_{\text{control}} = 0.87$; $t(276) = 29.34$, $p < 0.001$).

Lending additional support to our primary hypothesis, a significantly higher proportion of Black participants chose to join the all-White group in the *competitive* condition (36.6%) than in the *control* condition (19.9%), $z = 2.97$, $p = 0.003$.

**Discussion**

In Study 1, we found that women (Study 1A) and Black participants (Study 1B) were more likely to choose to join a group in which they would be the only person of their gender or race when they expected to compete against other group members for scarce resources than when they did not expect to compete. Importantly, neither study documents a reversal in preferences: across all conditions in all studies, we find that participants prefer to join work groups that include similar others. However, we identify a reliable and statistically significant shift in preferences such that when intra-group competition is introduced, people find it more attractive to join groups where they will be in the numeric minority.

While participants in both Study 1A and Study 1B were deciding whether to be a lone representative of their identity group, in a conceptual replication of Study 1A, we found the same pattern when the group with zero women was replaced with a group including one woman (see

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3 Black participants in Study 1B chose to join the all-White group significantly less than chance in both the *control* condition (19.9%), $z = 5.09$, $p < 0.001$ and the *competitive* condition (36.6%), $z = 2.16$, $p = 0.03$. 
Study S1 in the Online Supplement). This suggests our phenomenon extends beyond situations in which women and minorities expect to be a lone representative of their identity group to situations in which they merely expect to be underrepresented.

In exploratory analyses, we coded the open-ended responses that participants gave to explain why they chose their group. We found some support for our proposed mechanisms for the effects of competition on group choice. First, 15.5% of participants in the competitive conditions mentioned wanting their work and performance to be distinct and stand out from that of fellow group members in their free response answers, which was significantly more than the 1.6% of participants in the control conditions who mentioned these motives ($z = 6.77, p < 0.001$). We also see that 8.3% of participants in the competitive conditions mentioned implicit quotas, which is significantly more than the 0.8% of participants who mentioned implicit quotas in the control conditions ($z = 4.81, p < 0.001$). However, we do not observe significant differences across conditions in the rate at which participants mentioned wanting to compete against men or White people (5.4% and 4.9% of participants in the competitive and control conditions, respectively, mentioned this; $z = 0.12, p = 0.90$) nor in the rates at which participants mentioned wanting to compete against women or Black people (0.8% and 0.3% of participants in the competitive and control conditions, respectively, mentioned this; $z = 0.49, p = 0.62$; see Online Supplement for additional details on these analyses). In Study 3, we gathered more data to examine the mechanisms driving these choices.

One potential concern about Studies 1A and 1B is that they conflate competition with scarcity. That is, the competitive condition differs from the control condition in two ways: (1) participants are told that their group will be competitive, and (2) they are told that only 25% of their group members (rather than almost all group members) will receive a reward or job. In
Study 2, we sought to disentangle the effects of competition for scarce resources from the effects of scarcity alone.

**STUDY 2**

In Study 2, we sought to isolate the effects of reward scarcity from the effects of competition to determine whether our effect is driven by intra-group competition, as we hypothesize, or mere scarcity of rewards.

**Methods**

Five hundred and ninety-two women were recruited for this experiment via Amazon’s Mechanical Turk. This experiment was preregistered on AsPredicted.org (http://aspredicted.org/blind.php?x=a647tk).

Participants were asked to imagine that they were working at an organization poised to launch two new products, and special teams had been created to supervise each of the two product launches. They were then asked to make a hypothetical choice between joining one of the two product launch teams at the company. The teams were essentially indistinguishable, except that one was all-male and the other was mixed-gender. All participants were told that regardless of how their team performed as a whole, the organization would conduct an individual performance evaluation at the end of the project.

Participants were asked to indicate their gender, and then they were randomly assigned to one of three experimental conditions. Thus, this was a three condition (competitive vs. lottery vs. control) scenario study. In the competitive condition, participants were told that only 25% of the employees from each team would be chosen based on performance to earn a cash bonus and company recognition, so they would be competing against their teammates for a reward. In the lottery condition, participants were told that only 25% of the employees from each team would
be chosen based on pure luck of the draw to earn a cash bonus and company recognition, and they would not be competing against their teammates. Thus, the scarcity of rewards was held constant between the competitive and lottery conditions – 25% of employees from each team would earn a bonus – but the presence of competition was varied. Finally, in the control condition, which mirrored the control conditions in prior studies, we eliminated both competition and scarcity by telling participants that after the performance evaluation, almost all employees from each team would earn a cash bonus and company recognition, so they would not be competing against their teammates nor would rewards be scarce.

Participants were then asked to choose between the two product launch teams. The information about each team included a set of professional headshots that were matched on apparent age as well as the names and job positions of the employees on each team. We stimulus sampled by creating three distinct sets of all-male teams and three distinct sets of gender-mixed teams. As in our past studies, our dependent variable of interest was the proportion of female participants in each condition choosing to join the all-male team. All study materials are available in our Online Supplement.

Results and Discussion

First, we confirmed that our manipulation was successful: participants reported that they expected to compete against their fellow interns for a full-time offer significantly more in the competitive condition ($M_{competitive} = 4.52, SD_{competitive} = 0.74$) than in the control condition ($M_{control} = 1.53, SD_{control} = 0.88$; $t(393) = 36.45, p < 0.001$) or the lottery condition ($M_{lottery} = 1.54, SD_{lottery} = .98$; $t(392) = 33.97, p < 0.001$), while expectations of competition in the control and lottery conditions did not differ ($t(393) = 0.06, p = 0.95$).
As in our prior studies, participants in the competitive condition chose to join the all-male group significantly more (22.8%) than participants in the control condition (9.1%), $z = 3.59, p < 0.001$. Furthermore, participants in the competitive condition were also more willing to join the all-male group than were participants in the lottery condition (12.7%), $z = 2.50, p = 0.012$. Finally, the rate of choosing the all-male team did not differ significantly between the lottery and control conditions, $z = 0.99, p = 0.32$.

These findings suggest that varying scarcity alone is not enough to produce our effect. Rather, intra-group competition is necessary to increase women’s preferences for joining an all-male team. However, Study 2 does not help us understand why intra-group competition leads women to be more willing to be tokens. In Study 3, we sought to identify the mechanisms responsible for the effect of intra-group competition on the preferences of women and minorities, moving beyond the coding of open-ended explanations for choices that were gathered and analyzed in Study 1.

**STUDY 3**

In Study 3 we extend our past studies by delving into the mechanisms responsible for women’s and racial minorities’ increased willingness to be tokens in competitive contexts. Specifically, we explored the extent to which this effect was driven by (1) a belief that being a token would make an individual’s work more unique and more likely to be noticed, (2) a belief that being a token would allow them to benefit from implicit quotas, and (3) a preference for competing against people who do or don’t share their demographic characteristics.

*Methods*

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4 Women in Study 2 chose to join the all-male group significantly less than chance in the competitive (22.8%), $z = 5.50, p < 0.001$; lottery (12.7%), $z = 7.87, p < 0.001$; and control (9.1%), $z = 8.81, p < 0.001$ conditions.
Five hundred and ninety-two women were recruited for this study via Amazon’s Mechanical Turk. This study had two experimental conditions (competitive vs. control) and was preregistered on AsPredicted.org (http://aspredicted.org/blind.php?x=xc5ij7).

Study 2 relied on the same paradigm as Study 1A, but after women selected which internship group they would prefer to join (an all-male group or a mixed gender group), we presented them with six questions designed to measure our three hypothesized mediators (with two questions for each mediator). Participants were asked to indicate their agreement with each of the six statements, presented in randomized order, on a scale from 1 (Strongly disagree) to 7 (Strongly agree). For each set of items, we report the Cronbach’s alpha, a measure of internal consistency used to assess scale reliability.

*Performance Differentiation.* To measure whether participants thought being a different gender from other group members would make their performance to stand out, we asked participants to rate their agreement with the statements, “I chose my department because my work or performance will be distinct from that of other interns in my department” and “I chose my department because I bring a unique perspective to my department” (Cronbach’s $\alpha = 0.78$). As per our preregistration, we averaged these two items to create a measure of performance differentiation motives.

*Implicit Quotas.* To measure whether participants thought they might benefit from implicit gender quotas, we asked them to rate their agreement with the statements, “I chose my department because I think managers will want to ensure that at least one woman receives a full-time job from each department” and “I chose my department because I think managers will be

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5 Surprising as it may seem, we ended up with 592 participants in both Study 2 and Study 3 because of variance on MTurk (e.g., after excluding men who took our survey despite restricting our sample to women).
reluctant to give a full-time job only to men in each department” (Cronbach’s $\alpha = 0.74$). As per our preregistration, we averaged these two items to create a single measure of implicit quota motives.

Preferences Regarding the Gender of Competitors. To measure whether participants preferred to compete against men or women, we asked them to rate their agreement with the statements, “I chose my department because I prefer to compete against men” and “I chose my department because I prefer to compete against women” (reverse scored). Contrary to expectations, the Cronbach’s alpha for these two statements (with the second reverse-coded) was -0.82, indicating that they did not measure related constructs. In retrospect, we believe this may be because some participants had no competitive preferences and therefore indicated low agreement with both items. Consistent with this interpretation, when we reverse-scored the second question, the items became positively correlated but only weakly so (Cronbach’s $\alpha = 0.45$).

Because these two measures cannot be reliably combined, we analyzed each independently (with neither reverse-coded), as opposed to averaging them (the plan outlined in our pre-registration). The results of the preregistered analyses are available in our Online Supplement as are our complete study materials.

Results

As in previous studies, our manipulation was successful: participants expected to compete against their fellow interns for a full-time job offer significantly more in the competitive condition ($M_{\text{competitive}} = 4.49$, $SD_{\text{competitive}} = 0.82$) than in the control condition ($M_{\text{control}} = 1.65$, $SD_{\text{control}} = 1.00$; $t(590) = 37.82$, $p < 0.001$). In addition, we replicated our findings from Study 1A: women were
more willing to join the all-male work group in the *competitive* condition (43.1%) than in the *control* condition (21.4%), \( z = 5.57, p < 0.001 \).

A multiple mediator model with 1,000 bootstrap samples was used to assess the hypothesized mediators of our effect. The model suggests that (1) a belief that being demographically distinct will lead to performance differentiation, (2) a desire to compete against men, and (3) a desire not to compete against women all simultaneously mediate the relationship between intra-group competition and group choice. However, implicit quota considerations do not (the results of this mediation model are pictured in Appendix Figure 2).

First, we documented a significant main effect of assignment to the *competitive* condition on how much each of our hypothesized mediators factored into group choice. Specifically, the belief that their performance will be distinct from that other group members \( (b = 0.83, SE = 0.12, p < 0.001) \), the belief that they may benefit from implicit quotas \( (b = 0.90, SE = 0.14, p < 0.001) \), the desire to compete against men \( (b = 0.83, SE = 0.14, p < 0.001) \), and the desire to compete against women \( (b = 0.63, SE = .13, p < 0.001) \) were all significantly predicted by assignment to the *competitive* condition. Furthermore, the relationship between participants’ belief that they could differentiate themselves from fellow group members and choice of the all-male group was significant and positive \( (b = 0.05, SE = 0.01, p < 0.001) \), as was the relationship between preferring to compete against men and choosing the all-male group \( (b = 0.10, SE = 0.01, p < 0.001) \). Meanwhile, the preference to compete against women was significantly and negatively related to choosing the all-male group \( (b = -0.11, SE = .01, p < .001) \). Finally, there was no

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6 Women in Study 3 chose to join the all-male group significantly less than chance in the *control* condition (21.4%), \( z = 7.18, p < 0.001 \). The rate at which women in Study 3 chose to join the all-male group in the *competitive* condition did not differ significantly from chance (43.1%), \( z = 1.60, p = 0.11 \).
significant relationship between weighing the consequences of implicit quotas and choosing the all-male group \((b = 0.00, SE = 0.01, p = 0.55)\).

Consistent with our hypothesis, the effect of assignment to the competitive condition on study participants’ choice to join the all-male group \((b = 0.22, SE = 0.04, p < 0.001)\) was weakened significantly when controlling for our four hypothesized mediators \((b = 0.16, SE = 0.03, p < 0.001)\). The 95% bias-corrected confidence intervals for the indirect effect of each mediator confirm that (1) the belief that being demographically distinct facilitates performance differentiation \((95\% CI: 0.01, 0.06)\) and (2) a preference for competing against men \((95\% CI: 0.05, 0.11)\) both mediate the relationship between assignment to the competitive condition and choosing to be a token woman. Meanwhile, a preference for competing against women \((95\% CI: -0.10, -0.04)\) has a negative indirect effect on choice of the all-male group. This means that in the competitive condition, a preference for competing against other women predicts choosing not to be a token. Finally, the desire to benefit from implicit quotas is not a significant mediator in this multiple mediation model \((95\% CI: -0.01, 0.02)\).7

**Discussion**

Study 3 provides evidence that one reason why women and underrepresented minorities may be more willing to join groups in which they will be tokens when facing competition is that they believe their work is more likely to be differentiated. Specifically, they believe that being demographically distinct from other group members will allow them to bring a unique

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7 When mediation analyses are run separately for each individual mediator, the desire to benefit from implicit quotas does become significant, as noted in our Online Supplement. It likely becomes insignificant in our multiple mediator model because it is highly correlated with both the desire to compete against men and the Performance Differentiation measure, but those other mediators have stronger effects on group choice. Thus, though implicit quota considerations do mediate our effect, they do not mediate conditional on the inclusion of the other, stronger mediators in the model. This suggests that implicit quota considerations do not demonstrate substantive, unique effects on the outcome relative to other – correlated – mediators in the model, which allows us to conclude that the other mediators are the dominant mechanisms for our effect (Preacher & Hayes, 2008).
perspective to their work, distinguishing it from the work of others. Study 3 also shows that a preference for competing against men helps explain why women choose to join groups devoid of other women at a higher rate when they expect to compete with fellow group members.

Finally, Study 3 reveals an unexpected pattern: we found that competition increased the rate at which some women report preferring to compete against other women, but this preference (for competing against other women) decreases the rate at which women choose to join an all-male team and be tokens. It instead increases their desire to join a more diverse team, presumably because there they will be able to compete against other women.

While Studies 1–3 establish the robustness of our findings and delve into the mechanism responsible for them, they all involve hypothetical scenarios. In our remaining studies, we ask participants to make real, incentive-compatible decisions to replicate our effects and show their generalizability to other settings.

**STUDY 4**

Study 4 comprises two incentive-compatible experiments. In Study 4A, participants in an in-person laboratory experiment chose which of two groups to join for a brainstorming session, and we randomly assigned them to either anticipate competing with others in their group of choice for public recognition and a cash bonus, or not. In Study 4B, workers on Amazon’s Mechanical Turk were invited to choose one of two real, digital work groups to join, knowing that they either would or would not compete against their fellow group members for a bonus.

**Study 4A**

*Methods*

Participants from one behavioral lab session, which included 145 females and 57 males, were recruited at a large U.S. university to participate in a one-hour research session that
included our experiment. Participants were paid $10 to participate in the session and were told that they could earn a bonus of up to $10 by participating in a follow-up brainstorming session. This experiment had two conditions (competitive vs. control). Unlike past studies, we included both male and female participants in this experiment because both were present in the lab session. However, as in prior studies, our analyses focus on the behavior of female participants.

Prior to the research session, participants were asked to fill out a pre-survey that asked for their name, year in college, a hobby, and a photograph of themselves. They were told that these photos would be used during our laboratory session. Before entering the lab, any participants who had not completed the pre-survey were pulled aside and asked for their name, year in college, and a hobby. If consent was granted, their photo was also taken for use in the laboratory session.

During the experiment, participants were provided with a brief overview of the body positivity movement, a social movement rooted in the belief that all bodies are good bodies and that everyone should be able to achieve a positive body image. They were truthfully told that we were seeking ideas to use in a body positivity campaign at their university and that we would be hosting a brainstorming session to generate these ideas. They would work in a group to develop ideas at the brainstorming session, and they would earn $5 for showing up plus a potential bonus depending on the quality of ideas they submitted individually at the end of the brainstorming session. All participants, regardless of condition, learned that a real panel of judges would evaluate the ideas submitted during the brainstorming session to choose several that would be posted on a real university website, earning the authors of the selected ideas public recognition and a $5 bonus on top of their show-up fee.
After answering several questions about their demographics, participants were assigned to either a competitive or control condition in this experiment. Participants in the competitive condition learned that only 25% of the ideas from each brainstorming group would be selected, so they would be competing against fellow group members for rewards and recognition. Participants in the control condition learned that nearly all the ideas from each brainstorming group would be selected, so they would not be competing against fellow group members.

After reading these instructions, participants were asked to choose between two seven-person groups to join for the brainstorming session and were shown photographs and background information (name, year in college, and a hobby) about the other seven people in the two available groups. Participants who indicated that they were women were presented with a choice between a group of only men and another equal-sized group of three women and four men. Participants who indicated that they were men chose between one group of only women and another equal-sized group of three men and four women. Complete study stimuli are available in our Online Supplement. We held these brainstorming sessions as promised and assigned bonuses as described.

After selecting their group for the brainstorming session, participants completed a manipulation check in which they were asked to answer the following question: “To what extent do you feel like you’ll be competing against the other participants in your group for a bonus and recognition?” They were asked to answer this question on a scale from 1 (Not competing at all) to 5 (Competing very intensely).

Results and Discussion

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8 In order to ensure that participant behavior would not be affected by seeing photos of their friends or acquaintances, the stimuli included the names, years in college, hobbies, and photos of college students or recent graduates from other institutions rather than other members of their study session. In other words, this study involved deception, which was approved by our IRB.
As in previous studies, our manipulation was successful: participants expected to engage in significantly more intra-group competition in the *competitive* condition ($M_{\text{competitive}} = 2.82$, $SD_{\text{competitive}} = 1.08$) than in the *control* condition ($M_{\text{control}} = 1.26$, $SD_{\text{control}} = 0.58$; $t(143) = 10.80$, $p < 0.001$).

We were primarily interested in whether women in the *competitive* condition would be more likely to choose to join the all-male group for the brainstorming session than women in the *control* condition. Thus, we compared the proportion of women choosing the all-male group of students across conditions. Consistent with the results of our scenario studies, women in the *competitive* condition were significantly more likely to join the all-male brainstorming group (23.3%) than were women in the *control* condition (9.7%); $z = 1.97$, $p = 0.048$.

**Study 4B**

In Study 4B, we sought to replicate the results of Study 4A in a pre-registered experiment in another setting involving real decisions.

*Methods*

Five hundred and eighty-three women were recruited through Amazon’s Mechanical Turk to participate in an eight-minute research study in exchange for $0.90 and a potential $0.50 bonus. This was a two condition (*competitive* vs. *control*) experiment preregistered on AsPredicted.org (http://aspredicted.org/blind.php?x=j8vm2h).

Participants in our experiment began by indicating their gender and telling us their preferred nickname and hometown. Participants then were told they would be writing a review

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9 Although we were primarily interested in the behaviors of women and were underpowered to test the parallel effect among men, we explored the impact of competition on men’s choices. We find that men in the *competitive* condition were insignificantly less likely to choose to join an all-female group (24.1%) than men in the *control* condition (28.6%); $z = 0.08$, $p = 0.94$.

10 Women in Study 4A chose to join the all-male group significantly less than chance in both the *competitive* (23.3%), $z = 3.18$, $p = 0.001$ and *control* (9.7%), $z = 5.10$, $p < 0.001$ conditions.

11 We collected 630 female participants on MTurk, aiming for 600 participants after exclusions. Ultimately, we ended up with 583 participants after our pre-registered exclusions.
for a website along with a group of other MTurk workers and that they would be choosing which of two groups of reviewers to join. The different groups would review different (but very similar) websites and were also composed of different people. Participants were informed that after writing their website review, they would interact with other members of their group. Finally, participants were truthfully told that their review would actually be used to describe the website to a diverse group of consumers and that their reviews would be published along with those of other MTurkers in their group.\textsuperscript{12}

Participants were randomly assigned to one of two experimental conditions: a \textit{competitive} condition or a \textit{control} condition. In the \textit{competitive} condition, participants were told that we would select the three best reviews from each reviewer group and that only the participants who wrote those reviews would earn a $0.50 bonus. Thus, they would be competing against the other MTurkers in their group. In the \textit{control} condition, participants were told that we would use all the reviews from each group and that everyone would earn a $0.50 bonus. Therefore, they would not be competing against their fellow group members for a bonus.

Participants were then asked to choose which of two website-evaluation groups to join. As mentioned previously, the groups would evaluate different (but similar) websites (either Buzzfeed.com, HuffingtonPost.com, Vice.com or Vox.com), and membership in the two groups would not overlap.\textsuperscript{13} To facilitate their group selection, participants were shown avatars of other group members (revealing their genders) as well as the nicknames and hometowns of each group member (see Appendix Figure 3 for an example). Both groups included nine people, and each

\textsuperscript{12} This study did not involve deception; we followed through on all promises made to MTurk workers.
\textsuperscript{13} We stimuli-sampled in this study, and the two websites up for review were randomly selected from a set of four sites: Buzzfeed.com, HuffingtonPost.com, Vice.com, and Vox.com. All groups displayed were composed entirely of prior participants who had reviewed each of the four websites and provided us with their gender, a nickname, and their hometown. In total, there were three different pairs of group stimuli sampled in this study.
participant chose between a group composed exclusively of men and a group composed of five men and four women. Complete study stimuli are available in our Online Supplement.

After selecting their group, participants were asked to write a short review of the website associated with their group of choice. They then read a website review written by a fellow group member and provided feedback. Finally, as a manipulation check, they indicated on a scale from 1 (Not at all) to 5 (Very much) to what extent they felt they would be competing against their fellow group members for a bonus.

Results and Discussion

Our manipulation was again successful: participants expected to engage in significantly more intra-group competition in the competitive condition ($M_{\text{competitive}} = 3.61$, $SD_{\text{competitive}} = 1.27$) than in the control condition ($M_{\text{control}} = 2.16$, $SD_{\text{control}} = 1.37$; $t(581) = 13.22, p < 0.001$).

To test our primary hypothesis, we compared the proportion of women in each condition who chose to join the all-male review group. Consistent with our other studies, we find that significantly more women in the competitive condition chose to join the all-male review group (41.6%) than in the control condition (32.1%); $z = 2.27, p = 0.023$. In other words, when women expected to compete against fellow group members for a monetary bonus, they were more likely to join an all-male group (in which they would be the sole female) than in the absence of competition.

General Discussion and Conclusion

Across six experiments, we show that competition for scarce opportunities increases the rate at which people from historically underrepresented populations choose to join groups in

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14 Women in Study 4B chose to join the all-male group significantly less than chance in both the competitive (41.6%), $z = 2.00, p = 0.046$ and control (32.1%), $z = 4.21, p < 0.001$ conditions. In other words, women chose homophily (the diverse group containing similar others) significantly more than chance in all conditions.
which they will be tokens. In short, competition serves as a partial counterweight to the well-established tendency toward homophily. We find this pattern for women and Black participants, and it arises in both hypothetical scenario studies and studies involving real, incentivized choices. Our findings suggest that intra-group competition leads to a greater desire to join groups where people believe their work output and ideas will be differentiated from those of their peers, and women and racial minorities anticipate that joining a group where they will have token status makes this more likely. Further, intra-group competition makes salient preferences for competing against dissimilar others. Together, these mechanisms lead to the shift in preferences we document.

Our findings add to the relatively limited literature examining how women and minorities select their teams and groups at work (cf. Avery & McKay, 2006; Duguid, 2011; McKay et al., 2007; Umphress et al., 2007). We find that competition can shape the willingness of women and underrepresented minorities to work with dissimilar others. Importantly, across all of our studies, we see that people prefer to join groups in which they will not be tokens. We demonstrate that the preference for homophily is weakened–but not reversed–when people expect to compete against fellow group members for scarce resources.

Our work does not examine whether the effects of intra-group competition can actually enhance demographic diversity in organizations. In homogeneous organizations, the preferences we document may encourage more women and minorities to join when intra-group competition is emphasized; however, in organizations that are already diverse, competitive work groups may be unattractive to minorities. It would be valuable for future work to explore this question and determine the effects of emphasizing intra-group competition on a firm’s ability to diversify its workforce.
An important limitation of our studies is that they relied exclusively on data collected in the laboratory and online. As a result, even in our incentive-compatible studies, the groups participants joined only interacted briefly, and the incentives provided were relatively small. Past research suggests that people may behave differently in one-shot than in repeated interactions (Bó, 2005; Bornstein, Winter, & Goren, 1996). Thus, future tests of our theories in workplaces or other settings where groups interact repeatedly over extended time intervals and where the incentives available for individual performance are larger would be valuable. Finally, assessing whether the rate at which people opt into being tokens varies systematically based on their social identity and why would add richness to our understanding of this phenomenon.

An important issue raised by this research is whether women and racial minorities are wise to choose to join all-male and all-White groups, respectively, in competitive environments given the potential long-term consequences of being a token. Past research has shown that when women and racial minorities are tokens, their performance tends to suffer (Thompson & Sekaquaptewa, 2002), as does their organizational commitment (Niemann & Dovidio, 1998). Furthermore, being a token can harm long-term psychological well-being and feelings of belonging in the workplace (Kanter, 1977; Yoder & Sinnett, 1985). Over time, the strategic value of standing out may fade in light of the damaging effects of hyper-visibility and isolation (Cohen & Swim, 1995; Kanter, 1977). Future studies might test whether underrepresented minorities anticipate this tension by measuring which groups they believe will lead them to be happiest at work and where they predict having the longest tenure. Employees may strategically choose groups in which they will be in the minority when facing the prospect of competition, despite anticipating being happier and remaining longer in groups of similar others. Future research could also explore whether an increased desire to be in the numeric minority when competing
affects affiliative or collaborative behavior and social cognition after selecting or being placed in a team.

It is also an open question as to whether choosing to be a token is a wise strategic decision for career advancement. Prior work suggests that tokens feel they have to work harder for promotions and that women who anticipate being tokens perform worse on ability tests than women who anticipate working with other women (Archbold & Schulz, 2008; Keller & Sekaquaptewa, 2008). However, there is some evidence that being one of few underrepresented minorities in a group does have strategic benefits that people in our studies may anticipate when they choose which group to join, particularly in firms that care about diversity. For example, past research has shown that some companies appear to have implicit quotas for the levels of diversity they aim to achieve in top management (Chang et al., 2019; Dezső et al., 2016). If there are indeed a fixed number of opportunities for women and minorities to advance, then it may in fact be advantageous for them to join groups in which they will “stand out.” Furthermore, Leslie, Manchester, and Dahm (2017) have shown that high-potential women receive larger rewards in the workplace than high-potential men precisely because they are in short supply in many firms. Future research that directly explores whether the kinds of decisions made by women and minorities in our studies are optimal or sub-optimal for them would be valuable.
Appendix: Figure 1: An example of the stimuli used in Study 1A. The order of the two groups was randomized across participants. Racial diversity was held constant across the two groups, and college majors were matched across groups such that the majors in each group were similar but not identical (e.g., Computer Science and Information Systems), as identical groups may be more likely to raise participant suspicion.
**Appendix Figure 2**: Results of the multiple mediator analysis (Study 3) show that performance differentiation and preference for competing against men both mediate the relationship between intra-group competition and choice of the all-male group. Preference for competing against women mediates in the opposite direction, while implicit quota considerations do not mediate.
Appendix Figure 3: This is an example of two of the groups (out of three pairs of groups from which we randomly sampled stimuli) that participants saw in Study 4. Each group was associated at random with a website from a set of four websites – Buzzfeed, HuffingtonPost, Vice, and Vox. Participants were asked to choose which of the two groups they wanted to join.
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