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# Majority No More? The Influence of Neighborhood Racial Diversity and Salient National Population Changes on Whites' Perceptions of Racial Discrimination

MAUREEN A. CRAIG AND JENNIFER A. RICHESON

*This article examines whether the size of racial minority populations is associated with whites' perceptions that different racial groups face discrimination. Correlational studies reveal that both the perceived size (studies 1 and 2) and actual size (study 2) of the racial minority population in their local environment predicts the extent to which whites report that they personally, and that whites as a group, face racial discrimination. Two experiments (studies 3 and 4) reveal that reading about growth in the racial minority share of the national population (versus control information) similarly increases whites' concerns about antiwhite discrimination. Overall, these findings suggest that increasing racial diversity, real or perceived, local or national, can elicit identity-relevant concerns among white Americans, including perceived vulnerability to racial discrimination.*

**Keywords:** demographic changes, perceived discrimination, diversity, white identity

America's demographic makeup has changed radically in its racial and cultural diversity over the last five decades, a trend that is projected to continue for the foreseeable future (see Hing 2004). Whereas non-Hispanic whites made up 84 percent of the U.S. population in 1965, the number fell to 62 percent in 2015, and the prediction for 2065 is 46 percent (Pew Research Center 2015). This demographic trend toward increased diversity, in which the percentage of whites steadily decreases and the populations

of various racial minority groups increase, is evident across most U.S. communities (Lee, Iceland, and Sharp 2012). In other words, the size of minority groups relative to whites is increasing nationwide.

Considerable social scientific research has examined majority group members' reactions to the perceived or actual size of minority groups in a relevant locale (neighborhood, town, county). For instance, psychologists Eric Knowles and Kaiping Peng find that whites

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from largely nonwhite areas exhibited higher levels of implicit white identity centrality—the strength of the association between self-concept and race—than whites from predominantly white areas (2005). Minority group size has also been found to predict the extent to which racial majority group members feel threatened by racial minority groups and, in turn, express more negative racial attitudes (on threat, Fossett and Kiecolt 1989; Nadeau, Niemi, and Levine 1993; on attitudes, Blalock 1967; Quillian 1995). Perceived threat from minority neighbors may also shape whites' voting intentions and political behavior. For example, whites who live in areas with more black neighbors are more likely to both register as Republican and vote for a Republican candidate than whites who live in areas with fewer black neighbors (on registering, Giles and Hertz 1994; on voting, Enos 2016). Further, white Americans who estimate relatively larger proportions of blacks and Hispanics in the overall U.S. population are more likely to express antiblack and anti-Hispanic attitudes and to support restrictions on immigration (Alba, Rumbaut, and Marotz 2005). Taken together, this research suggests that larger minority groups—in terms of perceived or actual size—are often associated with greater perceptions of group threat among whites, which, in turn, predict the expression of negative social attitudes and conservative political attitudes and behavior.

Experimental work corroborates the results of this correlational research. For instance, white Americans considering a future in which the white population has declined to less than 50 percent of the national population (versus various control conditions) are more likely to perceive that the societal status of their racial group—in terms of resources or as the “prototypical” American—is under threat, which in turn leads to stronger identification as white (Outten et al. 2012), the expression of more negative racial attitudes and emotions (Craig and Richeson 2014a; Outten et al. 2012; Skinner and Cheadle 2016), greater opposition to diversity (Danbold and Huo 2015), and greater endorsement of conservative political ideology, political parties, and candidates (Craig and Richeson 2014b; Major, Blodorn, and Major-Blascovich 2016; Willer, Feinberg, and Wetts 2016; for a re-

view, see also Craig, Rucker, and Richeson, forthcoming). Taken together, the social scientific literature to date reveals that larger minority populations can activate concerns in the white racial majority regarding their group's status that, in turn, yield a variety of seemingly in-group enhancing or out-group derogating responses. This article examines another potential consequence of increasing minority group size for white Americans; namely, greater perceptions that white Americans are likely to face racial discrimination.

### PERCEIVED ANTIWHITE RACIAL DISCRIMINATION

Recent work finds that white Americans believe both that antiwhite discrimination is on the rise and that discrimination against racial minorities is decreasing (Norton and Sommers 2011). What might be the cause of these changing perceptions? Empirical research has identified a few factors that lead whites to perceive more discrimination against their racial group. For instance, the perception that minorities are making social progress (gaining societal power) has been found to increase perceptions of antiwhite discrimination, especially among whites who believe that the current societal status hierarchy is just (Wilkins and Kaiser 2014). Organizational messages that are favorable to racial diversity have also been found to enhance the sense among whites of personal and group discrimination against them compared with race-neutral messages (Dover, Major, and Kaiser 2016). This research suggests, in other words, that whites are likely to perceive more antiwhite discrimination under circumstances in which they perceive that their group's position in society is under threat. Given that larger or increasing racial minority populations have been found to induce perceived status threat among white Americans (Craig and Richeson 2014b; Fossett and Kiecolt 1989; Major, Blodorn, and Major-Blascovich 2016; Outten et al. 2012; Schildkraut and Marotta 2017), it may also be that perceiving or living in areas with larger racial minority populations may predict the extent to which whites are concerned about antiwhite discrimination. Across four studies, we investigated this possibility.

In studies 1 and 2, we examined the relation-

ships between white Americans' estimates of the percentage of racial minorities in the total population with perceptions that different racial groups—whites, blacks, Hispanics, and Asian Americans—face discrimination and that they personally face race-based discrimination. Further, study 2 examined whether the percentage of racial minority group members living in the same communities as white respondents is related to perceived discrimination. To provide causal tests of whether perceived minority group size may heighten perceptions that whites face racial discrimination, studies 3 and 4 examined whites' reported expectations about the prevalence of antiwhite discrimination after the projected growth in the national racial minority population (and whites' relative decline) is made salient, compared with control information. Based on the literature reviewed, we predicted that larger racial minority group populations—be it perceived or actual size—will be associated with greater perceptions of and concerns about antiwhite discrimination.

### STUDY 1

Study 1 provided an initial exploration of how whites' perceptions of the relative size of racial minority populations are associated with their perceptions of discrimination—especially that they personally and different racial groups face discrimination. Consistent with research finding a positive correlation between minority out-group size and perceived threat among majority group members (Blalock 1967; Fossett and Kiecolt 1989), we predicted that the larger whites perceive racial minority groups to be in terms of their share of the population, the more they will report that whites as a group and they themselves experience discrimination.

### Data and Methods

We used data from the National Politics Survey, a nationally representative telephone survey (N

= 1,477) (Jackson et al. 2008). Analyses focused on the sample of self-identified white respondents who were U.S. citizens (n = 509; 62.48 percent women, and on average reported being between fifty-five and fifty-nine years old).

### *Perceived Discrimination*

Respondents indicated their perceptions of racial discrimination faced by different groups (whites, blacks, Hispanics, Asians) as well as their perceptions that they personally faced racism. To assess perceived group-faced racial discrimination, respondents were asked how much different groups face discrimination in the United States (1 = a lot of discrimination, 4 = no discrimination at all). Respondents were also asked how often they personally felt discriminated against due to their race (1 = a lot of discrimination, 4 = no discrimination at all). All items were reverse coded such that higher numbers indicate greater perceived discrimination.

### *Perceived Racial Makeup*

Respondents were also asked to estimate the racial makeup of the United States. Specifically, respondents were asked to give their best guess of the percentages of white, black, Hispanic, Asian American, and Native American in both the U.S. population and their city population. We created indices of the percentage of the total national population and city population that respondents perceived minority groups—blacks, Hispanics, Asian Americans, and Native Americans—to make up.<sup>1</sup>

### *Demographic Variables*

The following indicators of respondents' demographic characteristics were also assessed: age (1 = eighteen to twenty-four, 13 = eighty and older), gender (0 = female, 1 = male), household income (1 = less than \$25,000, 8 = more than \$125,000),<sup>2</sup> and political ideology (1 = extremely liberal, 4 = extremely conservative).

1. See the appendix for supplementary tables listing the associations between the relative size of each racial group on white respondents' perceptions of discrimination for studies 1 and 2. In general, these analyses suggest that no single racial minority group's size was singularly responsible for the relationships reported across studies.

2. Supplementary analyses conducted to test whether respondents' household incomes moderated the relationships between perceived (and actual in study 2) racial makeup and perceived discrimination did not reveal reliable household income X minority group size interaction effects in either study 1 ( $ps > .089$ ) or study 2 ( $ps > .176$ ).

**Table 1.** Descriptive Statistics, Zero-Order Correlations, and Partial Correlations Between Percentage Racial Minority and Perceptions of Discrimination Among White Americans

	M	SD	Personal		Antiwhite		
			<i>r</i>	<i>r</i> <sub>partial</sub>	<i>r</i>	<i>r</i> <sub>partial</sub>	
<b>Study 1</b>							
Estimated percentage of racial minorities (United States)	55.97	13.88	.22***	.19***	.16**	.16**	
Estimated percentage of racial minorities (city)	51.00	21.31	.28***	.26***	.13**	.08	
<b>Study 2</b>							
Estimated percentage of racial minorities (county)	62.06	12.09	.19***	.20**	.20***	.23***	
Actual percentages of minority groups							
Census block group	35.76	24.26	.12***	.13***	.06*	.08*	
Census tract	37.75	23.36	.11***	.14***	.06*	.06*	
Zip code	41.53	22.64	.12***	.15***	.04	.05†	

Source: Authors' compilation.

Note. Partial correlations statistically control for age, gender, household income, and political ideology.

† $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

## Results

Subpopulation analyses focusing on the white respondents who were U.S. citizens were conducted in Stata (version 14.2). We report both zero-order correlations as well as partial correlations controlling for gender, age, household income, and political ideology.

As to perceptions of personally faced discrimination, as shown in table 1, consistent with predictions and robust to controlling for respondents' demographic characteristics, a positive relationship emerged between perceptions of personally faced discrimination and respondents' estimates of the percentage of racial minorities in the United States ( $r = .22, p < .001$ ;  $r_{\text{partial}} = .19, p < .001$ ) as well as their estimates of the percentage of racial minorities in their city ( $r = .28, p < .001$ ;  $r_{\text{partial}} = .26, p < .001$ ).

As to perceptions of antiwhite discrimination, a positive relationship also emerged between perceptions of group-level antiwhite discrimination and respondents' estimates of the national percentage of racial minorities ( $r = .16, p = .001$ ;  $r_{\text{partial}} = .16, p = .005$ ). A significant association emerged between perceived antiwhite discrimination and estimates of the local population of racial minorities (city estimates),

$r = .13, p = .006$ ; however, this association was not robust to the inclusion of demographic controls ( $r_{\text{partial}} = .08, p = .127$ ).

As to perceptions of discrimination faced by racial minorities, as shown in table 2, respondents' estimates of the national percentage of racial minorities were statistically unrelated to their perceptions of the extent of antiblack ( $r = -.02, p = .645$ ;  $r_{\text{partial}} = -.02, p = .605$ ), anti-Hispanic ( $r = -.04, p = .331$ ;  $r_{\text{partial}} = -.08, p = .092$ ), or anti-Asian ( $r = .02, p = .647$ ;  $r_{\text{partial}} = .00, p = .999$ ) racial discrimination. Respondents' estimates of the percentage of racial minorities in their city were similarly unrelated to their perceptions of antiblack ( $r = -.04, p = .390$ ;  $r_{\text{partial}} = -.08, p = .078$ ), anti-Hispanic ( $r = -.03, p = .530$ ;  $r_{\text{partial}} = -.09, p = .083$ ), or anti-Asian ( $r = .00, p = .957$ ;  $r_{\text{partial}} = -.05, p = .394$ ) discrimination.

## Discussion

The results suggest that whites' estimates of the relative size of the racial minority population in both the nation and their local municipality are significantly related to the extent to which they perceived that whites as a group and they themselves face racial discrimination. Indeed, consistent with predictions, the more populous

**Table 2.** Zero-Order Correlations and Partial Correlations Between Percentage Racial Minority and Perceptions of Discrimination, Racial Minorities

	Antiblack		Anti-Hispanic		Anti-Asian	
	<i>r</i>	<i>r</i> <sub>partial</sub>	<i>r</i>	<i>r</i> <sub>partial</sub>	<i>r</i>	<i>r</i> <sub>partial</sub>
<b>Study 1</b>						
Estimated percentage of racial minorities (United States)	-.02	-.02	-.04	-.08 <sup>†</sup>	.02	.00
Estimated percentage of racial minorities (city)	-.04	-.08 <sup>†</sup>	-.03	-.09 <sup>†</sup>	.00	-.05
<b>Study 2</b>						
Actual percentages of minority groups						
Census block group	.06 <sup>†</sup>	.07 <sup>*</sup>	.01	.03	.01	.01
Census tract	.07 <sup>*</sup>	.07 <sup>*</sup>	.00	.01	.01	.02
Zip code	.02	.03	.02	.00	.01	.01

Source: Authors' compilation.

Note. Partial correlations statistically control for age, gender, household income, and political ideology. <sup>†</sup>*p* < .10; <sup>\*</sup>*p* < .05; <sup>\*\*</sup>*p* < .01; <sup>\*\*\*</sup>*p* < .001

whites perceived racial minorities to be in the nation and their city, the more likely they were to perceive that whites as a group and that they personally face discrimination. Conversely, perceptions of discrimination faced by racial minority groups—blacks, Hispanics, and Asian Americans—were unrelated to whites' perceptions of racial minority group size. Taken together, these findings suggest that larger minority group size may be experienced as a threat to the in-group, reflected in increased concern about in-group vulnerability, such as group-based victimization (discrimination).

**STUDY 2**

Study 1 provided initial evidence that white Americans' perceptions of the size of racial minority groups are associated with their perceptions that both they and their racial group face discrimination. Study 2 sought to replicate this basic finding in another sample and explore whether the actual size of racial minorities in one's community may predict perceived anti-white discrimination in a similar manner.

**Data and Methods**

We analyzed data from the Kinder Houston Area Survey, an annual telephone survey of the social

and political attitudes of adults residing in Harris County, Texas (Klineberg 2010). Households are selected by randomly generated telephone numbers (to reach individuals who use cell phones as well as landlines) and an eligible respondent for each household was selected randomly from all household members age eighteen or older. Response rates in recent years have been around 40 percent (Klineberg 2010). Beginning in 2003, the survey authors matched individuals' responses to detailed demographic information about their neighborhoods from the 2000 U.S. Census at three levels (from largest to smallest): home zip code (the largest geographic area used to calculate demographic characteristics in these data), census tract (an area with roughly 1,200 to eight thousand residents), and census block group (an area with roughly six hundred to three thousand residents). In addition to exploring whether perceptions of minority group size are associated with perceived discrimination against oneself and one's group, then, in study 2 we can also examine whether whites who live in residential contexts that actually have larger racial minority populations (as estimated in the census) also perceive more discrimination against themselves and their racial group.

These data, moreover, are especially suited for exploring how changing demographics may relate to perceived antiwhite discrimination, because between 1990 and 2010, Harris County underwent a racial demographic shift, becoming majority-minority in 2000 (Emerson et al. 2012). We constrained the analyses to the sample of white respondents who completed the variables of interest for this study (perceived discrimination and perceived racial makeup) in the years in which their responses were matched to local demographics by U.S. Census data from 2003 to 2007. Thus, of the 7,940 respondents who participated in this time frame, 2,532 were self-identified white respondents who were U.S. citizens (51.37 percent women,  $M_{\text{age}} = 50.48$ ,  $SD_{\text{age}} = 16.01$ ) with complete data on the questions of interest.

### *Perceived Racial Makeup*

Respondents were asked to provide their best guess of the white, Hispanic, Asian American, and black American percentages of the Harris County population. These estimates were only asked of respondents in one year of the survey (2007;  $n = 409$  white respondents). As in study 1, we created an index of the perceived percentage of racial minorities in the total population.

### *Census-Matched Racial Makeup*

As noted, the actual racial demographic characteristics of respondents' communities were gleaned from census data at three levels: home zip code, census tract, and census block group (U.S. Census Bureau 2013). Again, we were interested in the proportion of racial minorities—Hispanics, Asian Americans, black Americans, and individuals from racial minority groups that do not fall in any of the other groups—in the population at each level of respondents' local geographic area: the percentage of racial minorities in respondents' zip code, census tract, and census block group.

### *Perceived Discrimination*

Respondents indicated their perceptions of the racial discrimination that different racial groups and they personally face. To assess perceptions of group discrimination, respondents were asked "How often, in general, are [Anglos/blacks/Hispanics/Asians] discriminated against

in Houston?" (1 = never, 4 = very often). A second, similarly worded question that assessed perceived antiwhite discrimination ("How often are Anglos discriminated against in Houston?") was also asked in several years. Given that these questions were so similar and highly correlated with one another ( $r = .98$ ), if both perceived antiwhite discrimination questions were asked in a given year, we computed the average of the two items to provide the measure of perceived antiwhite discrimination. If only one of the items was asked in a given year, as in 2006 and 2007, then responses to that item served as the index of perceived antiwhite discrimination. Respondents were also asked how often they personally felt discriminated against in Houston on the basis of their ethnicity (1 = never, 4 = very often). For both the group and personal discrimination measures, higher numbers indicate greater perceived discrimination.

### *Demographic Variables*

The following indicators of respondents' demographic characteristics were assessed: age, gender (0 = female, 1 = male), household income (1 = less than \$12,500, 8 = more than \$100,000), and political ideology (1 = very conservative, 7 = very liberal).

## **Results**

The descriptive statistics and correlations among the variables of interest are shown in tables 1 and 2. We report both zero-order correlations as well as partial correlations controlling for sex, age, household income, and political ideology.

On perceived racial makeup, consistent with the hypothesis and robust to controlling for respondents' demographic characteristics, a positive relationship emerged between perceived personally faced discrimination and respondents' estimates of the proportions of racial minorities in their county ( $r = .19$ ,  $p < .001$ ;  $r_{\text{partial}} = .20$ ,  $p = .001$ ). A similar association emerged for perceptions of group-level (antiwhite) discrimination ( $r = .20$ ,  $p < .001$ ;  $r_{\text{partial}} = .23$ ,  $p < .001$ ). That is, the more racial minorities that white respondents believed lived in their county, the more discrimination they reported facing personally and as a group.

As to census-matched racial makeup and personal discrimination, we also examined the associations between whites' perceptions that they personally face discrimination and the actual percentages of racial minorities in their communities at different geographic levels (census block group, census tract, zip code). Analyses revealed modest correlations in the direction consistent with predictions; the larger the percentage of racial minorities living in the geographic area, the more likely white respondents were to report that they personally face racial discrimination (census block group:  $r = .12, p < .001$ ;  $r_{\text{partial}} = .13, p < .001$ ; census tract:  $r = .11, p < .001$ ,  $r_{\text{partial}} = .14, p < .001$ ; zip code:  $r = .12, p < .001$ ;  $r_{\text{partial}} = .15, p < .001$ ).

On antiwhite discrimination, modest correlations in the expected direction emerged between respondents' perceptions of antiwhite discrimination and the percentage of racial minorities in their census block group ( $r = .06, p = .010$ ;  $r_{\text{partial}} = .08, p = .012$ ) and census tract ( $r = .06, p = .019$ ;  $r_{\text{partial}} = .06, p = .037$ ), but not their zip code ( $r = .04, p = .130$ ;  $r_{\text{partial}} = .05, p = .083$ ).

As to discrimination that racial minorities face, consistent with the results of study 1, the racial diversity of whites' residential areas was largely unrelated to their perceptions that different racial minority groups face discrimination (see table 2).<sup>3</sup> The only exception was for perceptions of antiblack discrimination, which was modestly (and positively) related to the number of racial minorities in respondents' census block group ( $r = .06, p = .050$ ;  $r_{\text{partial}} = .07, p = .045$ ) and census tract level ( $r = .07, p = .028$ ,  $r_{\text{partial}} = .07, p = .030$ ). Larger numbers of minority residents in one's census block group and tract, in other words, were associated with white respondents' greater endorsement that blacks face racial discrimination.

## Discussion

The results of study 2 are largely consistent with the patterns observed in study 1: the larger white respondents perceived the local racial

minority population to be, the more they tended to perceive that their group, and they themselves, face racial discrimination. Study 2 extended these findings by investigating whether actual rather than just perceived levels of local racial diversity are also related to perceived personal, antiwhite, and antiminority racial discrimination. Results revealed that white Americans who live in communities with larger percentages of racial minority groups tend to perceive more antiwhite discrimination toward the group and themselves personally. Although the effect sizes of these associations were modest, they are consistent with the idea that residing in areas with growing numbers of racial minority out-groups may evoke in-group threat and increase concern about the well-being of one's racial in-group.

The association between perceived antiwhite discrimination and the proportion of racial minorities in respondents' zip code was not reliable, however, perhaps because the area is too large for any effects of out-group presence to be realized. Future research should consider the ways in which individuals become aware of the actual racial composition of geographic regions and how that knowledge shapes perceptions of discrimination. An unexpected relationship also emerged between the percentage of racial minorities in one's community and perceived antiblack discrimination, a finding consistent with extant research noting potential benefits of racial diversity, such as increased perspective-taking and out-group empathy through contact (Pettigrew and Tropp 2008). Because this pattern was not observed for perceived discrimination against other racial minority groups, however, we do not discuss it further in this article.

## INTERIM DISCUSSION

The data examined in studies 1 and 2 have several benefits, particularly in terms of ecological validity. These data include responses from adults in samples that are representative of the United States and of Harris County, respec-

3. Respondents were not asked about perceptions of antiminority discrimination in the same year that they were asked to give estimates of their county's racial demographics; thus, only associations between the actual percentage of racial minority populations in whites' surrounding area and perceived antiminority discrimination are reported.



tively, suggesting that the associations revealed and the phenomena under investigation in the present research are likely to be generalizable to the broader public. However, although these studies provide support for the hypothesis that larger racial minority populations—whether perceived or actual—may engender greater perceptions of antiwhite discrimination among white Americans, the cross-sectional, correlational nature of these survey designs limits the inferences that can be drawn regarding both causality and directionality of the effects. That is, it is possible that being sensitive to antiwhite discrimination leads individuals to perceive larger numbers of racial minorities, rather than the reverse. It is also possible that a third, unmeasured variable could be responsible for the observed associations between perceived discrimination and respondents' perceptions of the racial makeup of relevant residential regions (the county) or their actual racial makeup. Experimental research wherein the purported racial composition of a relevant residential region could be manipulated or, perhaps made salient, prior to assessing whites' perceptions of antiwhite discrimination would offer more clarity regarding the plausibility of the causal pathway underlying the associations found in studies 1 and 2. The goal of studies 3 and 4 was to provide such experimental tests.

### STUDY 3

Studies 1 and 2 offer correlational evidence of the predicted positive relationship between minority population size and whites' perceptions of antiwhite discrimination. To examine this relationship from a different angle, study 3 considers how information about the increasing racial diversity of the nation (minority population growth and whites' relative decline) influences white Americans' perceptions of discrimination and, particularly, concerns about antiwhite discrimination. Building on past research, white participants read information about U.S. demographic trends (Craig and Richeson 2014a): either a racial demographic shift, often called a majority-minority shift, in which different racial minority populations are

expected to increase in number and whites are expected to decrease as a percentage of the total population (racial shift condition) or the current racial demographics of the United States (control condition). Participants were subsequently asked about their expectations regarding the current and future prevalence of racial discrimination toward a variety of racial groups as well as their support for policies that would benefit workers from different racial groups. Consistent with the results of studies 1 and 2, we predicted that making the racial demographic changes toward a more racially diverse United States salient would elicit greater concern about growing antiwhite discrimination and more support for policies benefiting white workers than would exposure to the current (majority-white) racial demographics.

### Methods

One hundred forty-six white participants (25 women, 120 men, and one individual who did not indicate gender,  $M_{\text{age}} = 31.21$ ,  $SD_{\text{age}} = 11.98$ ) were recruited from MTurk.com and participated for \$0.30; all participants lived in the United States.<sup>4</sup> Data were collected in November and December 2012.

### Materials and Measures

Participants were randomly assigned to read a newspaper article about either the projected future U.S. racial demographics (racial shift condition) or the current majority-white demographics of the United States (control condition). This manipulation is nearly identical to one used in prior research, but updated to reflect the 2012 rather than the 2010 demographics (control article) (Craig and Richeson 2014a). Each article included a graph of the current or projected racial demographics, broken down by racial category (white, black, Hispanic, Asian, Other). To ensure that participants understood the information presented in the articles, they responded to questions intended to assess their comprehension of the target article ("Which racial group is expected to be the largest contributor to the population growth in the

4. A gender imbalance is present because for most of data collection, female participants were filtered into a different study immediately following the initial demographic questions.

United States?”). Thus, both articles provided information about race in the United States, but the racial shift condition provided information about a future in which whites were a smaller percentage of population relative to the control article.

### *Perceived Discrimination*

We assessed perceptions of current and future levels of discrimination faced by white Americans, Hispanics or Latinos, and black Americans. Participants were instructed to indicate the extent to which they thought that different racial groups currently face discrimination in the United States, and the extent to which they thought that different racial groups will face discrimination in the future. Participants responded on 1 (not at all) to 10 (very much) scales.

### *Workplace Policies to Benefit Different Racial Groups*

We also assessed endorsement of policies that would benefit different racial groups (blacks, Latinos, whites) in the workforce. Specifically, participants indicated their agreement (1 = strongly disagree, 7 = strongly agree) that government policies should require employers to make special training programs for [black, Latino, white] workers and that government policies should require employers to make special efforts to recruit [black, Latino, white] workers. Similar to the perceived discrimination items, participants were asked to indicate their endorsement of implementing these policies now and in the future.

### *Procedure*

Participants provided informed consent and completed initial demographic questions (race, gender). They were then randomly assigned to read the experimental (future demographics) or control (current demographics) article. Participants next completed the perceived discrimination items and then those related to support for targeted workplace policies. Half of the sample was randomly assigned to provide first their perceptions of currently faced discrimination and agreement with implementing policies now, followed by the future-focused questions; the other half completed the items in the

reverse order. Last, participants completed additional demographic questions (for example, age) and were debriefed.

### **Results**

No participants were excluded from the analyses. The final sample included seventy-five participants in the racial shift condition and seventy-one in the control condition. We conducted a series of 2 (timepoint: current perceptions, future perceptions)  $\times$  2 (experimental condition: racial shift, control) mixed-design ANOVAs (analyses of variance) on perceptions of discrimination and policy support.

Table 3 presents descriptive statistics for responses to the perceived discrimination items for the different racial groups by timepoint. Examining perceived antiwhite discrimination, main effects of timepoint [ $F(1, 144) = 7.19, p = .008, \eta_p^2 = 0.05$ ] and experimental condition [ $F(1, 144) = 4.57, p = .034, \eta_p^2 = 0.03$ ] emerged. Across experimental conditions, participants reported that whites would face more discrimination in the future than today. In addition, participants for whom the future, more racially diverse United States was salient reported that whites would and currently do face more racial discrimination than participants in the current majority-white control condition. Conversely, analyses of responses to the perceived discrimination against blacks and Latinos measures revealed only main effects of timepoint [blacks:  $F(1, 143) = 33.25, p < .001, \eta_p^2 = 0.19$ ; Latinos:  $F(1, 144) = 30.23, p < .001, \eta_p^2 = 0.17$ ]. Participants, regardless of condition, reported that blacks and Latinos would face less discrimination in the future than today.

On workplace policies to benefit different racial groups, in examining support for policies that would benefit white workers, a main effect of experimental condition emerged [ $F(1, 144) = 5.42, p = .021, \eta_p^2 = 0.04$ ], such that participants for whom the future racially diverse United States was salient reported that white workers should benefit from special training programs and recruiting efforts, compared with participants in the (majority-white) control condition. Conversely, no reliable effects of timepoint, experimental condition or their interaction emerged for support for policies intended to benefit Latinos,  $ps > .226$ . Analyses of support

**Table 3.** Descriptive Statistics: Perceived Discrimination and Policy Support by Experimental Condition and Timepoint

	Current		Future	
	Control M (SD)	Racial Shift M (SD)	Control M (SD)	Racial Shift M (SD)
<b>Perceived discrimination</b>				
White Americans				
Study 3	2.21 (1.87)	3.19 (2.52)	2.83 (2.44)	3.39 (2.50)
Study 4	3.04 (2.19)	2.50 (1.93)	3.56 (2.82)	3.68 (2.76)
Black Americans				
Study 3	6.39 (2.27)	6.20 (2.50)	5.37 (2.58)	5.47 (2.45)
Study 4	6.20 (2.71)	6.15 (2.62)	4.99 (2.69)	4.94 (2.48)
Hispanics/Latinos				
Study 3	6.03 (2.25)	6.12 (2.04)	5.14 (2.43)	5.31 (2.21)
Study 4	5.96 (2.42)	5.73 (2.35)	4.67 (2.47)	4.39 (2.38)
Asian Americans				
Study 4	4.28 (2.16)	4.42 (2.09)	3.82 (2.22)	3.82 (2.03)
Native Americans				
Study 4	5.69 (2.57)	5.03 (2.27)	4.58 (2.51)	4.31 (2.17)
<b>Support for policies benefiting the following groups (study 3 only)</b>				
White Americans	2.05 (1.20)	2.57 (1.42)	2.15 (1.14)	2.63 (1.53)
Black Americans	2.73 (1.63)	2.94 (1.63)	2.49 (1.42)	2.94 (1.66)
Latinos	2.65 (1.54)	2.90 (1.51)	2.54 (1.45)	2.88 (1.55)

Source: Authors' compilation.

for policies that would benefit blacks revealed a main effect of timepoint [ $F(1, 144) = 4.37, p = .038, \eta_p^2 = 0.03$ ] that was qualified by a timepoint  $\times$  condition interaction [ $F(1, 144) = 4.37, p = .038, \eta_p^2 = 0.03$ ]. Participants in the control condition supported policies that would benefit black workers more in the present than in the future, consistent with the expectation the racial discrimination against blacks is declining [ $F(1, 144) = 8.50, p = .004, \eta_p^2 = 0.06$ ], whereas participants in the racial shift condition did not reveal this decline in support [ $F(1, 144) < 1, p = .999$ ].

## Discussion

Study 3 provided causal evidence that information about increasing minority populations (and a decreasing white population) influences white Americans' concerns about antiwhite discrimination and even support for employment policies benefiting whites (see also Craig and Richeson 2017). Concurrently, consistent with the results of studies 1 and 2, expectations re-

garding antiminority discrimination were not influenced by the experimental condition. Study 3 suggested not only that perceptions of discrimination are affected by shifting racial national demographics, but also that policies intended to benefit different racial groups may be influenced by these societal changes. Study 3, however, did not directly examine the putative psychological mechanism through which growing racial diversity is thought to increase concerns about antiwhite discrimination. Study 4 attempted to address this gap.

## STUDY 4

In study 4, we again tested whether making the increasing racial diversity of the nation salient affects whites' perceptions of antiwhite discrimination. In addition, we explored whether increasing national diversity has these effects on perceived in-group vulnerability to discrimination because it also triggers concerns about in-group societal status. To this end, white par-

ticipants read information about the growing racial-ethnic diversity of the nation (racial shift condition) or they read control information (increasing geographic mobility), prior to indicating their concerns about whites' status in society and their expectations regarding the current and future prevalence of racial discrimination toward a variety of racial groups, including white Americans (Craig and Richeson 2014a, 2014b). We predicted that making the U.S. racial population shift salient, relative to the control article, would elicit greater concern about whites' status in society, replicating our past work, as well as greater expectations regarding the prevalence of antiwhite discrimination, replicating study 3 and recent work (Craig and Richeson 2014b, 2017). We also tested (via mediational analyses) whether any observed effects of the racial shift information on perceptions of antiwhite discrimination might be due to heightened group status threat.

### Methods

Two hundred and one white participants (113 women, 88 men,  $M_{age} = 38.14$ ,  $SD_{age} = 12.45$ ) were recruited from MTurk.com in exchange for \$0.50.<sup>5</sup> Data were collected in March 2015.

### Materials and Measures

As in study 3, we used a newspaper article paradigm to manipulate exposure to demographic change information suggesting larger minority populations. Depending on the experimental condition to which participants were randomly assigned, participants either read an article reporting on the growth of the rate of geographic mobility in the United States (control condition) or the article from study 3 that presents information on the projected future U.S. racial

demographics in which whites are expected to make up less than 50 percent of the national population (racial shift condition).

### Group Status Threat

One item assessed concerns about whites' societal status (group status threat; see Craig and Richeson 2014a, 2014b; Outten et al. 2012). Participants indicated their agreement (1 = strongly disagree, 7 = strongly agree) that if racial minorities gain status, white Americans' influence in society will likely decline.

### Perceived Discrimination

As in study 3, participants indicated their perception that different racial groups—white Americans, Hispanics or Latinos, black Americans, Asian Americans, Native Americans—are currently facing discrimination and will face discrimination in the future (1 = not at all, 10 = very much).

### Procedure

Participants provided informed consent and completed an initial set of demographic questions (for example, race, gender), followed by the article manipulation (racial shift or control). Participants then reported their level of group status threat and perceptions of discrimination faced by different racial groups, followed by additional demographic questions (for example, age), and were debriefed.

### Results

No participants were excluded from analyses. The final sample included 101 participants in the racial shift condition and one hundred in the control condition.

We first tested whether the racial shift infor-

5. We explored moderation by participant gender. A statistically significant three-way (experimental condition x timepoint x participant gender) interaction emerged for perceived antiwhite discrimination [ $F(1, 193) = 5.83$ ,  $p = .017$ ,  $\eta_p^2 = 0.03$ ]. Probing this interaction revealed that women's responses were consistent with the effect reported in the main text: perceptions of rising antiwhite discrimination in the racial shift condition, but not the control condition [experimental condition x timepoint interaction:  $F(1, 193) = 10.41$ ,  $p = .001$ ,  $\eta_p^2 = 0.05$ ]. Conversely, men reported that antiwhite discrimination would be higher in the future, compared with current levels, regardless of experimental condition [experimental condition x timepoint interaction:  $F(1, 193) < 1$ ,  $p = .709$ ]. We refrain from speculating further on this finding, given that study 3, which had a predominantly male sample, produced effects consistent with those found among women here. Future research that specifically examines how white men and white women may (or may not) differ in their reactions to the changing racial demographics of the nation is needed to fully explore this important issue.

mation influenced whites' perceived group status threat. Consistent with predictions and prior research, white participants in the racial demographic shift condition were more likely to report that whites' status in society is threatened by racial minorities ( $M = 4.85$ , 95% CI[4.55, 5.15],  $SD = 1.42$ ), compared with participants in the control condition ( $M = 4.19$ , 95% CI[3.89, 4.49],  $SD = 1.63$ ),  $t(199) = 3.07$ ,  $p = .002$ ,  $d = 0.43$  (Craig and Richeson 2014b; Outten et al. 2012).

We next conducted a series of 2 (experimental condition: control, racial shift)  $\times$  2 (timepoint: current perceptions, future perceptions) mixed-design ANOVAs on the perceived discrimination measures. As shown in table 3, results revealed a main effect of timepoint [ $F(1, 195) = 34.60$ ,  $p < .001$ ,  $\eta_p^2 = 0.15$ ], qualified by an experimental condition  $\times$  timepoint interaction [ $F(1, 195) = 5.18$ ,  $p = .024$ ,  $\eta_p^2 = 0.03$ ]. Consistent with study 3, participants in the control condition expected more antiwhite discrimination in the future, compared with current perceptions [ $F(1, 195) = 6.34$ ,  $p = .013$ ,  $\eta_p^2 = 0.03$ ]. Reading about the increasing racial diversity of the United States, however, magnified this effect. Specifically, participants in the racial shift condition reported that antiwhite discrimination in the future would be strikingly more than in the present [ $F(1, 195) = 34.14$ ,  $p < .001$ ,  $\eta_p^2 = 0.15$ ].

Consistent with study 3, further, analyses of perceived discrimination against different racial minority groups revealed only a main effect of timepoint [blacks:  $F(1, 195) = 80.25$ ,  $p < .001$ ,  $\eta_p^2 = 0.29$ ; Latinos:  $F(1, 195) = 74.85$ ,  $p < .001$ ,  $\eta_p^2 = 0.28$ ; Asian Americans:  $F(1, 197) = 22.80$ ,  $p < .001$ ,  $\eta_p^2 = 0.10$ ; Native Americans:  $F(1, 193) = 51.62$ ,  $p < .001$ ,  $\eta_p^2 = 0.21$ ]. Participants once again, regardless of experimental condition, expected that racial minority groups would face less discrimination in the future than they do currently (for descriptive statistics, see table 3).

Our mediation analysis is drawn on prior research revealing that concerns about whites' status in the societal hierarchy is one pathway through which exposure to information about the U.S. racial demographic shift affects whites' racial attitudes, intergroup emotions, and political ideology (Craig and Richeson 2014a, 2014b; Outten et al. 2012). We accordingly examined whether perceived group status threat may similarly mediate the observed effect of

the racial shift information on perceptions that antiwhite discrimination is increasing (the difference between perceptions of future and current levels of antiwhite discrimination). We tested a simple mediation model to examine the indirect effect of the experimental manipulation on perceived antiwhite discrimination (future – current levels) via group status threat (Hayes 2013, model 4). No reliable indirect effect emerged, 95% CI[-0.09, 0.17], suggesting, somewhat surprisingly, that exposure to the racial shift information did not increase whites' tendency to anticipate growing antiwhite discrimination because it triggered concerns about group status.

### Discussion

Overall, study 4 replicated past work finding that exposure to information about the rapidly diversifying racial composition of the nation increases whites' concerns about their racial group's status in society (Craig and Richeson 2014b; Major, Blodorn, and Major-Blascovich 2016; Outten et al. 2012). Study 4 also revealed, as predicted, that exposure to this racial demographic shift information heightens perceptions that whites will face discrimination. Perceptions of the discrimination faced by racial minority groups, however, were not affected by the experimental manipulation; instead, whites expected antiminority discrimination to decline in the future, regardless of their experimental condition. Further, a mediation analysis suggested that concerns about losing societal status in the future may not be the cause of the effect of exposure to the racial shift information on whites' perceptions of (and concerns about) future levels of antiwhite discrimination—a somewhat surprising finding given the documented role of group status threat in shaping whites' responses to other social and political outcomes upon exposure to increasing racial diversity (for a recent review, see Craig, Rucker, and Richeson 2017). Thus, the present data suggest that whites' concerns regarding their group's societal status and perceived antiwhite discrimination may be separable, co-occurring consequences of anticipating racial demographic change.

If concerns about white Americans losing influence or power in society do not account

for the observed effects, what may? Recent social psychological research suggests that information about whites' relative population decline not only can be perceived as a threat to their in-group's material resources and sociopolitical standing (Craig and Richeson 2014a, 2014b; Major, Blodorn, and Major-Blascovich 2016; Outten et al. 2012), but also may threaten whites' understanding of their position as "prototypical Americans" (Danbold and Huo 2015)—that is, a more cultural threat (see also Zou and Cheryan 2017). Further, from the design of study 4, one cannot make strong causal attributions regarding the specific pathways through which information about racial minorities' population growth may influence perceived antiwhite discrimination and group status threat (group status threat could lead to perceived discrimination or vice versa). Thus, future research in which various potential threats (group status threat, prototypicality or cultural threats) of the rapidly changing demographics of the nation are manipulated, rather than measured, is necessary to investigate their potential causal role in shaping whites' reactions to increasing diversity and concerns about their racial in-group (see Craig and Richeson 2017).

### GENERAL DISCUSSION

Together, the findings of the four studies reported here suggest that the size of relevant racial minority populations can increase whites' concerns about their racial identity and standing in society. Whites who live in areas with larger racial minority populations and those who perceive racial minority groups to be larger in size relative to the total population are also more likely to report that they personally, and whites as a group, face racial discrimination. Further, making the projected growth in the national population of racial minority groups salient (and thus the declining white population) similarly heightened white participants' concerns that their group may face discrimination, especially in this more racially diverse future. Perceptions of the discrimination faced by other racial groups (anti-Hispanic discrimination) were generally not associated with perceived or actual racial minority group size in white respondents' communities or nation-

ally. Similarly, making the increasing national diversity salient did not affect whites' perceptions of the level of discrimination racial minorities currently face or are likely to face in the future. Indeed, consistent with classic research, these patterns of results suggest that larger racial minority groups activate whites' concerns that they or their in-group may lose ground in society and even face antiwhite discrimination (Blalock 1967; Blumer 1958). An initial test for a mechanism underlying this effect in study 4 suggested that though concerns regarding whites' relative material status in society are activated by information about increasing racial diversity, this type of group status threat is unlikely to account for the effects of this information on perceptions of discrimination.

### Muted Effects of Actual Presence of Minorities

An important facet of the data examined in studies 1 and 2 is the general inaccuracy of respondents' estimates of racial diversity. On average, respondents estimated that racial minority groups constituted a larger percentage of the population than was accurate at the time of the surveys and that whites made up a lower percentage of the population than they did. On average, respondents in study 1 estimated that racial minorities already made up a majority of the national population, a milestone that is not expected to manifest for three decades (U.S. Census Bureau 2000, 2015). This kind of effect has been well documented in other, related research, but highlights a possible explanation for the relatively muted effects of actual levels of community racial diversity compared with perceived racial levels (Alba, Rumbaut, and Marotz 2005; Nadeau, Niemi, and Levine 1993). In study 2, for instance, perceptions of antiwhite (both group- and personal-level) discrimination tended to be more strongly associated with perceived racial minority group size ( $r_s = .19$  to  $.20$ ), compared with actual racial minority group size ( $r_s = .04$  to  $.12$ ). White respondents' overestimates of the size of racial minority groups relative to whites may be especially likely to both trigger and reflect concerns about their racial in-group.

Alternatively, the actual percentage of racial

minority group members in one's community may elicit opposing influences on racial threat, leading to smaller associations. That is, whereas larger percentages of racial minority groups can increase perceived group size and, subsequently, perceptions of threat to the in-group's interests, larger percentages of racial minority groups in one's community can also provide opportunities for positive intergroup contact, an important salve for strained intergroup relations (Allport 1954; Pettigrew 1998). Future work should examine the potentially separable mechanisms through which actual and perceived group size may influence racial threat and downstream effects for perceptions of discrimination (on threat, see Schlueter and Scheepers 2010). Regardless, these studies offer initial evidence that perceptions of and the actual size of racial minority out-groups are associated with white Americans' concerns about their racial in-group.

### Personal Versus Group Discrimination

A well-established discrepancy exists between feelings of disadvantage for one's group and a sense of personal disadvantage: the personal-group discrimination discrepancy (Taylor et al. 1990; Taylor, Wright, and Porter 1994). That is, although most disadvantaged group members acknowledge that their group faces discrimination, far fewer report that they personally have (Crosby 1982; Kasschau 1977; Taylor et al. 1990). This pattern holds in these studies for white participants' perceptions that they and their group face racial prejudice (study 1:  $M_{\text{personal}} = 1.73$ , 95% CI[1.65, 1.80],  $M_{\text{group}} = 2.15$ , 95% CI[2.07, 2.23]; study 2:  $M_{\text{personal}} = 1.70$ , 95% CI[1.66, 1.73],  $M_{\text{group}} = 2.03$ , 95% CI[2.00, 2.07]). The results of studies 1 and 2, interestingly, suggest that racial makeup is more strongly associated with perceptions that one personally faces discrimination than that one's group does. This may suggest that larger minority populations in one's local environment activate concerns regarding potential unfair treatment to respondents themselves more so than concerns about the group as a whole. Future research, however, is needed to examine this possibility, as well as the processes involved in eliciting white Americans' concerns about group identity, material status, and cultural

standing, processes that are likely to have considerable consequences for societal racial equality and cohesion.

### Implications for White Americans' Identification

The present research has intriguing implications for how racial diversity, especially increasing racial diversity, may affect white Americans' racial identification and group consciousness. Although we did not specifically examine how increasing, actual, or perceived racial diversity affects whites' racial identification in these studies, research has found that exposure to information that whites are projected to become a minority in the United States or to information regarding the rapid increases in the Hispanic population can lead whites to express stronger racial identification (Abascal 2015; Outten et al. 2012; but see Major, Blodorn, and Major-Blascovich 2016). Of course, racial identification—even with a dominant group—is not necessarily negative, even for race relations, because racial identification can facilitate acknowledging white privilege (Croll 2007). Insofar as increasing racial diversity motivates in-group enhancing and out-group derogating reactions such as racial bias (Craig and Richeson 2014a), one possible downstream consequence of minority group growth is the emergence of more defensive forms of white identity (Goren and Plaut 2012; Knowles and Peng 2005). Future empirical research is needed to examine how and what forms of white racial identity may be shaped by racial diversity and, further, how these shifts in identification may subsequently affect societal intergroup relations.

It is entirely likely that the effects found here for perceived antiwhite discrimination reflect increased group consciousness. Further, according to the rejection-identification model, perceiving that one faces discrimination based on a group membership can itself increase identification with that group (Branscombe, Schmitt, and Harvey 1999). In other words, insofar as increasing racial diversity triggers greater concern about antiwhite discrimination among whites, it may also increase whites' racial identification (see Knowles and Peng 2005).

### In Which Domains Might Whites Be Concerned About Discrimination?

One limitation of these studies is the use of general measures of perceived antiwhite discrimination. Preliminary research examining the domains (political influence, hiring decisions, dating) in which whites may expect to face discrimination suggests that information about increasing racial diversity can lead whites to express expectations that they will face discrimination across a variety of domains—particularly in employment and education, but also in interpersonal and more cultural areas (see Craig and Richeson 2017). That said, this question has only been explored in one study (of which we are aware) and, thus, it remains an open question for future inquiry.

### Conclusions

The racial demographic trend toward a nation in which whites no longer number more than 50 percent and in which the combined total of all racial minority groups constitutes the majority of the population has received considerable media attention (Horowitz 2016; Wazwaz 2015). These studies offer an initial examination into how whites' racial concerns for their group and themselves personally are likely to be shaped by these changing racial demographics. This work suggests that as the U.S. populace becomes increasingly racially diverse, racial threat stemming from larger minority populations may have important consequences for whites' concerns about facing discrimination and racial group consciousness.

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