Letter to the Editor

Collective existential threat mediates White population decline's effect on defensive reactions

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Abstract

We present evidence from two studies probing into whether perceived numerical decline in the White population translate into collective existential threat to Whites, leading in turn to defensive reactions. In Study 1, we used correlational data to show whether collective existential threat mediates the relationship between perceptions of White population decline and defensive political reactions (i.e., racial biases and conservatism) among Whites. In Study 2, we replicate the results of Study 1 experimentally manipulating perceptions of White population decline and growth. Our results suggest that Whites' perceptions of the ingroup's numerical decline have a unique effect on their racial and political attitudes via heightened feelings of collective existential threat.

The absolute number of Americans who identify as non-Hispanic monoracial Whites has been declining since 2016 (U.S. Census Bureau, 2018), and the rate of decline is unlikely to reverse. One estimate suggests that the number of Americans who identify as White alone in 2060 is projected to shrink from 198 million to 181 million, 91.8% of what it was in 2014 (Colby & Ortman, 2017). Similar trends have been observed in other White-majority countries, such as Canada (Statistics Canada, 2013, 2017), the UK (Coleman, 2016), and New Zealand (Stats New Zealand, 2004). In the present study, we examine the psychological implications of perceived White population decline. In particular, we argue that perceived White population decline elicits

defensive political reactions via a heightening of Whites' fears that they might cease to exist as a racial category.

Psychological Consequences of Demographic Shift

Many studies have examined the psychological consequences of demographic shifts involving

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different racial groups, and they suggest that many Whites find current trends toward a less White population threatening (e.g., Bobo & Hutchings, 1996; Craig & Richeson, 2014a, 2014b, 2017; Danbold & Huo, 2015; Outten, Schmitt, Miller, & Garcia, 2012). Many recent experimental studies (e.g., Craig & Richeson, 2014a, 2014b, 2017; Danbold & Huo, 2015) have used a "population shift paradigm." In this paradigm, participants are usually presented with actual U.S. census information regarding the projected changes in the *proportions* (not in absolute numbers) of the population belonging to different racial groups. In particular, participants learn that within the next few decades, due to the relative growth in size of the minority population and a relative decline in size of the non-Hispanic White population, White Americans are projected to make up less than half of the future U.S. population, rendering America a "majority-minority" country. For example, Craig and Richeson (2014a, 2014b) found that exposure to population shift information like this produces defensive political reactions among Whites, including increased conservatism and bias toward non-Whites. They also suggest that these effects are mediated by *status threat*—a concern that Whites are losing political and economic status relative to non-Whites.

In most of these studies, the theoretical focus is usually on the decline of the *relative* proportion of the population that is White, rather than on changes in the *absolute* size of the White population (Craig & Richeson, 2014a, 2014b; see also Danbold & Huo, 2015). As a result, previous work does not specifically address the consequences of changes in the size of the White population without also implicating possible changes in the size of various minority populations. Given that there are potential scenarios in which a majority-minority society may arise without the absolute size of the White population declining (e.g., if the White population grows but more slowly than the population of other groups does; Wilson, 2016), we focus specifically on the impact of perceived changes in the White population itself—in particular, whether the White population is growing or declining.

Collective Existential Threat as a Consequence of Population Decline

We contend that perceptions of White population *decline* may produce a heightened sense of *collective existential threat*, that is, a fear that the racial ingroup will cease to exist. In turn, this feeling of collective existential threat may elicit the defensive reactions observed in previous studies (i.e., stronger intergroup biases and greater political conservatism), even after considering other kinds of threat. We expect that when the White population appears to be declining, the perceived threat to the White racial ingroup's *existence*—and not merely its status—should grow, resulting in stronger defensive reactions. In other words, demographic shift in the form of White population decline may produce defensive reactions that are mediated especially strongly by collective existential threat, independent of other threats.

To elaborate on our core idea, we conceptualize collective existential threat as a concern for the future existence of the ingroup (Wohl, Branscombe, & Reysen, 2010). It can be understood as an existential threat (Solomon, Greenberg, & Pyszczynski, 1991) at the *group level* that motivates individuals to preserve the ingroup by reacting defensively to anything believed to be responsible for said existential threat. Empirically, perceived existential threat can affect group-related preferences. For instance, Wohl et al. (2010) found that participants who experienced existential threat with respect to their ethnic groups felt a stronger desire to strengthen the ingroup and a stronger allegiance to group norms. Similarly, Hirschberger, Ein-Dor, Leidner, and Saguy (2016) examined the effects of what they refer to as (perceived) *physical collective annihilation*, a fear for the continued physical existence of the group that is conceptually similar to the concept of collective existential threat we described before. Consistent with the idea that collective existential threat may lead to defensive reactions in intergroup relations, Hirschberger et al. (2016) found that Israeli Jews who felt that the state of Israel or the Jewish people in general may be physically annihilated were more likely to hold

negative attitudes toward outgroups (i.e., Palestinians and Arabs) and to support a hawkish approach to the Israeli–Palestinian conflict.

Collective existential threat is theoretically and empirically different from other race-related threat mechanisms, though it may have similar consequences.[1] First, while many such threats involve some kind of loss on the part of the ingroup—usually a loss of status, power, or cultural distinctiveness (Craig & Richeson, 2014a; Danbold & Huo, 2015)—they do not imply an actual elimination of the ingroup due to demographic change. Second, many other commonly studied threats implicate racial outgroup members in relation to the ingroup, but this is less so for collective existential threat. For example, status threat reflects the perception that one's racial ingroup is losing social status relative to other racial outgroups (e.g., Craig & Richeson, 2014a, 2014b). Thus, many intergroup threats are, by definition, threats that originate from comparisons with outgroup members. In contrast, collective existential threat is a concern that does not necessarily implicate outgroup members. Collective existential threat can originate from concerns about what outgroup members do (e.g., Israeli Jews may be concerned that Palestinians would annihilate their group; see Hirschberger et al., 2016); it is not necessarily rooted in social comparisons with the outgroup.

Collective Existential Threat for Whites

From existing studies, it is not clear whether Whites (or at least some subset of Whites) experience White population decline as a real threat to their physical existence, and if so, whether collective existential threat as a response to population decline is associated with defensive reactions such as increased intergroup bias and conservatism. Nevertheless, while collective existential threat among Whites in response to perceived demographic change has not been studied in detail, recent evidence suggests that Whites are increasingly conscious of their racial identity and threats to it (e.g., Jardina, 2019; Knowles, Lowery,

Chow, & Unzueta, 2014). The relationship between perceived White population decline and existential concern has received recent attention from pundits and journalists (e.g., Blow, 2018; Tavernise, 2018). However, we are unaware of any empirical research on individual attitudes that examines the effect of population decline on perceived existential threat or other outcomes.

The Present Research

To our knowledge, extant research has not demonstrated that decline in the population of a major racial group that has majority status in multiple countries, such as Whites, can trigger concerns about its existence. Thus, in order to understand whether White population decline can actually produce any existential concern and whether such concern can be translated into any defensive reactions, we conducted two studies. We argue that (a) when Whites perceive the White population to be in decline, they may experience heightened collective existential threat; and (b) that this sense of collective existential threat is in turn associated with defensive reactions (i.e., greater intergroup bias and conservatism). Furthermore, we postulate that collective existential threat reflects a concern that is different from those related to other threats studied in the past, such as status threat. Therefore, collective existential threat should mediate the relationship between perceived White population decline and defensive reactions even after other mediating threats (e.g., status threat) are controlled for.

We also argue that White population decline—as opposed to other changes, like growth—is uniquely related to the level of collective existential threat Whites perceive, and in turn to defensive reactions. There are two rationales for this expectation. First, we do not anticipate that collective existential threat is a very prominent part of White consciousness, so the baseline level of existential concern is likely to be low. Given this, any tendency for White population growth to reduce collective existential threat and related defensive reactions is likely to be minor due to a floor effect. Second, past work suggests that

losses are more psychologically impactful than gains of a comparable nature (Kahneman & Tversky, 1992). For example, in the context of the present study, this suggests that the degree of reduction in existential concern brought about by a 5% increase in the size of the White population is likely to be smaller than the corresponding aggravation of existential concern brought about by a 5% decline in the size of the White population. Thus, we expect that White population decline will be associated with increased collective existential threat and stronger defensive reactions, but that White population growth will not be associated with reduced existential threat and weaker defensive reactions.

In examining the hypothesized mediating role of collective existential threat, we consider (and adjust for) the mediating role of two other threats that have been identified in previous research. First, we consider the possibility that collective symbolic threat may mediate the effect of shifts in the White population. In this vein, Hirschberger et al. (2016) have suggested that demographic shifts toward diversity may elicit worries about the ingroup losing its unique identity and values (what they refer to as symbolic collective annihilation), which may in turn encourage defensive political reactions. Since collective symbolic perceptions of this sort are likely to co-occur with perceived threats to the ingroup's physical existence, we adjusted for the mediating role of this variable when assessing the focal role of collective existential threat. Interestingly, previous work suggests that the possibility of losing ingroup uniqueness may not be coded as threatening by all people. For example, Hirschberger et al. (2016) found that a belief that the ingroup may lose its uniqueness was actually associated with *reduced* intergroup antagonism in Israel. This implies that collective symbolic threat to the ingroup's uniqueness may be perceived as a social benefit with positive, culturally universalistic implications for intergroup relations.[2] Thus, including this measure in our own studies of attitudes among White Americans will also allow us to further explore the implications of collective symbolic threat and

see whether the unexpected reversed pattern observed by Hirschberger et al. (2016) emerges in a very different intergroup context.

Second, we consider the role of *status threat*, that is, a perception that the White ingroup is losing social status relative to various racial outgroups. As noted previously, multiple studies have identified status threat as a robust mediator of the effects of demographic shifts on political attitudes (Craig & Richeson, 2014a, 2014b). In this case, we have clearer expectations about the direction of the mediating effect, which should parallel that of collective existential threat. Consistent with prior work, we expect that perceptions of White population decline will be associated with greater status threat, which will in turn predict greater bias toward racial outgroups and higher levels of political conservatism.

Overview of Predictions

To summarize, we advance three hypotheses:

> H1: Perceived White population change will predict collective existential threat, such that perceived decline in the White population will be associated with greater collective existential threat.

> H2: Perceived White population decline will indirectly predict defensive reactions via collective existential threat, independent of other threats.

> H3: White population decline will be more strongly associated with *heightened* collective existential threat and defensive reactions than White population growth will be associated with *reduced* collective existential threat and defensive reactions.

We examined these hypotheses in two studies. Study 1 uses a correlational approach, examining the predictive power of measured perceptions of White population decline. Study 2 takes an experimental approach, manipulating perceived changes in the White population.

Study 1

Method

Participants and procedures. Because we did not know the magnitude of our hypothesized effects, we aimed to reach a final sample of at least 200 White participants from Amazon Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011), for which we oversampled 299 total participants using the TurkPrime platform (Litman, Robinson, & Abberbock, 2017). Participants were compensated $0.50. Participants were 226 White; 151 female; M_{age} = 37.6 years. We used only the 226 White participants (regardless of nationality) for analyses.

Measures. The full text of all items used can be found in the online supplemental material. Descriptives, scale reliabilities, and correlations for the variables are presented in Table 1.

White population decline. This was measured using White participants' responses to a single item: "Which one of the following do you think best describes the current population growth or decline of YOUR RACIAL GROUP?" (1 = *declining very fast*, 9 = *growing very fast*). Scores were reversed so that higher values indicate a stronger perception that the White population is declining.[3]

Outgroup population growth. White participants' perception of growth in the population of various outgroups was measured with three items. Each item had the following format: "Which one of the following do you think best describes the current population growth or decline of [group]?" (1 = *declining very fast*, 9 = *growing very fast*). The three groups were Asians, Blacks, and Hispanics. These three measures were left in their original format, such that high scores indicate stronger perceptions that each group's population is increasing. The three items were entered independently as controls in the model that follows.

Collective existential threat. We operationalized collective existential threat using three items: "The physical existence of my racial group is in danger," "The existence of my racial group is in jeopardy," and "My racial group faces a threat to its existence" (1 = *strongly agree*, 7 = *strongly disagree*). These items were drawn from a larger pool of 13 items adapted from measures developed by Hirschberger et al. (2016) and supplemented with several items of our own. To make the collective existential threat scale comparable in size to the other threat scales (so as not to bias in favor of strong effects via a longer, more reliable existential threat scale), we chose the previous three items by selecting the ones that had the largest communalities and loaded most strongly on the dominant first factor (explaining 54.6% of the variance, compared to 9.97% for the next largest factor) when all 13 items were subjected to a principal-axis factor analysis.[4]

Other mediators. We also considered two alternative mediators, collective symbolic threat and status threat. The main purpose of including these two mediators is to establish that collective existential threat is a distinct mediator with effects over and above other theoretically relevant mediators. Collective symbolic threat measures concerns about the ingroup losing its distinctiveness (Hirschberger et al., 2016), but as discussed before, it may also reflect a positive belief about cultural universalism or symbolic integration. Participants were asked to indicate their agreement with four items adapted from the ones developed by Hirschberger et al. (2016; e.g., "My racial group's values will always be distinct from other ones"; 1 = *strongly agree*, 7 = *strongly disagree*). Items were coded such that a higher score indicates a higher level of the construct, and averaged to form a scale. Status threat was assessed using three items: one item was adapted from Craig and Richeson (2014b; "If other racial groups increase in status, they are likely to reduce the influence of my racial group in society") and we developed the other two items to generate a more reliable measure of status. All three items were coded such that a higher score indicates a higher level of status threat, and then were averaged.[5]

Defensive reactions. We measured two domains of defensive reactions addressed by Craig and

Table 1. Study 1 descriptives and correlations.

	α	M	SD	White population decline	Asian population growth	Black population growth	Hispanic/Latino population growth	Collective existential threat	Collective symbolic threat	Status threat	Racial bias
White population decline	–	5.19	1.38								
Asian population growth	–	5.98	1.41	−.24***							
Black population growth	–	6.15	1.30	−.07	.29***						
Hispanic/Latino population growth	–	6.73	1.43	.07	.24***	.36***					
Collective existential threat	.93	2.81	1.48	.40***	−.23**	<.01	−.03				
Collective symbolic threat	.85	3.70	1.08	.32***	−.10	−.07	.02	.16*			
Status threat	.70	4.00	1.19	.22**	−.01	.14*	.20**	.40***	.03		
Racial bias	.84	3.31	1.14	.03	−.07	.05	<.01	.37***	−.20**	.40***	
Conservative policy preference	.82	3.35	1.25	.02	−.04	.18**	<.01	.28***	−.31***	.40***	.40***

Note. *p < .05. **p < .01. ***p < .001.

Richeson (2014a, 2014b): racial bias, operationalized as preferences for social distance from racial outgroups, and conservative policy preferences. Social distance from racial outgroups was measured using the Evaluative Bias Scale (Wolsko, Park, & Judd, 2006). The scale has six items that measure personal preference for interactions with own racial/ethnic groups and discomfort with other racial/ethnic groups. An example item is, "I would rather work alongside people of my same ethnic origin." Items were answered on a 7-point Likert scale (1 = *strongly agree*, 7 = *strongly disagree*). Higher scores indicate a higher level of racial bias.

Conservative policy preferences were measured using five items developed by Craig and Richeson (2014b). Topics included affirmative action, immigration (measured using two items), military policy, and universal healthcare. Two additional items on the repeal of the Affordable Care Act and the construction of a wall along the US–Mexico border were included as well, given the prominence of these issues in the media at the time of our study (e.g., Pear, Kaplan, & Haberman, 2017). While some of these policies are more clearly racialized (e.g., affirmative action, immigration), others are less racially charged (i.e., military policy). Past studies have shown that the effect of demographic shift on conservative policy preferences is generic, not specific to policies that are relevant to just race or immigration (e.g., Craig & Richeson, 2014a, 2017). These findings are consistent with system justification theory (Jost, Glaser, Kruglanski, & Sulloway, 2003), which suggests that conservatism reflects resistance to change and justification of inequality, and it is motivated by needs to manage uncertainty and threat. Therefore, we do not distinguish the effects of collective existential threat on individual policy preferences, and collapse all seven items into one scale coded such that a higher score indicates greater conservatism.

Results and Discussion

Bivariate relationships. Before moving on to our main tests, we examined key bivariate correlations between our variables (see Table 1). White population decline was positively correlated with all threats (ps < .001 for collective existential threat and collective symbolic threat, and p < .01 for status threat), while Asian population growth was correlated only with reduced collective existential threat (p < .01). Collective existential threat and status threat were both associated with greater racial bias and conservatism (ps < .001). However, consistent with previous results (Hirschberger et al., 2016), collective symbolic threat was associated with reduced bias (p < .01) and conservatism (p < .001). Finally, White population decline was not correlated at the bivariate level with either defensive-reaction variable (ps > .250), suggesting that whatever relationship the former may have with defensive reactions is indirect (as H2 implies).

The role of White population decline. To test our hypotheses, we estimated a path model. In this model, White population decline (our focal independent variable) and the three controls for perceived growth in the Asian, Black, and Hispanic populations were allowed to have direct effects on the three mediators, and each mediator was allowed to have a direct effect on the two defensive-reaction variables (racial bias and conservative policy preferences). We also allowed (a) the four population variables to correlate, (b) the disturbance terms for the three mediators to correlate, and (c) the disturbance terms for the two defensive-reaction variables to correlate.[6] The parameters of this model were estimated using maximum likelihood in Stata 14; standard errors and confidence intervals were derived from bootstrapped variance estimates (based on 1,000 bootstrap samples). The resulting model is summarized in Figure 1.

This model provided an excellent fit to the data, χ^2 (6) = 4.58, p > .250, RMSEA < 0.01, CFI = 1.00. Consistent with H1, Figure 1 shows that Whites who scored lower on the growth variable experienced higher levels of collective existential threat, as well as of the other two threats (ps < .001, for collective existential and collective symbolic threat; p = .007, for status threat). In turn, higher levels of collective existential threat
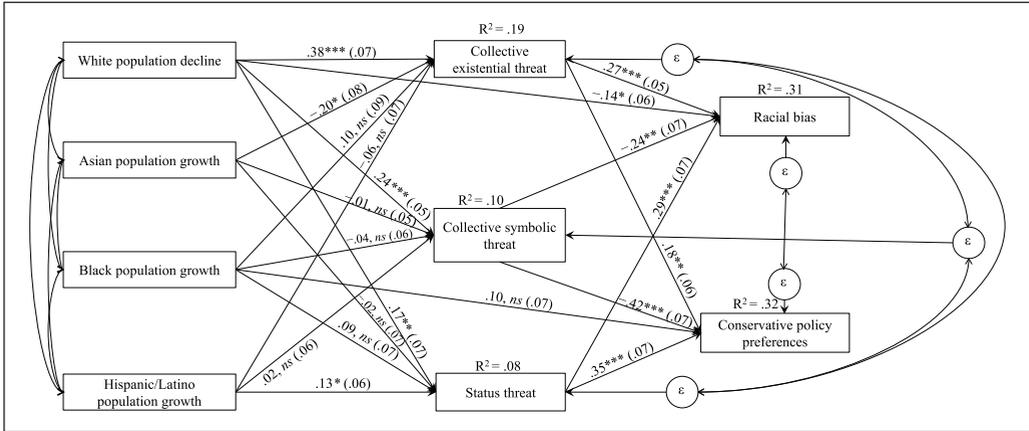
Figure 1. Path model for Study 1.
Note. All coefficients are unstandardized. Values in parentheses represent standard errors.
*p < .05. **p < .01. ***p < .001.

predicted greater racial bias (*p* < .001) and policy conservatism (*p* = .003), as did higher levels of status threat (*p*s < .001). Consistent with Hirschberger et al. (2016), higher levels of collective symbolic threat predicted *lower* levels of racial bias and policy conservatism (*p*s < .001).

To examine H2, we looked at the indirect effects of perceived White population decline on the two defensive-reaction variables via collective existential threat, controlling for the mediating effects of the other two threat variables. Consistent with H2, the indirect effect of White population decline on racial bias via collective existential threat was 0.10, whereas its indirect effect on conservative policy preferences via collective existential threat was 0.07. In neither case did the bias-corrected 95% confidence interval for the indirect effect include zero: [0.05, 0.17], for racial bias; [0.02, 0.13], for conservative policy preferences. Via status threat, perceived White population decline also had positive but smaller indirect effects on racial bias (IE = 0.05, 95% CI [0.02, 0.11]) and on conservative policy preferences (IE = 0.06, 95% CI [0.02, 0.13]). Consistent with the direct effects reported before via collective symbolic threat, perceived White population decline also had unexpected *negative* indirect effects on racial bias (IE = −0.06, 95% CI [−0.11,

−0.02]) and on conservative policy preferences (IE = −0.10, 95% CI [−0.16, −0.05]).

White population decline versus White population growth. In H3, we predicted that White population decline would relate more strongly to increased collective existential threat and defensive reactions than White population increase would relate to reduced collective existential threat and defensive reactions. We test this prediction more precisely in Study 2 using experimental methods, but we examined it in the present study using a piecewise regression technique (Marsh & Cormier, 2002). Specifically, we reestimated the model summarized in Figure 1, replacing the single-item White population decline measure with two separate White population change variables. The first variable represents the slope for White population change for participants in the decline region of the scale (i.e., those above the midpoint of 5); individuals above the midpoint received scores from 1 to 4 on this index, while those at the midpoint or below received a score of 0. The second variable represents the White population change slope for participants in the increase and remain-the-same regions of the scale (i.e., those at the midpoint of 5 or below); individuals below the midpoint

received scores from 1 to 4 on this index, and everyone at the midpoint or above received a score of 5. These two variables were allowed to correlate with the population change variables for the other groups. They were allowed to have direct effects on the three threat variables and on the racial bias measure, paralleling the direct-effect specifications in our main model. Other than these changes, the model was identical to the main one.

The model—of which we describe only the key results here—was estimated using maximum likelihood in Stata 14; standard errors and confidence intervals were derived from bootstrapped variance estimates (based on 1,000 bootstrap samples). This model also fit the data well, χ^2 (7) = 4.65, $p > .250$, RMSEA < 0.01, CFI = 1.00. Consistent with H3, the variable representing White population change in the decline region of the scale had a stronger relationship with collective existential threat ($b = 0.65$, $SE = 0.14$, $p < .001$) than the variable representing change in the increase and remain-the-same regions of the scale ($b = 0.15$, $SE = 0.09$, $p = .097$). Constraining these coefficients to equality produced a significant decline in model fit, $\Delta\chi^2$ (1) = 6.81, $p = .009$. Moreover, the indirect effects of the decline-region White population change variable on each dependent variable via collective existential threat were significant and relatively large (IE = 0.18, 95% CI [0.08, 0.30], for racial bias; IE = 0.12, 95% CI [0.04, 0.24], for policy preferences); whereas the corresponding indirect effects of the increase and same-region White population change variable were nonsignificant and relatively small (IE = 0.04, 95% CI [−0.01, 0.10], for racial bias; IE = 0.03, 95% CI [−0.01, 0.07], for policy preferences). Thus, collective existential threat and defensive reactions appear to increase more sharply as a function of shifts in the region of the population change scale corresponding specifically to White decline.

In sum, Study 1 provided evidence in support of all three of our hypotheses. One noteworthy additional result was that higher levels of collective symbolic threat negatively predict racial bias as well as conservative policy preferences, allowing negative indirect effects of White population decline via this mediator. These findings confirm the cultural universalism interpretation noted previously. Regardless, the hypothesized indirect effects of greatest theoretical interest to us here—those via collective existential threat—remained significant.

Study 2

In an effort to build on Study 1, we tested our hypotheses in a parallel experiment in Study 2. Specifically, Study 2 had two aims: (a) to provide stronger causal inference by manipulating rather than measuring perceived changes in the White population, and (b) to independently manipulate White population decline and White population growth (as opposed to simply measuring them as opposite poles of the same bipolar scale, as in Study 1) to better examine H3, that is, whether White population decline (vs. other types of ingroup population change) would uniquely lead to collective existential threat and thus to defensive reactions.

Method

Participants. Because we did not know the effect size associated with our manipulation, we aimed to reach a final sample of at least 400 White participants from Amazon Mechanical Turk (Buhrmester et al., 2011), for which we oversampled 745 participants using the TurkPrime platform (Litman et al., 2017). Each participant was compensated $0.50. Participants were 526 White; 363 female; $M_{age} = 38.4$. Again, all analyses were conducted using only White participants.[7]

Procedure and measures. At the beginning of the study, participants were randomly assigned to one of three conditions where they read an ostensible news article describing the global White population as either declining (decline condition), growing (growth condition), or an unrelated article (control). By specifically mentioning global White population, we hoped to counter the possibility that participants may primarily consider the

Table 2. Study 2 descriptives and correlations.

	α	*M*	*SD*	Decline condition	Growth condition	Collective existential threat	Collective symbolic threat	Status threat	Racial bias
Collective existential threat	.93	2.91	1.48	.20***	−.03, *ns*				
Collective symbolic threat	.82	4.01	1.25	−.04	−.09†	.12***			
Status threat	.60	4.12	1.16	.08, *ns*	−.15**	.36***	−.01		
Racial bias	.88	3.28	1.33	.11†	.03, *ns*	.23***	−.29***	.38***	
Conservative policy preferences	.80	3.28	1.23	.12*	.07, *ns*	.29***	−.25***	.31***	.48***

Note. The decline and the growth conditions are represented by indicator variables, so the correlations are point-biserial correlations. The decline condition indicator codes participants as 1, control as 0, and excludes the participants from the growth condition. The growth condition variable code participants as 1, control as 0, and excludes the participants from the decline condition.
†$p < .10$. *$p < .05$. **$p < .01$. **$p < .001$.

White population in their own country. For example, participants in the decline condition read an article that began with, "Globally, the White population is rapidly declining. The number of Whites who died in 2016 outpaced the number of White births in 17 countries." The article for participants in the growth condition began with, "Globally, the White population is rapidly increasing. The number of Whites who were born in 2016 outpaced the number of White deaths in 17 countries." The article in the control condition simply discussed geographic mobility. Critically, no racial group other than White is mentioned in any of the articles. Full details of the experimental stimuli can be found in the online supplemental material.

Following the manipulation, all participants completed measures of perceived White population growth, collective existential threat, collective symbolic threat, status threat, racial bias, and conservative policy preferences similar[8] to the ones administered in Study 1.[9] Descriptive statistics, scale reliabilities, and correlations are presented in Table 2.[10]

Results and Discussion

Manipulation check. As a manipulation check, we conducted a one-way ANOVA using the White population change measure to confirm that perceptions of White population growth differed across the three conditions in the intended direction. This analysis revealed significant differences between group means, $F(2, 523) = 379.54$, $p < .001$, $\chi^2 = .59$. Tukey post hoc comparisons confirmed the expected differences between conditions. Perceived White population growth in the decline condition ($M = 2.99$, $SD = 1.27$; as a reference, 3 = declining moderately) was significantly lower than it was in the control condition ($M = 4.74$, $SD = 1.15$; $p < .001$; as a reference, 5 = neither growing nor declining), and perceived White population growth in the control condition was in turn significantly lower than it was in the growth condition ($M = 7.15$, $SD = 1.75$; $p < .001$; as a reference, 7 = growing moderately). Because both experimental manipulations yielded mean responses that are significantly different from that of the control condition, we interpret our manipulation as a manipulation of belief about population, not a prime of population knowledge.

Bivariate relationships. Before moving to the main tests, we again examined key bivariate relationships between our study variables (see Table 2). Two indicator variables were used to code experimental condition (with the control condition as
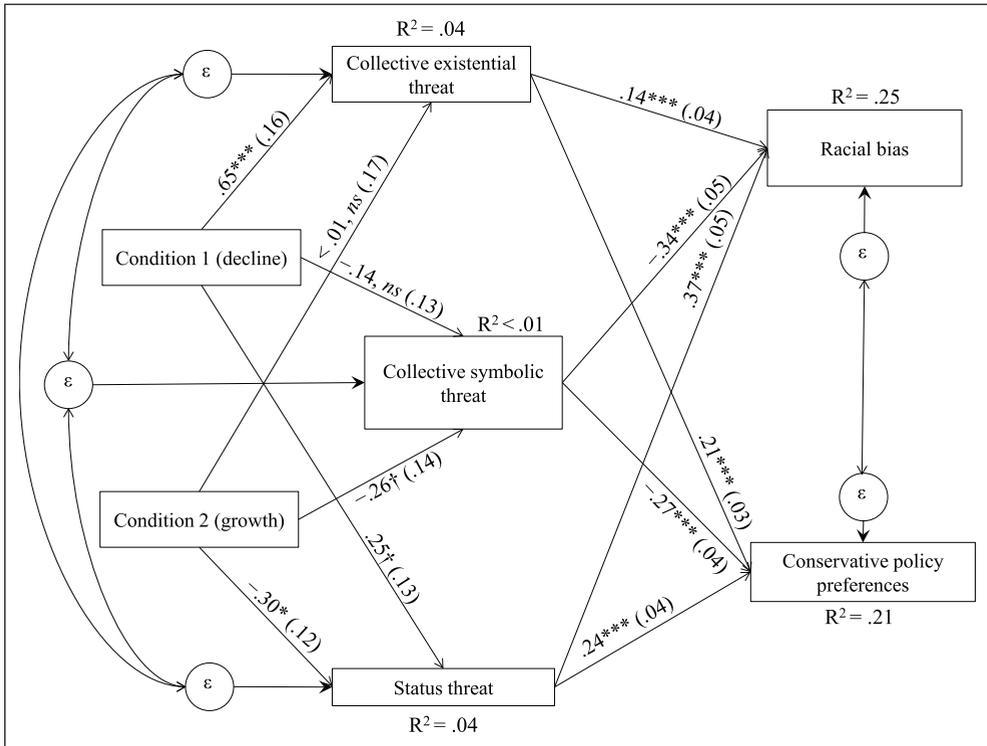
Figure 2. Path model for Study 2.
Note. All coefficients are unstandardized. Values within parentheses represent standard errors.
*p < .05. ***p < .001. †p < .10.

the excluded group): one contrasts the White population decline condition with the control condition, whereas the other contrasts the White population increase condition with the control condition. Decline condition indicator was correlated only with increased collective existential threat (*p* < .001). In contrast to Study 1, we also observed direct correlations between this Decline condition indicator and racial bias (*p* < .05) and conservatism (*p* < .10). Collective existential threat and status threat were both associated with greater racial bias and conservatism (*ps* < .001), while collective symbolic threat was again associated with *reduced* bias and conservatism (*ps* < .001).

The role of White population decline. As in Study 1, we tested our model by estimating a path model. The two indicators were allowed to have direct effects on the three mediators, and each mediator

was allowed to have a direct effect on the two defensive-reaction variables (racial bias and policy preferences). We also allowed (a) the disturbance terms for the three mediators to correlate, and (b) the disturbance terms for the two defensive-reaction variables to correlate.[11] The model parameters were estimated using maximum likelihood in Stata 14; standard errors and confidence intervals were derived from bootstrapped variance estimates (based on 1,000 bootstrap samples).

The resulting model is summarized in Figure 2. The model provided an excellent fit to the data, $\chi^2 (4) = 3.71, p > .250$, RMSEA < 0.01, CFI = 1.00. Consistent with H1, Figure 2 shows that participants assigned to the White decline condition perceived greater collective existential threat (*ps* < .001) than control participants. They also displayed marginally more status threat (*p* = .059) than participants in the control condition; White

Table 3. Study 2 Indirect Effects.

Condition Indicator	Mediator	Defensive reaction	Estimated indirect effect	95% bias-corrected (BC) confidence interval
Decline (versus control)		Racial bias	**0.09**	**[0.04 0.17]**
	Collective existential threat	Conservative policy preferences	**0.13**	**[0.07 0.23]**
		Racial bias	0.05	[−0.04 0.14]
	Collective symbolic threat	Conservative policy preferences	0.04	[−0.03 0.11]
		Racial bias	0.09	[<−0.01 0.20]
	Status threat	Conservative policy preferences	0.06	[<−0.01 0.13]
Growth (versus control)		Racial bias	<0.01	[−0.05 0.05]
	Collective existential threat	Conservative policy preferences	<0.01	[−0.07 0.07]
		Racial bias	0.09	[<−0.01 0.21]
	Collective symbolic threat	Conservative policy preferences	0.07	[<−0.01 0.16]
		Racial bias	**−0.11**	**[−0.21 −0.03]**
	Status threat	Conservative policy preferences	**−0.07**	**[−0.15 −0.02]**

Note. Bolded indirect effects are significant at the $p<0.05$ level.

decline and control participants did not differ in collective symbolic threat ($p > .250$). In turn, as in Study 1, both collective existential threat and status threat were positively associated with racial bias and conservative policy preferences ($ps < .001$). In contrast, collective symbolic threat was negatively associated with racial bias and conservative policy preferences ($p < .001$).

We provide a summary of all indirect effects of the two condition indicators on the two defensive-reaction variables via the three mediators in Table 3. In this section, we focus on the indirect effects of the White decline stimulus. Confirming H2, exposure to the White population decline (vs. the control) stimulus had positive indirect effects on racial bias (IE = 0.09, 95% CI [0.04, 0.17])

and conservative policy preferences (IE = 0.13, 95% CI [0.07, 0.23]) via collective existential threat. As shown in Figure 2, exposing White participants to information about White population decline led to a higher level of collective existential threat (but not other types of threats). Collective existential threat in turn led to more racial bias and more conservative policy preferences. Moreover, none of the indirect effects of White decline on either dependent variable via collective symbolic threat reached conventional levels of significance. Finally, the indirect effects of exposure to the White decline (vs. the control) stimulus on the defensive-reaction variables via status threat were smaller and failed to reach the $p < .05$ level of significance (see Table 3).

White population decline versus White population growth. Study 2's experimental design also allowed us to carry out a clearer test of H3. Again, we predicted that (a) the direct effects of White population decline and White population growth on collective existential threat and (b) their indirect effects on the two defensive-reaction variables via collective existential threat would be asymmetric. As noted before, participants assigned to the White decline (vs. the control) condition showed greater collective existential threat ($b = 0.65$, $p < .001$). In contrast, participants in the White growth condition did not differ from those in the control condition in collective existential threat ($b < 0.01$, $p > .250$). Constraining these coefficients for the two indicator variables to equality produced a significant decline in model fit, $\Delta\chi^2 (1) = 14.78, p < .009$. Moreover, the indirect effects of exposure to the White population growth (vs. the control) stimulus on the defensive-reaction variables via collective existential threat were relatively small and failed to reach significance (both IEs < 0.01). Thus, the results were consistent with H3.

Besides these key results, the estimates indicated that participants assigned to the White growth condition did not differ from those in the control condition with respect to either collective existential threat ($p > .250$) or collective symbolic threat ($p = .073$), though they did report significantly less status threat than participants in the control condition ($p = .011$). In addition, none of the indirect effects of either exposure variable on either dependent variable via collective symbolic threat reached conventional levels of significance. Finally, exposure to the White population growth (vs. the control) stimulus had negative indirect effects on racial bias (IE $= -0.11$, 95% CI $[-0.21, -0.03]$) and conservative policy preferences (IE $= -0.07$, 95% CI $[-0.15, -0.02]$) via status threat.

In sum, Study 2 provided converging experimental evidence supporting our three hypotheses. Notably, we also found an asymmetric mediation pattern in which collective existential threat mediates only the effect of White population decline (vs. control), and status threat mediates

only the effect of White population growth (vs. control). The latter finding is consistent with the rationale that White population growth is unlikely to alleviate Whites' existential concern further due to a floor effect. However, the floor effect may be less prominent for status threat because the baseline level of status threat is comparatively higher (as the means for status threat are higher than that for collective existential threat by about 1 point in both Study 1 and Study 2). Therefore, perceiving White population growth may be able to assuage Whites' concerns about their social position, which may in turn reduce defensive responding. Moreover, similar to what was observed in Study 1, collective symbolic threat and the defensive-reaction variables were negatively related (in contrast to the positive relationships that collective existential threat and status threat had with racial bias and conservative policy preferences). This again suggests that collective symbolic threat may actually be tapping sentiments of cultural universalism rather than threat in the context of White population decline.

General Discussion

Results from two studies suggest that Whites who perceive a decline in the size of their ingroup's population experience collective existential threat, which in turn elicits defensive reactions in the form of heightened intergroup bias and greater conservatism. Specifically, our results provide evidence for three core predictions: (a) perceptions of White population decline—whether measured or manipulated—were associated with increased concern that the White racial ingroup will cease to exist—collective existential threat; (b) perceived White population decline indirectly predicted increased racial bias and political conservatism via collective existential threat, suggesting that the latter may serve as an important conduit for the downstream political consequences of perceived decline in the population of a majority ingroup; and (c) compared to White population growth, White population decline has a stronger direct relationship with variation in collective existential threat and a

stronger indirect relationship with variation in defensive reactions.

Importantly, to our knowledge, our studies are the first to isolate the effect of White population change (instead of relying on measures and manipulations that conflate White population change with minority population change) and find evidence that perceived White population decline can trigger collective existential concern and related defensive reactions. Our studies also suggest that White population decline does not merely trigger the threat considered in most studies of demographic change, that is, status threat; rather, our work suggests that it may additionally elicit fears that the ingroup will actually cease to exist. Given the projected decline in the White population (U.S. Census Bureau, 2018), it is very possible that the role of collective existential threat will become increasingly prominent in the future, when compared to other types of threats.

Future Directions

There are several steps future researchers may take to advance our understanding of how perceived demographic shifts influence intergroup and political attitudes. First, declines in the population of White majorities have been documented in multiple countries (e.g., Canada: Statistics Canada, 2017; the UK: Coleman, 2016). For this reason, our studies' measures and manipulations focused on perceptions of Whites in general, without reference to a particular nation. However, our samples consisted largely of American participants.[12] This raises the possibility that participants may have been thinking largely of White Americans and American politics when responding to the questions and stimuli. Future research should explore differences in levels of collective existential threat evoked when participants contemplate White decline at a global level versus in their own country, as well as differences between U.S. Whites and Whites from other majority-White nations.

Second, given the prominent role of fears of White annihilation in racist rhetoric (e.g., "White genocide" themes; Blow, 2018), additional work should explore the relationships between demographic change, collective existential threat, and support for far-right extremism. In a related line of work, we found that collective existential threat predicts support for far-right extremist groups and actions, and mediates the effects of White population decline on the latter among White Americans, independent of other threats (Bai & Federico, 2019). A further promising direction would be to investigate whether majority-group population decline predicts similar consequences in other cultures, where the White majority population is declining (Canada; Statistics Canada, 2013, 2017; the UK, Coleman, 2016; New Zealand, Stats New Zealand, 2004).

Third, researchers might further explore the role of the other threats examined in our studies. For example, our ancillary finding that symbolic threat predicts *reduced* intergroup bias and conservatism is an interesting result that replicates similar counterintuitive findings from other cultural contexts (Hirschberger et al., 2016). Given seemingly consistent evidence that collective symbolic threat functions differently from collective existential threat and status threat (both of which are associated with *greater* defensiveness), researchers should attend to the possibility that a perceived reduction in group distinctiveness and uniqueness may be perceived as beneficial (rather than aversive) and may imply a reduced need for intergroup vigilance. On a different front, the relatively weak results we found for status threat may be a function of the particular operationalization we relied on. Though we relied on an established measure of status threat (e.g., Craig & Richeson, 2014a), it is possible that this measure missed other critical aspects of status threat. In this vein, items that ask whether outgroups are *directly* reducing the status of the ingroup through their actions or whether the ingroup is losing status in absolute terms (rather than *relative* to outgroups) might show stronger effects for status threat.

Finally, future studies may wish to explore whether the consequences of perceived decline in ingroup population are always mediated strongly by collective existential threat. For

example, it is worth asking whether perceived decline in the population of ingroups defined by values and beliefs (e.g., political parties) elicit the same level of collective existential threat and defensive responding (e.g., in the form of greater affective bias against out-partisans). Alternatively, it may not be the basis of the intergroup distinction (e.g., values vs. race/ethnicity) that determines the relevance of collective existential threat; rather, it may be the extent to which competition between the relevant groups has been intractable and/or violent (Bar-Tal, 2007; Hirschberger et al., 2016).

Conclusion

The present research investigates how perceptions of ingroup population decline among Whites may predict defensive reactions via collective existential threat. Results from two studies suggest that perceived White population decline is associated with collective existential threat, which is in turn associated with stronger evaluative intergroup biases and more conservative policy preferences.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. In each of the studies reported here, we provide empirical evidence of collective existential threat's distinctiveness from other race-related threats in the online supplemental material.
2. The content of items used to measure symbolic threat in prior work is consistent with this account (Hirschberger et al., 2016). For example, a participant who disagrees with the item "My racial group's tradition will always maintain its uniqueness" may believe that different racial groups' traditions will one day be valued by all, a stance that

can be taken as relatively tolerant.
3. The distribution of the White decline variable was roughly normal and clustered around the midpoint of the scale, as opposed to bimodal (e.g., with a separate outlier group perceiving an extreme decline in the White population). A histogram is provided in the supplemental material.
4. We replicated our path analyses in both studies using the full collective existential threat scale. Results were virtually identical in both cases (see supplemental material).
5. To confirm that the three threat variables were distinct, we estimated a three-factor confirmatory factor analysis model using maximum likelihood in Stata 14. All factors were allowed to correlate, and we also allowed correlations between the errors for all reversed items to account for shared measurement variance. This model provided an acceptable fit to the data, $\chi^2 (26) = 57.86, p < .001$, RMSEA = 0.08, CFI = 0.97. By way of comparison, a single-factor measurement model fit the data more poorly, $\chi^2 (26) = 169.70, p < .001$, RMSEA = 0.15, CFI = 0.86, $\Delta\chi^2 (3) = 111.84$, $p < .001$.
6. The direct-effect path from White population growth to policy preferences was nonsignificant in a preliminary run, so we dropped this pathway from the model. Moreover, modification indices indicated a significant direct effect of Black population growth on policy conservatism, so we allowed a direct path from the former to the latter.
7. We included an attention check in Study 2. Our analyses produced virtually identical results when participants who failed the attention check were excluded.
8. Besides White population changes (measured with "Which one of the following do you think best describes the current population growth or decline of WHITES?"), all measures were identical to Study 1.
9. To confirm that the three threat variables were distinct, we estimated a three-factor confirmatory factor analysis model using maximum likelihood in Stata 14, similar to the one estimated in Study 1. All factors were allowed to correlate, and we also allowed correlations between the errors for all reversed items to account for shared measurement variance. This model fit more weakly than in Study 1, according to the RMSEA, $\chi^2 (26) = 168.44, p < .001$, RMSEA = 0.11,

CFI = 0.94. However, it did fit better than a comparable single-factor measurement model, χ^2 (29) = 416.50, p < .001, RMSEA = 0.17, CFI = 0.85, $\Delta\chi^2$ (3) = 248.06, p < .001.

10. Several other measures that were not directly relevant to our hypotheses were also included. First, we included feeling thermometer measures of evaluations of Asian Americans, African Americans, and Hispanics/Latinos. Second, we also included feeling thermometer measures for Hillary Clinton, Barack Obama, and Donald Trump. Both of these measures were included for use in a different project, and they were not analyzed here.

11. The direct-effect paths from the experimental condition dummies to the two defensive-reaction variables were both nonsignificant in a preliminary run, so we dropped them from the model.

12. There was one identified non-American participant in Study 1 and four in Study 2.

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