Investment in Whiteness and Climate Change Skepticism

By

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Abstract

Research often explores the motivated roots of climate change skepticism: that people express climate change (CC) skepticism in service of predetermined conclusions. Research also indicates that White Americans are less environmentally engaged and more likely than other racial groups to express CC skepticism. In two studies, I tested hypothesized links between (investment in) white American racial identity, CC skepticism, and policy support. In Study 1, Whites expressed greater CC skepticism than Hispanic/Latinx participants. Ethnicity moderated the relationship between ingroup affect and CC skepticism, such that CC skepticism was positively related to ingroup affect among White but not Hispanic/Latinx participants. In Study 2, White participants who were exposed to an identity threat manipulation expressed stronger relationships between ingroup affect and CC skepticism and conservative policy support relative to a low threat condition. Group status anxiety mediated the relationship between ingroup affect and climate change skepticism among White participants in both studies. Results suggest implications of investment in whiteness for CC skepticism and locate investment in whiteness as a potential barrier to addressing climate change.

Keywords: climate change, skepticism, whiteness, politics, group status, racial identity

Table of Contents

Investment in Whiteness and Climate Change Skepticism

Climate change represents a significant threat to human livelihood. As the effects of climate change become more apparent it will be increasingly important to understand how the public engages with information related to its existence and effects. Importantly, despite its observed impact and the overwhelming evidence of its presence, significant portions of the U.S. public remain skeptical that climate change exists (Tyson, Kennedy, & Funk, 2021). This skepticism does not manifest uniformly across social groups in the U.S., as political conservatives, men, White people, and older Americans are more likely than their counterparts to be skeptical of the existence of climate change (Leiserowitz et al., 2021; McCright & Dunlap, 2011a, 2011b). While gender (McCright, 2010; Nagel, 2016) and political ideology (Jylhä & Hellmer, 2020; McCright & Dunlap, 2011a, 2011b) have received significant empirical attention, less research has explored climate change skepticism with attention to processes of racialization. In the current paper, I report two studies that I conducted to explore how white racial identity is related to climate change skepticism, and whether White Americans express greater climate change skepticism following threats to their group's status.

Psychology of climate change skepticism

Since the turn of the 21st century, social psychologists and researchers from neighboring disciplines have explored why people are skeptical about the existence of climate change. In early qualitative research, Stoll-Kleemann et al. (2001) and Kasemir et al. (2000) asked focus groups a series of questions regarding their understanding of climate change and energy usage. Despite participants' self-reported desire for a low-energy future, both studies revealed that virtually no participants were prepared to mitigate the effects of climate change in their personal lives. Stoll-Kleemann et al. (2001) argue that because participants judged the required behavioral

change to be too substantial, participants' inaction represented a form of denial which they expressed to maintain a sense of cognitive consistency (see Festinger, 2001). Stoll-Kleemann et al. (2001) further identified four main motivations for climate change denial: the tragedy of the commons interpretation (an understanding of costs to one self as greater than benefits to others), the managerial fix interpretation (the idea that climate change is less serious than thought, and authorities can mitigate when necessary), the governance distrust interpretation (a lack of faith in government to pursue public interest), and the comfort interpretation (an unwillingness to give up lifestyles associated with one's identity).

Much of the present research into the psychology of climate change skepticism also concerns its *motivated roots*, and the idea that individuals can be aware of the science of climate change but remain skeptical of its existence, nonetheless. A recent review of this literature revealed four other primary motivations for climate change denial: a desire to uphold existing socioeconomic systems (*the threat of system sanctioned change*), a need for affiliation with others (*identity*), a desire to align with the norms of one's groups (*social norms*), and a desire to view oneself as consistent and morally good (*self-affirmation*; Wong-Parodi & Feygina, 2020). Among these, most research on climate change skepticism has explored identity-related motivations for denial, and in particular, conservative and Republican political affiliation.

In the United States, stark differences in climate change skepticism are evident across ideological lines and between political groups. Researchers in the U.S. routinely identify political conservatism as a significant predictor of climate change skepticism (Funk & Kennedy, 2020; McCright & Dunlap, 2011a). Other recent work in the United States and abroad has demonstrated that exclusionary and anti-egalitarian preferences (Jylhä & Hellmer, 2020), social dominance orientation (Häkkinen & Akrami, 2014; Jylhä et al., 2016), system justification

tendencies (Feygina et al., 2010), and right-wing authoritarianism (Stanley et al., 2021) are all associated with climate change skepticism. These ideologies encompass what Jylhä and Hellmer (2020) refer to as an "endorsement of the existing societal power relations" (p. 316). While conservatism and investment in existing social structures explains much of the current patterns of climate change skepticism in the United States, the focus of the current work is whether investment in a different (but related) identity category, whiteness, is related to climate change skepticism.

Racial and ethnic variation in environmental engagement

Recent work in sociology and social psychology has explored how climate change, both in its roots and in recognition of its effects, is a racialized phenomenon. While climate change will eventually threaten all humans, it is not race-neutral either in its roots (e.g., Eurocentric global domination) or effects (e.g., environmental racism; Bullard & Johnson, 2000). The conditions that prompted such stark shifts in the global climate can be directly attributed to the European colonial appropriation of land, resources, and labor that has occurred over the past 500 years (Rodney et al., 2018). Moreover, Indigenous North American scholars have commented on how the current "global burning" is a product of ongoing colonial conquest which has treated humans, land, and natural things as disposable resources (Wildcat, 2009, p. 1). Moreover, as it is not uncommon for corporations and governments to disproportionately distribute environmental harms to poor communities and communities of color, BIPOC activists around the globe are often at the forefront of environmental justice initiatives to combat further encroachment of imperialism and colonialism (Guha, 2000; Nixon, 2013).

Given this racialized history, one might anticipate racial or ethnic differences in perceptions of and engagement with climate change and environmental issues. However, the

racialization of climate change and climate change skepticism has received relatively little empirical attention. McCright and Dunlap (2011b) completed some of the earliest work in this domain through their illumination of the "conservative white male effect" (p. 1163) which revealed that conservative white men were more likely than all other U.S. adults to express climate change denial. Benegal (2018) cites an early indicator of this racialization in the election of Barack Obama to the United States presidency in 2008. He found that while White Americans' climate change concern was commensurate with that of Black Americans before Obama's election, their concern dipped significantly following his election and throughout his presidency, while the concern of Black Americans remained constant. He argues that this shift may represent a pattern of racial resentment among White Americans, in that the election of Barack Obama signaled a cultural change in the United States which White Americans perceived as a threat to the cultural domination of whiteness, resulting in racialized aggravation.

Other recent work has examined racial differences in environmental engagement from different angles. Elias et al. (2019) revealed that White Americans self-reported lower pro-environmental orientations and perceived efficacy to positively impact climate change compared to Hispanic Americans. Other researchers have reported that White Americans perceived significantly less threat from climate change compared to Black and Hispanic Americans even when political identification was considered (Collins, 2014). Furthermore, a meta-analysis revealed that although political conservatism was the most significant predictor of climate change denial, racial differences still emerged, such that White participants were slightly less likely than people of color to believe in climate change (Hornsey et al., 2016).

This research suggests a racialization of climate change skepticism. However, a gap remains concerning why White people are less engaged with the issue and why they might be

more skeptical. McCright and Dunlap (2011b) posit that greater climate change denial among conservative white men in the U.S. might be due to their greater identity-protective cognition or system justification tendencies, such that they are skeptical about climate change due to an increased investment in protecting the social status quo from which they disproportionately benefit (Kahan et al., 2007). Aside from this research, little to no work has endeavored to explain the racialization of climate change skepticism. As a first step toward exploring this question, it is important to consider the social construction of whiteness as a racial category in the United States and how White Americans wield it to their benefit at the expense of racial others.

White racial identity

A prominent focus of social psychology is how identities influence social perception (Ellemers et al., 2002). Crucially, present-day social groups, social identities, and social arrangements are not stagnant, nor are they context free categories that define existence, but rather, represent "dynamic, flowing patterns" (Adams & Markus, 2004, p. 337). For the present investigation, social identities (and particularly, racialized social identities) can be understood as products of racialized power imbalances. Accordingly, whiteness, or what it means to be white, is a dynamic social construct which white people wield and deploy for social and political gain in contrast to a racialized, subordinated 'other' (Painter, 2011; Roediger, 1999, 2006).

Since its invention, whiteness has afforded its beneficiaries political advantage, mobility, and the privilege of unknowing certain truths about the social world. Charles Mills described this unknowing as "white ignorance," or a "group-based cognitive handicap" afforded by racial privilege (Mills, 2007, p. 15). Mills outlined the importance of collective memory and "collective amnesia" in maintaining, obscuring, and contesting historical events, and particularly those for which there are "nonwhite victims" (2007, p. 29). This misrepresentation of knowledge

is relevant to a discussion of perceptions of climate change, an ongoing collective event of which victims are more likely to be poorer, Indigenous, and/or people of color (Bullard & Johnson, 2000; Nixon, 2013). And despite widely held beliefs and claims to colorblindness, white Americans routinely wield their racial identities in policy decisions and in constructing an understanding of their social worlds (e.g., Knowles et al., 2009).

Demonstrating this phenomenon, Nelson et al. (2013) found that White Americans who scored higher in racial identity relevance (i.e., positive affect one feels about their racial group membership) were less likely than their low identifying counterparts to perceive systemic racism. Recent work has replicated and extended these findings, showing that White Americans higher in positive racial identity expressed greater racism denial (Bonam et al., 2019) and express more racism following exposure to thoughts of white privilege (Branscombe et al., 2007). Importantly, what one might refer to as affective investment in whiteness is distinct from other components of social group identification that entail a recognition of whiteness as a self-defining category apart from one's evaluation of the category. Given the unique character of racial identity investment (or investment in whiteness), a discussion of different components of social identification is warranted.

Researchers have long acknowledged the need for elaborating different components of social identity (e.g., Luhtanen & Crocker, 1992; Sellers et al., 1998) For instance, Luhtanen and Crocker (1992) noted that measures of social identity should capture both an individual's self-appraisal of their social group membership and their evaluation of their group. Cameron's (2004) model of social identification is particularly useful in making these distinctions. This model consists of three factors of social identification. *Centrality* concerns the frequency with which one's social group comes to mind, and the importance of this group to an individual's self-

concept. *Ingroup affect* refers to the emotions a person associates with membership in a group and is similar to the Private Collective Self-Esteem subscale of the Collective Self-Esteem Scale (CSE; Luhtanen & Crocker, 1992) used by Nelson et al. (2013) and Bonam et al. (2019). Lastly, *ingroup ties* encompasses the extent to which a person feels like they are 'part of' a particular group and their felt ties to other group members (Cameron, 2004).

Cameron's (2004) social identity facet of ingroup affect is most important for present purposes and resonates with Lipsitz's (2006) idea that many White Americans have a *"possessive investment in whiteness"* (p. vii) which they wield as a form of cultural capital, affording them racial privilege. He argues that white Americans are encouraged to invest in and protect the "cultural fiction" of whiteness to maintain existing social hierarchies (p. vii). Lipsitz's account can also be thought of as an *affective investment* in whiteness (i.e., ingroup affect).

The social identification subfactor of centrality is also an important consideration for the present research, but its relationship with identity-related skepticism is less clear. For instance, a person might frequently contemplate their whiteness and racial privilege (high centrality), but it is unclear whether this contemplation would incur a motivation to misrepresent group-relevant information, whereas ingroup affect might prompt these tendencies. Lastly, in the present investigation, I am less concerned with the social identification subfactor of ingroup ties. While ingroup affect and centrality both concern one's *idea* of their group, ingroup ties refers to one's actual felt bond to other group members. In this research, I am more interested in climate change not as a tangible threat to a collectivity of white people, but rather, as a threat to the idea of whiteness and white supremacy.

Roccas et al. (2006) demonstrated the importance of distinguishing subfactors of identification by showing their opposing relations to the experience of group-based guilt. Their

investigation rested on the premise that ingroup glorification (i.e., ingroup affect; racial identity relevance) can be a barrier to experiencing group-based guilt, but if people have an attachment to a group without glorifying it (i.e., centrality), they will be more likely to experience group-based guilt. In a group of Israeli students, they found that glorification of the national group and attachment to the national group were independently negatively associated with group-based guilt. However, after controlling for glorification, attachment became positively related to group-based guilt. As such, the present investigation will examine how Cameron's (2004) subfactors of ingroup affect relates to climate change skepticism while including centrality as a covariate.

Group status threat

Given that climate change skepticism is racialized, an important follow up question concerns the conditions that foster ingroup affect (i.e., investment in whiteness) and a related racialization of climate change skepticism. A promising direction concerns cultural changes in the United States and globally which signal a threat to the group status of White people. Social psychologists have paid considerable attention to White Americans' reactions to the impending racial demographic shift in the United States such that White Americans will be the racial minority compared to all other racial groups by 2042 (U.S. Census Bureau, 2008). These researchers note that White Americans tend to respond to this information with racial resentment and by shifting toward political conservativism, rather than embracing multiculturalism and diversity (Craig & Richeson, 2014a, 2014b; Danbold & Huo, 2015). Indeed, when the "size of a minority group is large or increasing," dominant group members often feel as though their power is being threatened (Allport, 1954, p. 221), and engage in defensive responses that benefit their ingroup and disadvantage outgroups.

What remains to be explored, however, is whether the demographic shift may also prompt an increased racialization of certain issues by White Americans. In other words, does the demographic shift increase the extent to which White Americans' racial identities comes to bear on their attitudes about social issues? As sociologist Ashley Jardina detailed, White Americans are more likely to bring their racial identities to bear on their political decisions when the collective status of their ingroup is threatened (Jardina, 2019). One study revealed that exposure to demographic shift information increased White participants' support for Donald Trump, but especially those higher in ethnic identification. Major et al. (2018) note that this suggests that the impending racial demographic shift is threatening to some, but not all, White Americans. For the White participants high in identity centrality (Luhtanen & Crocker, 1992), group status threat mediated the relationship between condition and Trump support, suggesting that these highly identified participants were especially susceptible to the demographic shift manipulation which prompted greater group status threat, resulting increased support for Donald Trump. A lingering question concerns whether anxiety about one's group status prompts a similar racialization of other social issues among White Americans.

Given that group status threat prompts a conservative shift among White Americans, it may also be associated with greater climate change skepticism, as climate change skepticism is intensely politically polarized (Craig & Richeson, 2014b; Jost et al., 2003). Researchers describe group status threat as a perceived threat to the societal status of one's ingroup. Craig and Richeson (2014b) measured this by asking participants whether increases in the status of racial minorities would result in a decrease in the status of White Americans. While this question relates directly to perceived status, it is not clear whether it refers to realistic (i.e., economic) or symbolic (i.e., cultural) concerns. I am proposing that perception of threat associated with

demographic change can be separated in two components that both relate to perception of group status: realistic threat, which arises when individuals sense that their ingroup's power and material resources may be taken by a competitive outgroup (Stephan & Stephan, 2000), and symbolic threat, the perception that an outgroup poses a danger to the ingroup's values, beliefs, identity, or way of life. The anxiety provoked by this intergroup threat can further be thought of as group status anxiety which group members express due to feelings of group status precarity and uncertainty (e.g., Bonanno & Jost, 2006). In Study 1, I consider whether group status anxiety mediates the relationship between ingroup affect and climate change skepticism (and other outcomes) among both White and Hispanic/Latinx participants.

Overview of the present research

While previous research has demonstrated racial differences in climate change skepticism, environmental concern, and engagement with environmental issues, there is a lack of research exploring the factors of white racial identification associated with climate change skepticism. In a pair of studies, I explored whether White participants expressed greater climate change skepticism, and the factors of white identity related to this skepticism. While climate change skepticism constitutes a barrier to engagement with climate change, a recognition of climate change on its own does not represent tangible action aimed at ameliorating environmental harms (Gifford, 2011). And because recent research has also revealed that White Americans' ethnic identification was related to their conservative policy support, another important consideration for the present work is participants' support for relevant political policies (Blodorn et al., 2016; Major et al., 2018). In Study 1, I recruited White and Hispanic/Latinx participants to complete a brief survey regarding their climate change skepticism, policy support, group status anxiety, and racial identification. In Study 2, I explore

whether White participants' climate change skepticism is heightened after exposure to a group status threat manipulation.

Based on the research outlined above, in Study 1, I tested the *investment in whiteness hypothesis*: that White participants (compared to Hispanic/Latinx participants) would express greater climate change skepticism, opposition to environmental policy, and conservative policy support. As an extension of the *investment in whiteness hypothesis*, I further tested an interaction hypothesis, such that ethnic group differences in climate change skepticism would be explained by ingroup affect (investment in whiteness). Moreover, research has demonstrated that White participants' perceptions of group status threat mediated the relationship between their ethnic identification and conservative policy support (Major et al., 2018). Given this, I also tested the *group status anxiety hypothesis*: that group status anxiety would mediate the relationship between ingroup affect and climate change skepticism, opposition to environmental policy and conservative policy support for White participants.

Study 1

Method

Participants

According to a power analysis using G*Power version 3.1.9.3 (Faul, Erdfelder, Lang, & Buchner, 2009), with 0.80 power and an alpha-level of 0.05, I needed to recruit 177 participants to detect a medium to small effect size of .075. Anticipating the removal of around 10% of participants, I recruited N = 200 participants from Prolific.co to participate in an eight-minute study. I sampled equally for White and Hispanic/Latinx participants using Prolific's prescreening tools. I restricted the sample to participants who resided in the United States at the time of data

collection on March 9th and 10th, 2021. To ensure data quality, I removed eight participants for failing an attention check and five for exceeding the time limit of 25 minutes, which left me with N = 187 participants (M_{age} = 31.91 SD = 10.81). Of the remaining participants, 95 were White and 92 were Hispanic/Latinx. Concerning gender, 95 participants were women, 89 were men, and 3 were another gender.

Procedure

I counter-balanced the presentation order of survey measures such that participants completed the measure of group status anxiety either before or after all other outcome measures. Because the counter-balancing measure did not qualify any results, I report all results aggregated across the two groups. Participants completed measures of group status anxiety, climate change skepticism, ecological threat of climate change, threat of climate change solutions, conservative policy support, and opposition to environmental policy. All participants completed measures of racial identification and demographics after these dependent measures.

Measures

Unless otherwise indicated, I measured participants' responses to all measures on a scale from -3 (*Strongly disagree*) to 3 (*Strongly agree*; see Appendix C). For purposes of analysis and presentation, I recoded scores on a 1 (*Strongly disagree*) to 7 (*Strongly agree*) scale.

Climate change skepticism. Participants completed a four-item measure of climate change skepticism (α = .90). I adapted the first two items from McCright and Dunlap (2011): "The effects of climate change are already happening," and "Increases in Earth's temperature over the last century are mostly due to human activities," and the last two items from Häkkinen and Akrami (2014): "Scientists and the media have exaggerated the threat of climate change,"

and "Human activities are changing the Earth's climate." I reversed coded three of the items to reflect increased skepticism. Higher scores indicate greater climate change skepticism.

Ecological threat of climate change. To measure perceived ecological threat of climate change participants rated their agreement with the statement, "I am concerned about the potential for climate change to cause ecological devastation." Higher scores reflect greater perceived threat. White participants ($M = 5.76$ $SD = 1.51$) reported less ecological threat of climate change compared to Hispanic/Latinx participants ($M = 6.25$ $SD = 1.08$). See Appendix A for these results.

Threat of climate change solutions. Participants responded to two items concerning threat related to "measures environmentalists commonly propose to address climate change (e.g., the Green New Deal, Paris Climate Accords)." One item encompassed the symbolic threat associated with such measures: "I am worried that these environmentalist measures will disrupt the American way of life," and one encompassed the realistic threat associated with these measures: "I am concerned that the economic impact of these environmentalist measures will be too harmful." I combined these two items to create one composite variable called Threat of climate change solutions. White participants ($M = 3.61$ $SD = 1.83$) perceived marginally more threat of climate change solutions compared to Hispanic/Latinx participants ($M = 2.86$ $SD = 2.04$). See Appendix A for these results.

Conservative policy support. Next, participants completed an eight-item measure of conservative policy support ($\alpha = .80$) that I adapted from previous work (Craig & Richeson, 2014b). Craig and Richeson (2014) demonstrated that White participants expressed greater support for conservative policy after a demographic shift manipulation. Study 1 does not entail such a manipulation, but I included these policy items to explore their relationship with ingroup

affect. An example item is "I approve of efforts to increase the required time to be eligible for U.S. citizenship." Higher scores indicate greater policy support.

Opposition to environmental policy. Participants completed a seven-item measure of opposition to environmental policy. Scores on these items reflect opposition to policy intended to benefit or improve the conditions of the environment. Higher scores indicate greater opposition. I adapted one item from Craig and Richeson (2014). An example item is "The U.S. government should address the issue of widespread groundwater contamination in marginalized communities." The seven-item scale demonstrated high reliability ($\alpha = .77$) but improved following the removal of an item concerning a ban of single-use plastics ($\alpha = .80$). I removed this item from all analyses. Participants also responded to an attention check item embedded within this measure in which I asked them to select the number "2" to demonstrate their attention. I removed participants who indicated a response other than the requested "2" from all analyses.

Group status anxiety. As an indicator of group status anxiety, I measured participants' perceived realistic and symbolic threat of the impending demographic shift in the United States. I counterbalanced the presentation order of these items such that participants completed them either before or after all aforementioned measures. They first read the following passage:

> *The United States is currently undergoing significant demographic changes due to increased immigration and higher birth rates among ethnic minorities. The U.S. Census Bureau projects that by the year 2042, White Americans will no longer be the U.S. majority.*

They then completed separate three-item measures of perceived realistic ($\alpha = .87$) and symbolic ($\alpha = .92$) threat that I adapted from previous work (Danbold & Huo, 2014). An example item for

symbolic threat is, "Ongoing demographic changes in the U.S. are undermining American culture." An example item for realistic threat is, "Ongoing demographic changes in American society will increase the tax burden on people like me." I combined these two subscales into a composite measure of group status anxiety ($\alpha = .94$). Higher scores indicate greater group status anxiety.

Racial identification. Participants completed a three-factor, 11-item measure of racial identification I adapted from Cameron's (2004) measure of social identification ($\alpha = .92$). Participants first answered an open-ended question to indicate their race. They then responded to these 11 items with respect to the racial category they indicated. The scale consists of three subscales of ingroup affect (three items; $\alpha = .85$), ingroup ties (four items; $\alpha = .88$), and centrality (four items; $\alpha = .81$). An example ingroup affect item is, "In general, I'm glad to be [a member of my racial ingroup]"). Lastly, as an exploratory measure, I asked participants their political orientation with a two-item measure pertaining to social and economic factors on a scale from -3 (*Strongly liberal*) to 3 (*Strongly conservative*).

Results

Analyses of the order manipulation in which I counterbalanced the presentation order of measures revealed that the observed effects in this study were not limited to one condition. Means across participant ethnicity appear in Table 1 and bivariate correlations across participant ethnicity appear in Table 2.

Test of the investment in whiteness hypothesis

Climate change skepticism. Mean levels of climate change skepticism in Study 1 were low for both White ($M = 2.35 \, SD = 1.40$) and Hispanic/Latinx participants ($M = 1.67 \, SD = 1.07$).

The modal response was an absolute acceptance of the scientific consensus that climate change is occurring. In fact, 38 (41.3%) Hispanic/Latinx participants and 17 (17.9%) White participants fully accepted the scientific consensus that climate change is occurring.

The investment in whiteness hypothesis posits that investment in whiteness is associated with climate change skepticism. I considered the relationship between climate change skepticism and whiteness as both a racial category and by measuring participants' investment in their racial group. As a first test of this hypothesis, I explored group differences in climate change skepticism between White (coded as "1") and Hispanic/Latinx (coded as "-1") participants along with their self-reported ingroup affect scores. I conducted a moderation analysis using PROCESS macro model 1 in SPSS (Hayes, 2012; see Table 3). To examine the unique effect of ingroup affect, I included centrality and its interaction with ethnicity as covariates here and in all remaining analyses (see Roccas et al., 2006). Results revealed no main effect of ingroup affect β = -0.003, $t(181)$ = -0.02, p = .98. However, the ethnic group difference in climate change skepticism was significant β = .91, $t(181)$ = 4.34, $p < .0001$ such that White participants (M = 2.35 SD = 1.40) expressed more climate change skepticism than Hispanic/Latinx participants (M = 1.67 SD = 1.07). As hypothesized, the interaction between ethnic group and ingroup affect on climate change skepticism was significant β = .46, $t(181)$ = 2.56, p = .01.

To explore this interaction, I conducted a test of simple slopes which found no association between ingroup affect and climate change skepticism for Hispanic/Latinx participants (β = -0.00, LLCI = -0.283, ULCI = 0.277) while for White participants, the relationship between ingroup affect and climate change skepticism was strong and positive (β = 0.46, LLCI = 0.237, ULCI = 0.686). One implication of this pattern is that the group difference was true at higher levels of ingroup affect. Specifically, a Johnson-Neyman test indicated that the

ethnic group difference in climate change skepticism was evident at values of ingroup affect above the 26.74 percentile (i.e., -0.85 on the mean-centered ingroup affect index).

Opposition to environmental policy. Another important consideration for Study 1 was whether the two forms of engagement with whiteness (as racial category and as investment via ingroup affect) were associated with support for (and opposition to) relevant political policy.

I conducted the same moderation analysis to explore ethnic group differences and the effect of ingroup affect on opposition to environmental policy. Results indicate no main effect of ingroup affect $\beta = 0.14$, $t(181) = 1.21$, $p = .23$, and an ethnic group difference $\beta = 0.88$, $t(181) = 5.02$, $p < .0001$ such that White participants ($M = 2.58$ $SD = 1.16$) expressed more opposition to environmental policy compared to Hispanic/Latinx participants ($M = 1.85$ $SD = 0.93$). The interaction between ethnic group and ingroup affect was marginally statistically significant $\beta = 0.27$, $t(181) = 1.74$, $p = .08$. A test of simple slopes found no association between ingroup affect and opposition to environmental policy for Hispanic/Latinx participants ($\beta = 0.14$, LLCI = -0.091 ULCI = 0.379) while for White participants, the relationship between ingroup affect and opposition to environmental policy was strong and positive ($\beta = 0.41$, LLCI = 0.222, ULCI = 0.598). To the extent that White participants expressed an investment in whiteness (via ingroup affect), they also expressed opposition to environmental policy, while no such pattern existed for Hispanic/Latinx participants. As with climate change skepticism, ethnic group differences in opposition to environmental policy were more pronounced at higher levels of ingroup affect. Indeed, a Johnson-Neyman test indicated that the ethnic group difference in opposition to environmental policy was evident at values of ingroup affect above the 16.58 percentile (i.e., -1.30 on the mean-centered ingroup affect index).

Conservative policy support. Next, I conducted the same moderation analysis to explore ethnic group differences and the effect of ingroup affect on conservative policy support. Results indicate no main effect of ingroup affect $\beta = .14$, $t(181) = 1.09$ $p = .28$, and an ethnic group difference $\beta = .70$, $t(181) = 3.62$, $p = .0004$ in conservative policy support. White participants ($M = 3.43$ $SD = 1.28$) expressed greater conservative policy support than Hispanic/Latinx participants ($M = 3.13$ $SD = 1.10$). The interaction between ethnic group and ingroup affect was statistically significant $\beta = 0.46$, $t(181) = 2.74$, $p = .007$. A test of simple slopes found no association between ingroup affect and conservative policy support for Hispanic/Latinx participants ($\beta = 0.14$, LLCI = -0.116, ULCI = 0.400) while for white participants, the relationship between ingroup affect and conservative policy support was strong and positive ($\beta = 0.60$, LLCI = 0.395, ULCI = 0.809). Like opposition to environmental policy, to the extent that White participants were invested in whiteness, they also expressed conservative policy support, while no such pattern existed for Hispanic/Latinx participants. Moreover, ethnic group differences in conservative policy support were more pronounced at higher levels of ingroup affect. A Johnson-Neyman test indicated that the ethnic group difference in conservative policy support was evident at values of ingroup affect above the 41.18 percentile (i.e., -0.58 on the mean-centered ingroup affect index).

Group status anxiety. I conducted the same moderation analysis to explore ethnic group differences and the effect of ingroup affect on the proposed mediator, group status anxiety, which I measured using perceived threat of demographic change. Results revealed no main effect of ingroup affect $\beta = -0.06$, $t(181) = -0.36$, $p = .72$ and an ethnic group difference $\beta = 1.11$, $t(181) = 4.59$, $p < .0001$ in group status anxiety, such that White participants ($M = 3.00$ $SD = 1.57$) reported greater group status anxiety than Hispanic/Latinx participants ($M = 2.26$ $SD = $

1.33). The interaction between ethnic group and ingroup affect was statistically significant β = .62, $t(181)$ = 2.96, p = .004. A test of simple slopes found no association between ingroup affect and group status anxiety for Hispanic/Latinx participants (β = -0.06, LLCI = -0.383, ULCI = 0.265) while for White participants, the relationship between ingroup affect and group status anxiety was strong and positive (β = 0.56, LLCI = 0.304, ULCI = 0.823). To the extent that White participants were invested in whiteness, they also expressed increased group status anxiety concerning the impending demographic shift, while no such pattern existed for Hispanic/Latinx participants. A Johnson-Neyman test indicated that the ethnic group difference in group status anxiety was evident at values of ingroup affect above the 26.74 percentile (i.e., -0.82 on the mean-centered ingroup affect index).

I conducted these same analyses with political conservatism and gender as covariates. With these variables in the model, interactions between ethnic group and ingroup affect on climate change skepticism β = .20, $t(176)$ = 1.34, p = .18, opposition to environmental policy β = .04, $t(176)$ = 0.28, p = .78, conservative policy support β = .15, $t(176)$ = 1.35, p = .18 and group status anxiety β = .32, $t(176)$ = 1.75, p = .08 were no longer statistically significant. Political conservatism was a more powerful predictor of these outcomes than was ingroup affect. Ethnic group differences in these four outcomes remained after including political conservatism and gender as covariates.

Test of the group status anxiety hypothesis

Results revealed the hypothesized moderation effect such that the relationship between ingroup affect and climate change skepticism, and policy support/opposition, was evident for White, but not Hispanic/Latinx participants. The *group status anxiety hypothesis* proposes that White participants' group status anxiety mediates the relationship between ingroup affect and

these outcomes. Consistent with this, results also indicated that ingroup affect was related to group status anxiety for White participants but not Hispanic/Latinx participants. This points to the idea of moderated mediation, such that group status anxiety mediates the relationship between ingroup affect and the other three outcomes for White participants, but not Hispanic/Latinx participants. In the following analyses, I test the *group status anxiety hypothesis* by exploring whether group status anxiety concerning the impending racial demographic shift mediates the effect of ingroup affect on these three outcomes for White participants (but not Hispanic/Latinx participants) by way of moderated mediation.

Climate change skepticism. I conducted a moderated mediation analysis using PROCESS Model 8 (Hayes, 2012) by exploring whether group status anxiety differentially mediated the relationship between ingroup affect and climate change skepticism among White and Hispanic/Latinx participants. As in the previous analyses, I included centrality and its interaction with ethnicity as a covariate. Indeed, group status anxiety mediated the relationship between ingroup affect and climate change skepticism for White participants ($\beta = 0.27$, LLCI = 0.132, ULCI = 0.430), but not Hispanic/Latinx participants ($\beta = -0.03$, LLCI = -0.173, ULCI = 0.099; see Table 4). The overall moderated mediation model was supported with the index of moderated mediation $\beta = .30$, (95% CI = 0.112, 0.532). The model appears in Figure 1.

Opposition to environmental policy. Regression analysis indicated that the interaction between ethnic group and ingroup affect on opposition to environmental policy was not statistically significant. However, the ethnic group difference in the relationship between ingroup affect and group status anxiety prompts a consideration of moderated mediation for opposition to environmental policy. Indeed, group status anxiety mediated the relationship between ingroup affect and opposition to environmental policy for White participants ($\beta = 0.20$, LLCI = 0.099,

ULCI = 0.325) but not Hispanic/Latinx participants (β = -0.02, LLCI = -0.121, ULCI = 0.069).

The overall moderated mediation model was also supported with the index of moderated

mediation β = .22, (95% CI = 0.086, 0.385; see Table 5). Despite the lack of an interaction

between ethnic group and ingroup affect on opposition to environmental policy, the index of

moderated mediation was significant due to the statistically significantly different patterns of

mediation between White and Hispanic/Latinx participants. The model appears in Figure 2.

Conservative policy support. Group status anxiety mediated the relationship between

ingroup affect and conservative policy support for White participants (β = 0.30, LLCI = 0.146,

ULCI = 0.467), but not Hispanic/Latinx participants (β = -0.03, LLCI = -0.185, ULCI = 0.110),

again suggesting a pattern of moderated mediation. The overall moderated mediation model was

supported with the index of moderated mediation β = .33, (95% CI = 0.118, 0.562). This model

appears in Figure 3.

Group status anxiety mediated relationships between ingroup affect and climate change

skepticism, conservative policy support, and opposition to environmental policy for White

participants, but not Hispanic/Latinx participants. To the extent that White participants were

invested in whiteness, they tended to express more group status anxiety regarding impending

demographic changes, which was associated with climate change skepticism and support for

(and opposition to) relevant political policy. These findings replicate and extend previous work

which demonstrated that group status threat mediated White Americans' conservative policy

support (Craig & Richeson, 2014a). Participants appeared to treat climate change skepticism

similarly to conservative policy support, specifically.

I conducted these moderated mediation analyses with political conservatism and gender

as covariates. With these variables in the model, the indices of moderated mediation for climate

change skepticism β = .08, (95% CI = -0.004, 0.188), opposition to environmental policy β = .05, (95% CI = -0.003, 0.128), and conservative policy support β = .89, (95% CI = -0.003, 0.184) did not remain statistically significant. Rather than qualifying observed patterns from Study 1, these and the moderation results suggests a conflation of conservatism and investment in whiteness. That is, even though political conservatism is a measure of political orientation and ingroup affect a measure of racial identification, political conservatism may be a more sensitive measure of investment in whiteness than ingroup affect. Moreover, participants may be more willing to express an endorsement of conservatism than an allegiance to White racial identity due to social desirability concerns and group image concerns (Dai et al., 2021).

Discussion

Results indicate general support for the *investment in whiteness hypothesis*. First, regarding group differences and reflecting other work (McCright & Dunlap, 2011b; Elias et al., 2019), White participants expressed more climate change skepticism than Hispanic/Latinx participants, and especially so at higher levels of ingroup affect (investment in whiteness), though this pattern emerged among individuals who expressed even moderate levels of ingroup affect, rather than being restricted to high identifiers. Second, taking ingroup affect as a measure of investment in whiteness, White participants who expressed greater investment in whiteness also expressed greater climate change skepticism. This pattern extended to White participants' opposition to environmental policy, conservative policy support, and group status anxiety, whereas these patterns did not exist for Hispanic/Latinx participants.

Results also generally supported the *group status anxiety hypothesis*. Group status anxiety mediated the effect of ingroup affect on the three outcome variables for White participants, but not Hispanic/Latinx participants. White participants higher in ingroup affect

also reported greater group status anxiety concerning the impending demographic shift, which was then associated with greater climate change skepticism, opposition to environmental policy and conservative policy support (Major et al., 2018). Even though the interaction between ethnic group and ingroup affect on opposition to environmental policy was not significant, the index of moderated mediation was significant because mediation via group status anxiety was evident among White participants, but not Hispanic/Latinx participants.

Study 2

Study 1 revealed a racialization of climate change skepticism. Specifically, White participants expressed more climate change skepticism than Hispanic/Latinx participants, and this skepticism was uniquely related to White participants' affective investment in their racial group. Proceeding in a straightforward fashion, I attempt to manipulate the mediator (group status anxiety) I identified in Study 1. Specifically, in Study 2, I explore whether a commonly used group status threat manipulation strengthens the relationship between ingroup affect and climate change skepticism and relevant policy support/opposition among a sample of White American participants. Craig and Richeson (2014b) heightened group status anxiety in White Americans by presenting them with information suggesting that White Americans will be the minority (compared to all other racial groups) by 2042. I used a similar group status threat manipulation here to heighten group status anxiety. I assigned participants at random to view a chart and read three sentences describing anticipated demographic shifts in either 2042 (high threat) or 2100 (low threat; see Appendix D). In the high threat condition, I emphasized that both economic (realistic) and cultural (symbolic) changes would result from the demographic shift, while in the low threat condition, participants read that no significant cultural or economic changes would occur.

It is well established that exposure to demographic shift information triggers group status threat in White Americans, prompting a conservative shift (Craig & Richeson, 2014a; Craig & Richeson, 2014b, Major et al., 2018). As such, I tested the *group status threat hypothesis*: that participants in the high (versus low) threat condition would express greater climate change skepticism, opposition to environmental policy, conservative policy support, and group status anxiety. Major et al. (2018) also demonstrated that White Americans higher in ethnic identification were especially threatened by demographic shift information. Moreover, group status anxiety mediated the relationship between ingroup affect and climate change skepticism among White participants in Study 1. As such, I further tested a moderation hypothesis: that the demographic shift manipulation would amplify the identity dynamics of climate change skepticism and relevant policy support such that the relationship between ingroup affect and climate change skepticism, and policy support/opposition will be strong and positive in the high threat condition, and weak or non-existent in the low threat condition. Lastly, as with White participants in Study 1, I further explored the *group status anxiety hypothesis* by testing whether group status anxiety mediates the effect of ingroup affect on the other three outcomes.

Method

Participants

According to a power analysis using G*Power version 3.1.9.3, I again needed to recruit at least 177 participants to detect a medium to small effect size of .075 at 80% power and an alpha of .05. I recruited N = 193 White American participants from Prolific.co to participate in an eight-minute study on April 21st, 2021. To ensure data quality, I removed 14 participants for failing an attention check, and six for exceeding the time limit of 25 minutes, which left me with

N = 173 participants (M_{age} = 38.72, SD = 14.46). Of the remaining participants, 99 were women, 71 were men, and 3 were another gender.

Procedure

I assigned participants at random to either a high threat or a low threat condition. In both conditions, participants read information describing impending demographic changes in the U.S. such that White Americans will soon be the minority. The conditions differed with respect to a) when the changes would occur (2042 versus 2100), and b) the cultural and economic consequences of these changes, with more proximal and significant changes occurring in the high threat condition. After reading this information, participants completed, in order, measures of group status anxiety, climate change skepticism, ecological threat of climate change, threat of climate change solutions, opposition to environmental policy, and conservative policy support. Participants again completed measures of racial identification and demographics at the end of the survey.

Measures

As in Study 1, unless otherwise indicated, I measured participants' responses on a scale from -3 (*Strongly disagree*) to 3 (*Strongly agree*) and I recoded scores on a 1 (*Strongly disagree*) to 7 (*Strongly agree*) scale for purposes of analysis and presentation.

Group status anxiety. As a measure of group status anxiety, participants completed modified versions of the realistic (α = .85). and symbolic threat (α = .93) items from Study 1 which I again compiled into a composite measure of group status anxiety concerning impending demographic changes (α = .92). Here, I changed these items to refer specifically to White Americans, rather than using the language of "people like me" from Study 1. I framed these

items with respect to participants' assigned condition with the following phrase: "Researchers have noted gradual changes in American society such that by 2042[2100], White Americans will no longer constitute the majority of the U.S. population." In this study, these items also served as a manipulation check.

Climate change skepticism. Participants completed the same four-item measure of climate change skepticism from Study 1 ($\alpha = .92$).

Ecological threat of climate change. Participants completed the same item from Study 1 measuring perceived ecological threat of climate change. Participants in the high threat condition ($M = 5.85\ SD = 1.59$) did not report greater perceived ecological threat of climate change compared to participants in the low threat condition ($M = 5.96\ SD = 1.54$). These results appear in Appendix A.

Threat of climate change solutions. Participants completed the same two items from Study 1 measuring perceived threat of climate change solutions. Participants in the high threat condition ($M = 2.62\ SD = 1.88$) reported marginally less perceived threat of climate change solutions compared to participants in the low threat condition ($M = 3.15\ SD = 1.96$). These results appear in Appendix A.

Opposition to environmental policy. Next, participants completed a six-item measure of opposition to environmental policy ($\alpha = .85$). Differing from Study 1, participants completed these items before the conservative policies to maintain thematic continuity following the climate change items. This measure is identical to that of Study 1, but I removed the item concerning the ban of single use plastics due to low compatibility with the other items. Participants also responded to the attention check item embedded within this measure in which I instructed them to select the option "2."

Conservative policy support. Participants completed a seven-item measure of conservative policy support. I removed the item concerning the legalization of same sex marriage in the United States and modified two other items in attempt to align them more with the rhetoric of contemporary conservatism in the United States (see Appendix D). The seven items displayed decent reliability ($\alpha = .79$), but this improved following the removal of the (new) item concerning federal assistance to small businesses affected by the COVID-19 pandemic ($\alpha = .84$).

Racial identification. Participants completed the same three-factor, 11-item measure of racial identification ($\alpha = .93$) used in Study 1 with respect to their racial ingroup. The ingroup affect ($\alpha = .88$), ingroup ties ($\alpha = .90$), and centrality ($\alpha = .79$) subscales all had good reliability. Participants reported their political orientation with the same two-item measure from Study 1.

Results

Test of the group status threat hypothesis

Climate change skepticism. Means across condition appear in Table 7 and bivariate correlations appear in Table 8. Mean levels of climate change skepticism in Study 2 were again low in both the low ($M = 2.23$ $SD = 1.49$) and the high threat condition ($M = 2.12$ $SD = 1.39$). Again, the modal response was an absolute acceptance of the scientific consensus that climate change is occurring. An equal number of participants in the low (30; 35.7%) and high threat condition (30; 33.7%) fully accepted the scientific consensus that climate change is occurring.

Using PROCESS model 1 (Hayes, 2012), I explored the moderating effect of condition (high threat coded as "1"; low threat coded as "-1") on the relationship between ingroup affect and climate change skepticism (see Table 9). As in Study 1, I conducted the following analyses with centrality and its interaction with condition as covariates to understand the unique effect of

ingroup affect. Results revealed no main effect of ingroup affect β = .23, $t(167)$ = 1.64, p = .10 or condition on climate change skepticism β = -0.12, $t(167)$ = -0.58, p = .56. Participants in the high threat condition did not express greater climate change skepticism compared to participants in the low threat condition. Condition moderated the relationship between ingroup affect and climate change skepticism β = .42, $t(167)$ = 2.06, p = .04. A test of simple slopes found no association between ingroup affect and climate change skepticism for participants in the low threat condition (β = 0.23, LLCI = -0.046, ULCI = 0.507) while for participants in the high threat condition, the relationship between ingroup affect and climate change skepticism was strong and positive (β = 0.65, LLCI = 0.357, ULCI = 0.942), suggesting that the either the high threat condition strengthened, or the low threat condition weakened the relationship between ingroup affect and climate change skepticism.

Opposition to environmental policy. I again asked participants to indicate their support for relevant political policy. For opposition to environmental policy, results revealed a main effect of ingroup affect β = .27, $t(167)$ = 2.22, p = .03. The main effect of condition on opposition to environmental policy was not significant β = -0.05, $t(167)$ = -0.17, p = .87. Participants in the high threat condition (M = 2.19 SD = 1.33) did not express greater opposition to environmental policy compared to participants in the low threat condition (M = 2.26 SD = 1.18). Further, the interaction between ingroup affect and condition was not significant β = .26, $t(167)$ = 1.48, p = .14.

Conservative policy support. For conservative policy support, results revealed a main effect of ingroup affect β = .47, $t(167)$ = 3.63, p = .0004, and no main effect of condition β = -0.26, $t(167)$ = -1.15, p = .25. Participants in the high threat condition (M = 3.61 SD = 1.46) did not express greater conservative policy support compared to participants in the low threat

condition ($M = 3.88$ $SD = 1.50$). Condition moderated the relationship between ingroup affect and conservative policy support $\beta = .37$, $t(167) = 1.96$, $p = .05$. A test of simple slopes found an association between ingroup affect and conservative policy support for participants in the low threat condition ($\beta = 0.47$, LLCI $= 0.213$ ULCI $= 0.723$) and the high threat condition, where the relationship between ingroup affect and conservative policy support was stronger and positive ($\beta = 0.84$, LLCI $= 0.566$, ULCI $= 1.104$). Despite statistically significant relationship between ingroup affect and conservative policy support in both conditions, the test of simple slopes demonstrates that this relationship was stronger in the high threat condition. Importantly, the centrality by condition interaction on conservative policy support was also significant $\beta = -0.41$, $t(167) = -2.17$, $p < .05$, such that for participants in the high threat condition, centrality was negatively related to conservative policy support, while centrality was not related to conservative policy support for participants in the low threat condition. As with climate change skepticism, these results suggest that either the high threat condition strengthened, or the low threat condition weakened the relationship between ingroup affect and conservative policy support.

Group status anxiety. I conducted the same moderation analysis to explore the effect of the manipulation and ingroup affect on group status anxiety. Results revealed a main effect of ingroup affect $\beta = .39$, $t(167) = 2.83$, $p = .005$ and an no effect of condition $\beta = -0.10$, $t(167) = -0.47$, $p = .64$ on group status anxiety. Participants in the high threat condition ($M = 3.17$ $SD = 1.58$) did not express greater group status anxiety compared to participants in the low threat condition ($M = 3.30$ $SD = 1.67$), suggesting a failure of the manipulation check. However, condition moderated the effect of ingroup affect on group status anxiety $\beta = .45$, $t(167) = 2.21$, $p = .03$. A test of simple slopes found an association between ingroup affect and group status anxiety for participants in the low threat condition ($\beta = 0.39$, LLCI $= 0.119$, ULCI $= 0.670$) and

the high threat condition, where the relationship between ingroup affect and climate change skepticism was stronger and positive ($\beta = 0.84$, LLCI $= 0.552$, ULCI $= 1.135$), again suggesting that either the high threat condition strengthened or the low threat condition weakened the relationship between ingroup affect and group status anxiety.

I tested whether these patterns remained after including political conservatism and gender as covariates. The moderating effect of condition on the relationship between ingroup affect and climate change skepticism $\beta = .24$, $t(162) = 1.29$, $p = .20$, conservative policy support $\beta = .16$, $t(162) = 1.00$, $p = .32$, and group status anxiety $\beta = .30$, $t(162) = 1.50$, $p = .13$, became non-significant. The main effect of ingroup affect remained for conservative policy support and group status anxiety, but not climate change skepticism $\beta = .05$, $t(162) = 0.43$, $p = .67$. For opposition to environmental policy, the inclusion of political conservatism and gender made the effect of ingroup affect non-significant $\beta = .04$, $t(162) = 0.30$, $p = .77$.

Test of the group status anxiety hypothesis

Results indicated a lack of a main effect of condition on all outcomes. Therefore, without regard for condition, I conducted a series of mediation analyses using PROCESS Model 4 (Haye, 2012) to explore whether group status anxiety mediated the effect of ingroup affect on the three outcomes.

Climate change skepticism. Results indicate a significant direct effect of group status anxiety on climate change skepticism $\beta = .27$, $t(171) = 3.63$, $p = .0004$. The direct effect of ingroup affect on group status anxiety was also significant $\beta = .62$, $t(171) = 8.47$, $p < .0001$. Group status anxiety mediated the effect of ingroup affect on climate change skepticism ($\beta = 0.27$, LLCI $= 0.155$, ULCI $= 0.383$). This model appears in Figure 4.

Opposition to environmental policy. Results indicate a significant direct effect of group status anxiety on opposition to environmental policy $\beta = .31$, $t(171) = 4.88$, $p < .0001$. Group status anxiety mediated the effect of ingroup affect on opposition to environmental policy ($\beta = 0.22$, LLCI = 0.138, ULCI = 0.320). This model appears in Figure 5.

Conservative policy support. Results indicate a significant direct effect of group status anxiety on conservative policy support $\beta = .53$, $t(171) = 7.80$, $p < .0001$. Group status anxiety mediated the effect of ingroup affect on conservative policy support ($\beta = 0.30$, LLCI = 0.193, ULCI = 0.423). This model appears in Figure 6.

Following the inclusion of political conservatism and gender as covariates in these mediation analyses, the main effect of ingroup affect on climate change skepticism $\beta = .16$, $t(165) = 1.61$, $p = .11$, and opposition to environmental policy $\beta = .09$, $t(165) = 1.21$, $p = .23$, did not remain significant, suggesting that political conservatism was a more powerful mediator of the relationship between ingroup affect on these two outcomes. The relationship between ingroup affect and conservative policy support $\beta = .35$, $t(165) = 4.06$, $p < .0001$ remained significant following the inclusion of political conservatism and gender as covariates. Group status anxiety $\beta = .36$, $t(164) = 6.39$, $p < .0001$, partially mediated this relationship. This lack of full mediation via political conservatism suggests that group status anxiety may have more explanatory power for the relationship between investment in whiteness and conservative policy support than it does for the relationship between investment in whiteness and climate change skepticism and opposition to environmental policy.

Discussion

These results offer support for the *group status threat hypothesis* with respect to the identity dynamics of climate change skepticism: in an instance of high group status threat, White

participants' investment in whiteness was especially related to climate change skepticism whereas there was no relationship between investment in whiteness and climate change skepticism under conditions of low threat. Building on work in political science, the racialization of climate change skepticism was more evident after I presented participants with information that threatened their collective status (Jardina, 2019). While Uenal et al. (2021) propose a bidirectional relationship between climate change threat and intergroup threat such that exposure to one can lead to an increase in the other, exposure to group status threat failed to heighten climate change skepticism, opposition to environmental policy, and conservative policy support on its own in Study 2.

Despite this, exposure to group status threat via the impending demographic shift strengthened the relationships between ingroup affect and climate change skepticism and conservative policy support. Uenal et al., (2021) also found that national ingroup identification (via the Collective Self-Esteem Scale; Luhtanen & Crocker, 1992) was only slightly negatively related to climate change threat perceptions. Aside from the conceptual difference in dependent variables, it is possible that I found stronger associations between ingroup affect and climate change skepticism in Study 2 because I considered affective investment, specifically, rather than ties to other (national) group members. These results also partially replicate and extend a well-documented conservative shift in response to group status threat (Craig & Richeson, 2014b, 2014a; Major et al., 2018; Outten et al., 2012). It is also worth noting that the threat manipulation did not alter the relationship between ingroup affect and opposition to environmental policy, suggesting that group status threats might cause White Americans' racial identities to come to bear on their support for certain polices more than others.

For the test of the *group status anxiety hypothesis*, there is evidence of a replication of results from Study 1: to the extent that participants reported higher ingroup affect, they also reported greater group status anxiety concerning the impending demographic shift, and subsequently, more climate change skepticism, opposition to environmental policy, and support for conservative policy. This finding partially replicates Major et al.'s (2018) finding that among White Americans high in ethnic identification, exposure to the demographic shift predicted support for conservative candidates and policy. It is possible that a true control condition in Study 2 would reveal the same pattern of moderated mediation, such that mediation via group status anxiety would only be evident under conditions of threat.

In a similar vein, exposure to threat manipulation on its own did not prompt greater climate change skepticism. This finding was unexpected considering extensive research demonstrating that exposure to demographic shift information prompts a conservative shift (Craig & Richeson, 2014b, 2014a; Major et al., 2018; Outten et al., 2012), and that climate change perceptions are intensely politically polarized (McCright & Dunlap, 2011a). The absence of a main effect of condition could stem from the lack of a true control condition or the fact that participants were not political independents (see Craig & Richeson, 2014b). Alternatively, it could be the case that White participants who were low in ingroup affect actively embraced the demographic shift such that they were threatened by messages signaling more temporally distant changes. Moreover, discourse about the demographic shift has circulated for years (U.S. Census Bureau, 2008) and White Americans generally experience group status threat in response. It is possible that participants entered the study cognizant of impending demographic changes, and the low threat condition, which conflicted with this information, assuaged their sense of threat. The absence of a true control condition also calls into question the baseline link between ingroup

affect and climate change skepticism for White participants, and whether the high threat condition strengthened the relationship between ingroup affect and climate change skepticism, or whether the low threat condition weakened it. The statistically significant relationship between ingroup affect and climate change skepticism in Study 1 suggests that it may be the case that the low threat condition lessened this racialization in Study 2.

In terms of inferences of causality in this experiment, the demographic shift manipulation likely represents but one trigger for racialization in White participants. Specifically, it is likely not the case that the racial demographic shift is the sole, isolated *cause* of a more intense racialization of climate change in the United States. Rather, demographic changes likely represent one of many signals of sociocultural changes in the United States (and globally) that White Americans interpret as threats to their group's status, thus prompting racialized defensiveness. Lastly, although there was no main effect of the manipulation in Study 2, considered alongside the results from Study 1, it is likely that I would have observed an interaction between condition and ethnicity on climate change skepticism in Study 2. In other words, it is likely that the ethnic group difference I observed in Study 1 would have been more pronounced in the presence of high threat in Study 2. This is a direction for future research.

General Discussion

Progress on addressing the reality of climate change is severely lagging. While climate change skepticism has declined in recent years (Leiserowitz et al., 2021), it still represents a significant barrier to widespread engagement with the issue. This pair of studies sought to replicate previously documented ethnic group differences in climate change skepticism, to explore whether investment in whiteness could explain those differences, and to explore whether the relationship between investment in whiteness and climate change skepticism is strengthened

after White Americans experience threats to their group's status. In Study 1, White participants expressed greater climate change skepticism than did Hispanic/Latinx participants and this was especially true at higher levels of ingroup affect. Group status anxiety mediated this effect, such that White participants higher in ingroup affect also experienced a sense of group status anxiety concerning the impending demographic shift, which was then associated with increased climate change skepticism. In Study 2, exposure to a demographic shift manipulation strengthened the relationship between ingroup affect and climate change skepticism, such that increased group status threat led to increased climate change skepticism among White Americans who were more strongly invested in whiteness.

When the size of a minority group is increasing, dominant group members are often motivated to reaffirm their group's status at the expense of the outgroup (Allport, 1954). This process is evident in cross-disciplinary work on the tendency for White Americans, and especially those higher in White racial consciousness (i.e., investment in whiteness), to bring their racial identities to bear on issues following threats to the collective status of their ingroup (Jardina, 2019). The present work suggests that this pattern of racialization extends to climate change skepticism. Despite the explicit focus on the implications of the impending demographic shift in both studies, it is likely that the impending demographic shift represents one of many signals of cultural change, and one source of group status threat, to White Americans. For instance, White Americans higher in ethnic identification exhibited racially defensive responses after being primed with multiculturalism compared to those primed with colorblind ideology (Morrison et al., 2010). While the demographic shift constitutes a significant change to the sociocultural status quo in the United States, it likely represents one of many suggestions of

multiculturalism which may prompt group status anxiety in White Americans. These findings contribute to the body of work investigating the demographic shift paradigm.

Across both studies, results indicate that participants engaged with items concerning climate change skepticism similarly to environmental and conservative policy items. Moreover, the mediation of ingroup affect via group status anxiety on policy support/opposition suggests that White participants engaged with these items through a similarly racialized lens. That is, it appears that climate change skepticism may represent another form of reactionary, racialized conservatism that White Americans endorse in response to group status threat and feelings of uncertainty (Bonanno & Jost, 2006; Jost et al., 2003).

The central focus of this research was the consequences of investment in whiteness (via ingroup affect) on climate change skepticism. In exploring this idea, I examined the unique effect of ingroup affect by including centrality as a covariate. In contrast to ingroup affect, centrality was not related to climate change skepticism for White (or Hispanic/Latinx) participants either as zero-order correlations or as simultaneous predictors across both studies. This distinction is important considering that ingroup-attachment does not necessarily signal an investment in the group (Roccas et al., 2006). For White participants, increased time contemplating group membership (centrality) was not associated with climate change skepticism but affective investment in the group (ingroup affect) was. This point is crucial for social identity researchers who are increasingly interested in modes of social identification and the potential ambivalence of ingroup attachment and glorification (Costarelli & Colis, 2016).

What does climate change skepticism ultimately accomplish for White Americans? For one, given that it is related to investment in whiteness, climate change skepticism signals a resistance to sociocultural changes that pose a threat to whiteness. To the extent that White

Americans perceived a threat to the sociocultural status of whiteness in the United States, they expressed climate change skepticism in response. Motivations for climate change skepticism among political conservatives may speak to the ultimate costs (or benefits) of skepticism for White Americans, too. Specifically, Campbell and Kay (2014) demonstrated that conservatives in the U.S. express climate change skepticism because they oppose solutions to climate change which they perceive to violate ideological principles of limited government and free-market economics.

In this work, I asked participants two questions concerning their perceptions of proposed solutions to climate change. In Study 1, White participants perceived more threat of those solutions compared to Hispanic/Latinx participants. In Study 2, condition moderated the relationship between ingroup affect and perceived threat of these solutions such that investment in whiteness was more related to perceived threat of solutions in the high threat condition. It is possible that a similar dynamic is at play here as in Campbell and Kay's (2014) work such that White Americans are skeptical of climate change under conditions of threat because the proposed solutions to climate change (e.g., Green New Deal) are also threatening to whiteness. Given persistent racial wealth inequality (Sullivan et al., 2015), it may be the case that White Americans express climate change skepticism due to a similar aversion to solutions which require a shift in the socioeconomic status-quo. Rather than embracing solutions required to avoid further ecological harm, political conservatives (and perhaps White Americans) remain skeptical of climate change and thus push "the world to the brink of oblivion because they think they are White" (Baldwin, 1984).

Limitations and future directions

While this pair of studies suggests a racialization of climate change skepticism and an instance in which that racialization is heightened, they do not come without limitations. First, many important effects disappeared following the inclusion of political conservatism as a covariate, suggesting that many of the patterns of racialization that I have found are less significant than political conservatism in telling a story about investment in whiteness and climate change skepticism. Political conservatism and related constructs are routinely shown to be some of the strongest predictors of engagement with the issue of climate change (Jylhä et al., 2016; McCright & Dunlap, 2011a). Despite this, these results suggest that activists, researchers, and policy makers should consider that investment in whiteness may be a hurdle blocking the path to climate justice, and that political conservatism may simply represent a more sensitive measure of investment in whiteness. Given that little research has explored the racialization of climate change perceptions, future work should elaborate on the patterns demonstrated here with a broader range of participants.

This leads to another notable limitation in the sampling pool I used for these two studies, Prolific.co, and the steady decline in climate change skepticism among the public (see Leiserowitz et al., 2021). While research comparing crowdsourced participants to national samples has found that the samples closely mirror one another politically (Clifford et al., 2015), participants in the current studies expressed very low levels of climate change skepticism. A more accurate understanding of the racialization of climate change skepticism might be possible by sampling more participants who already report climate change skepticism (a sampling function which Prolific is equipped to execute) or by comparing participants who outright

accepted the scientific consensus of anthropogenic climate change to those who expressed any skepticism whatsoever.

Given that I only compared White participants to one other ethnic group, the implication of this work is not necessarily that White Americans express more climate change skepticism than other racial or ethnic groups, although they did so in Study 1. Rather, the implication is that White Americans' climate change skepticism is related to their affective investment in their ingroup, whereas Hispanic/Latinx participants exhibited no such link. Relatedly, the last most notable limitation relates to my use of Hispanic/Latinx as a category against which to compare White participants. I used this category in part due to it being an ethnic category on Prolific.co, but it likely obscures considerable intragroup diversity. As 'Hispanic' is a linguistic term referring to an individual from a Spanish speaking country, rather than a race or ethnicity, and 'Latinx' refers to an ethnic identity shared by peoples from Latin America in the U.S., the participants I refer to as Hispanic/Latinx are not racially homogeneous, but rather, reported considerable variation in their self-reported racial backgrounds. In fact, out of the 92 Hispanic/Latinx participants in Study 1, 11 self-identified as White. Future studies should compare White participants to more racial/ethnic groups for a more comprehensive picture of the racialization of climate change skepticism.

These results suggest that investment in whiteness is associated with climate change skepticism. However, given that I only surveyed White participants in Study 2, it could also be the case that group status threats (toward groups other than Whites) prompt a general sense of group status anxiety, and thus, climate change skepticism. Moreover, in terms of the findings regarding environmental and conservative policy support, I included both race related and (seemingly) race-neutral policies. In future work, it will be important to examine whether group

status threat (for Whites and for other groups) prompts a racialization of race-neutral policies, or if this phenomenon is restricted to issues that are explicitly associated with race and racism.

Conclusions

This work offers a first glimpse into the relationship between investment in whiteness and climate change skepticism. Investment in whiteness was associated with increased climate change skepticism, opposition to environmental policy, and support for conservative policy. Though political conservatism qualified many patterns of white identity investment, the conclusion remains that climate change skepticism is racialized and investment in whiteness may represent a stubborn barrier to engagement with the climate crisis. This does not mean that White participants who are not invested in whiteness are racially innocent. Rather, it suggests the sociocultural power and consequences of investment in whiteness. The phenomena described in this paper were not limited to White participants who were highly invested in whiteness. Rather, the region of significance tests reveal that these patterns of skepticism exist among participants who merely fail to denounce an investment in whiteness.

Through their skepticism, White Americans prolong overdue action to ameliorate further ecological devastation due to climate change. A noteworthy implication of this skepticism is that, like their resistance to progress on other social issues (see Metzl, 2019), White Americans ultimately harm themselves in interest of maintaining an imagined sense of racial superiority. The white normative standard of safety invoked by the adage of "I never thought it would happen here" will be increasingly challenged as extreme weather events continue to harm human life and create environmental refugees around the globe (Varela, 2014, p. 1; McDonald et al., 2015).

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Appendix A. Tables

Table 1. Independent samples t-tests comparing White participants to Hispanic/Latinx participants in study 1

		N	**Mean**	**SD**	**t**	*p*
Climate change skepticism	Latinx	92	1.67	1.07	-3.16	.002
	White	95	2.35	1.40		
Opposition to environmental policy	Latinx	92	1.85	0.93	-3.68	.0003
	White	95	2.58	1.16		
Support for conservative policy	Latinx	92	3.13	1.10	-1.75	.08
	White	95	3.43	1.28		
Ecological threat of climate change	Latinx	92	6.25	1.08	2.56	.01
	White	95	5.76	1.51		
Threat of climate change solutions	Latinx	92	2.86	2.04	-2.63	.009
	White	95	3.61	1.83		
Group status anxiety	Latinx	92	2.26	1.33	-3.46	.001
	White	95	3.00	1.57		
Political conservatism	Latinx	92	3.84	1.51	-1.10	.27
	White	95	4.10	1.73		

Table 2. Means and correlations between variables across ethnicity

White (n = 95)	Mean	SD	1	2	3	4	5	6	7	8
1. Climate change skepticism	2.35	1.40	--							
2. Opposition to envr. policy	2.43	1.16	.79**	--						
3. Support for cons. policy	3.43	1.28	.82**	.78**	--					
4. Group status anxiety	3.00	1.57	.68**	.60**	.75**	--				
5. Threat of CC solutions	3.61	1.83	.58**	.54**	.58**	.64**	--			
6. Ingroup affect	3.24	1.21	.36**	.38**	.48**	.43**	.27*	--		
7. Ingroup ties	3.64	1.15	.18	.14	.23*	.23*	.12	.67**	--	
8. Centrality	3.41	1.24	.09	.07	.05	.18	.10	.43**	.43**	--
9. Political conservatism	4.10	1.73	.76**	.74**	.84**	.66**	.53**	.46**	.30**	.06

Latinx (n = 92)	Mean	SD	1	2	3	4	5	6	7	8
1. Climate change skepticism	1.77	1.07	--							
2. Opposition to envr. policy	1.86	0.93	.74**	--						
3. Support for cons. policy	3.13	1.10	.66**	.65**	--					
4. Group status anxiety	2.26	1.33	.47**	.45**	.61**	--				
5. Threat of CC solutions	2.86	2.04	.47**	.45**	.52**	.49**	--			
6. Ingroup affect	4.78	1.27	.07	.11	.08	-0.06	.17	--		
7. Ingroup ties	4.37	1.35	.07	.06	.08	-0.03	.11	.72**	--	
8. Centrality	4.61	1.46	.10	.03	-0.00	-0.05	.13	.72**	.71**	--
9. Political conservatism	3.84	1.51	.55**	.51**	.78**	.49**	.46**	.21*	.24*	.16

* $p < 0.05$, ** $p < 0.01$ (2-tailed).

Table 3. Summary of moderation analyses using PROCESS Model 1 from study 1

Variable	*t*	β	LLCI	ULCI	*p*
Climate change skepticism					
Ingroup affect	-0.02	-0.00	[-0.28]	[0.28]	.98
Ethnicity	4.38	0.91	[0.50]	[1.33]	< .0001
Ingroup affect x ethnicity	2.56	0.46	[0.11]	[0.82]	.01
Centrality	-0.10	-0.01	[-0.17]	[0.16]	.92
Centrality x ethnicity	-1.02	-0.08	[-0.25]	[0.08]	.31
Opposition to environmental policy					
Ingroup affect	1.21	0.14	[-0.09]	[0.38]	.23
Ethnicity	5.02	0.88	[0.53]	[1.23]	< .0001
Ingroup affect x ethnicity	1.74	0.27	[-0.04]	[0.57]	.08
Centrality	-1.31	-0.09	[-0.23]	[0.05]	.19
Centrality x ethnicity	-0.25	-0.02	[-0.16]	[0.12]	.80
Support for conservative policy					
Ingroup affect	1.09	0.14	[-0.12]	[0.40]	.28
Ethnicity	3.62	0.70	[0.32]	[1.08]	.0004
Ingroup affect x ethnicity	2.74	0.46	[0.13]	[0.79]	.007
Centrality	-1.92	-0.15	[-0.30]	[0.00]	.06
Centrality x ethnicity	-0.74	-0.06	[-0.21]	[-0.09]	.46
Group status anxiety					
Ingroup affect	-0.36	-0.06	[-0.38]	[0.26]	.72
Ethnicity	4.59	1.11	[0.63]	[1.59]	< .0001
Ingroup affect x ethnicity	2.96	0.62	[0.21]	[1.04]	.004
Centrality	-0.06	-0.01	[-0.19]	[0.18]	.95
Centrality x ethnicity	-0.01	-0.00	[-0.19]	[0.19]	.99
Ecological threat of CC					
Ingroup affect	-0.05	-0.01	[-0.30]	[0.28]	.96
Ethnicity	-3.74	-0.81	[-1.24]	[-0.38]	.0002
Ingroup affect x ethnicity	-3.00	-0.57	[-0.94]	[-0.20]	.003
Centrality	1.19	0.10	[-0.07]	[0.27]	.24
Centrality x ethnicity	1.12	0.10	[-0.07]	[0.27]	.26
Threat of climate change solutions					
Ingroup affect	1.04	0.23	[-0.21]	[0.68]	.30
Ethnicity	3.77	1.25	[0.60]	[1.91]	.0002
Ingroup affect x ethnicity	0.67	0.19	[-0.38]	[0.76]	.50
Centrality	-0.01	-0.00	[-0.26]	[0.26]	.99
Centrality x ethnicity	-0.29	-0.04	[-0.30]	[0.22]	.77

White = 1, Hispanic/Latinx = -1. Ingroup affect and centrality are mean centered from original -3 to 3 scale.

Table 4. Results of moderated mediation analysis and test of the group status anxiety hypothesis for climate change skepticism using PROCESS Model 8

Predictor variable	B	SE	*t*	*p*
DV: Group status anxiety (Mediator variable model) $R^2 = .17$, $p < .0001$				
Constant	-1.69	.17	-9.91	< .0001
Ingroup affect	-0.06	.16	-0.36	.72
Ethnicity	1.11	.24	4.59	< .0001
Ingroup affect x ethnicity	.62	.21	2.96	.004
Centrality	-0.01	.10	-0.06	.95
Ethnicity x centrality	-0.00	.10	-0.01	.99
DV: Climate change skepticism (Dependent variable model) $R^2 = .41$, $p < .0001$				
Constant	-1.45	.15	-9.57	< .0001
Ingroup affect	.03	.12	.22	.83
Group status anxiety	.49	.05	9.13	< .0001
Ethnicity	.38	.18	2.05	.04
Ingroup affect x ethnicity	.16	.15	1.05	.30
Centrality	-0.01	.07	-0.05	.93
Ethnicity x centrality	-0.08	.07	-1.22	.22
Index of moderated mediation	.30	.11	--	--

Table 5. Results of moderated mediation analysis and test of the group status anxiety hypothesis for opposition to environmental policy using PROCESS Model 8

Predictor variable	B	SE	t	p
DV: Group status anxiety (Mediator variable model) $R^2 = .17, p < .0001$				
Constant	-1.69	.17	-9.91	< .0001
Ingroup affect	-0.06	.16	-0.36	.72
Ethnicity	1.11	.24	4.59	< .0001
Ingroup affect x ethnicity	.62	.21	2.96	.004
Centrality	-0.01	.10	-0.06	.95
Ethnicity x centrality	-0.00	.10	-0.01	.99
DV: Opposition to environmental policy (Dependent variable model) $R^2 = .37, p < .0001$				
Constant	-1.60	.13	-11.97	< .0001
Ingroup affect	.17	.10	1.59	.011
Group status anxiety	.36	.05	7.64	< .0001
Ethnicity	.48	.16	2.98	.003
Ingroup affect x ethnicity	.04	.14	.31	.78
Centrality	-0.09	.06	-1.47	.14
Ethnicity x centrality	-0.02	.06	-0.29	.77
Index of moderated mediation	.22	.08	--	--

Table 6. Results of moderated mediation analysis and test of the group status anxiety hypothesis for conservative policy support using PROCESS Model 8

Predictor variable	B	SE	t	p
DV: Group status anxiety (Mediator variable model) $R^2 = .17, p < .0001$				
Constant	-1.69	.17	-9.91	< .0001
Ingroup affect	-0.06	.16	-0.36	.72
Ethnicity	1.11	.24	4.59	< .0001
Ingroup affect x ethnicity	.62	.21	2.96	0..4
Centrality	-0.01	.10	-0.06	.95
Ethnicity x centrality	-0.00	.10	-0.01	.99
DV: Conservative policy support (Dependent variable model) $R^2 = .54, p < .0001$				
Constant	-0.04	.13	-0.30	.77
Ingroup affect	.17	.10	1.77	.08
Group status anxiety	.53	.04	11.85	< .0001
Ethnicity	.11	.15	.74	.46
Ingroup affect x ethnicity	.13	.13	1.02	.31
Centrality	-0.14	.06	-2.50	.01
Ethnicity x centrality	-0.06	.06	-0.98	.33
Index of moderated mediation	.33	.11	--	--

Table 7. Independent samples t-tests exploring main effect of threat manipulation in Study 2

		N	Mean	SD	t	p
Climate change skepticism	Low threat	84	2.23	1.49	0.51	.61
	High threat	89	2.12	1.39		
Opposition to environmental policy	Low threat	84	2.26	1.18	0.39	.70
	High threat	89	2.19	1.33		
Support for conservative policy	Low threat	84	3.88	1.50	1.21	.23
	High threat	89	3.61	1.46		
Group status anxiety	Low threat	84	3.30	1.67	0.53	.60
	High threat	89	3.17	1.58		
Ecological threat of climate change	Low threat	84	5.96	1.54	0.46	.64
	High threat	89	5.85	1.59		
Threat of climate change solutions	Low threat	84	3.15	1.96	1.80	.07
	High threat	89	2.62	1.88		
Political conservatism	Low threat	84	4.03	1.91	0.17	.86
	High threat	89	3.98	1.90		

Table 8. Bivariate correlations across condition from Study 2

Low threat (n = 84)	Mean	SD	1	2	3	4	5	6	7	8
1. Climate change skepticism	2.23	1.49	--							
2. Opposition to envr. policy	2.26	1.18	.79**	--						
3. Support for cons. policy	3.88	1.50	.62**	.67**	--					
4. Group status anxiety	3.30	1.67	.49**	.54**	.67**	--				
5. Threat of CC solutions	3.15	1.96	.54**	.66**	.58**	.61**	--			
6. Ingroup affect	4.19	1.54	.18	.32**	.50**	.47**	.47**	--		
7. Ingroup ties	4.33	1.45	.18	.30**	.49**	.38**	.40**	.85**	--	
8. Centrality	3.85	1.53	.08	.20	.37**	.41**	.45**	.72**	.71**	--
9. Political conservatism	4.03	1.91	.48**	.67**	.68**	.39**	.41**	.35**	.35**	.24*

High threat (n = 89)	Mean	SD	1	2	3	4	5	6	7	8
1. Climate change skepticism	2.12	1.39	--							
2. Opposition to envr. policy	2.19	1.34	.80**	--						
3. Support for cons. policy	3.61	1.46	.71**	.73**	--					
4. Group status anxiety	3.17	1.58	.50**	.51**	.66**	--				
5. Threat of CC solutions	2.62	1.88	.82**	.81**	.74**	.60**	--			
6. Ingroup affect	3.99	1.31	.37**	.39**	.52**	.63**	.54**	--		
7. Ingroup ties	4.14	1.30	.26*	.29**	.35**	.37**	.38***	.79**	--	
8. Centrality	3.80	1.33	.04	.14	.15	.35*	.24*	.66**	.61**	--
9. Political conservatism	3.98	1.90	.61**	.65**	.64**	.52**	.61**	.42**	.37**	.09

$* p < 0.05$, $** p < 0.01$ (2-tailed).

Table 9. Summary of moderation analyses using PROCESS Model 1 from study 2

Variable	t	β	LLCI	ULCI	p
Climate change skepticism					
Ingroup affect	1.64	0.23	[-0.05]	[0.51]	.10
Condition	-0.58	-0.12	[-0.55]	[0.30]	.56
Condition x ingroup affect	2.06	-.42	[0.02]	[0.82]	.04
Centrality	-0.60	-0.09	[-0.37]	[0.19]	.55
Condition x centrality	-1.45	-0.29	[-0.70]	[0.11]	.15
Opposition to environmental policy					
Ingroup affect	2.22	0.27	[0.03]	[0.51]	.03
Condition	-0.29	-0.05	[-0.42]	[0.31]	.77
Condition x ingroup affect	1.48	0.26	[-0.09]	[0.61]	.14
Centrality	-0.32	-0.04	[-0.28]	[0.20]	.75
Condition x centrality	-0.94	-0.17	[-0.51]	[0.18]	.35
Support for conservative policy					
Ingroup affect	3.63	0.47	[0.21]	[0.72]	.0004
Condition	-1.30	-0.26	[-0.65]	[0.13]	.20
Condition x ingroup affect	1.96	0.37	[-0.00]	[0.74]	.05
Centrality	0.21	0.03	[-0.23]	[0.28]	.83
Condition x centrality	-2.17	-0.41	[-0.78]	[-0.04]	.03
Group status anxiety					
Ingroup affect	2.83	0.39	[0.12]	[0.67]	.005
Condition	-0.47	-0.10	[-0.52]	[0.32]	.64
Condition x ingroup affect	2.21	0.45	[0.05]	[0.85]	.03
Centrality	1.17	0.16	[-0.11]	[0.44]	.24
Condition x centrality	-1.47	-0.30	[-0.70]	[0.10]	.14
Ecological threat of CC					
Ingroup affect	-1.45	-0.22	[-0.53]	[0.08]	.15
Condition	-0.29	-0.07	[-0.53]	[0.40]	.77
Condition x ingroup affect	-1.95	-0.43	[-0.88]	[0.01]	.05
Centrality	0.31	0.05	[-0.26]	[0.35]	.75
Condition x centrality	1.97	0.44	[-0.00]	[0.88]	.05
Threat of climate change solutions					
Ingroup affect	2.31	0.39	[0.06]	[0.72]	.02
Condition	-1.95	-0.55	[-1.06]	[-0.04]	.05
Condition x ingroup affect	2.40	0.59	[0.10]	[1.07]	.02
Centrality	1.72	0.29	[-0.04]	[0.63]	.09
Condition x centrality	-2.42	-0.59	[-1.07]	[-0.11]	.02

Condition: 1 = High threat, -1 = Low threat. Ingroup affect and centrality were again mean centered from original -3 to 3 scale.

Table 10. Multiple regression exploring the mediating role of group status anxiety on the relationship between ingroup affect and climate change skepticism

Variable	*B*	95%CI	*SE B*	β	*R²*	*ΔR²*
Step 1					.10	.10***
Constant	-1.91	[-2.12, -1.70]	.11			
Ingroup affect	.43	[.23, .63]	.10	.43***		
Centrality	-0.23	[-0.43, -0.03]	.10	-0.23*		
Step 2					.28	.18**
Constant	-1.55	[-1.77, -1.33]	.11			
Ingroup affect	.16	[-0.04, .36]	.10	.16		
Centrality	-0.24	[-0.42, -0.06]	.09	-0.24*		
Group status anxiety	.44	[.31, .54]	.07	.50***		

***p < .001, **p < .01, *p < .05

Table 11. Multiple regression exploring the mediating role of group status anxiety on the relationship between ingroup affect and opposition to environmental policy

Variable	*B*	95%CI	*SE B*	β	*R²*	*ΔR²*
Step 1					.13	.13***
Constant	-1.83	[-2.02, -1.65]	.09			
Ingroup affect	.39	[.22, .57]	.09	.45***		
Centrality	-0.12	[-0.30, .05]	.09	-0.14		
Step 2					.28	.16***
Constant	-1.53	[-1.72, -1.34]	.10			
Ingroup affect	.17	[-0.04, .34]	.09	.19		
Centrality	-0.13	[-0.28, .03]	.08	-0.14		
Group status anxiety	.37	[.25, .49]	.06	.48***		

***p < .001, **p < .01, *p < .05

Table 12. Multiple regression exploring the mediating role of group status anxiety on the relationship between ingroup affect and conservative policy support

Variable	*B*	95%CI	*SE B*	β	*R²*	*ΔR²*
Step 1					.28	.28***
Constant	-0.35	[-0.54, -0.15]	.10			
Ingroup affect	.65	[.47, .84]	.09	.63***		
Centrality	-0.17	[-0.36, .01]	.09	-0.17		
Step 2					.49	.21***
Constant	.06	[-0.13, .25]	.10			
Ingroup affect	.35	[.18, .52]	.09	.34***		
Centrality	-0.18	[-0.34, -0.03]	.08	-0.18*		
Group status anxiety	.50	[.38, .62]	.06	.55***		

$***p < .001$, $**p < .01$, $*p < .05$

Appendix B. Figures
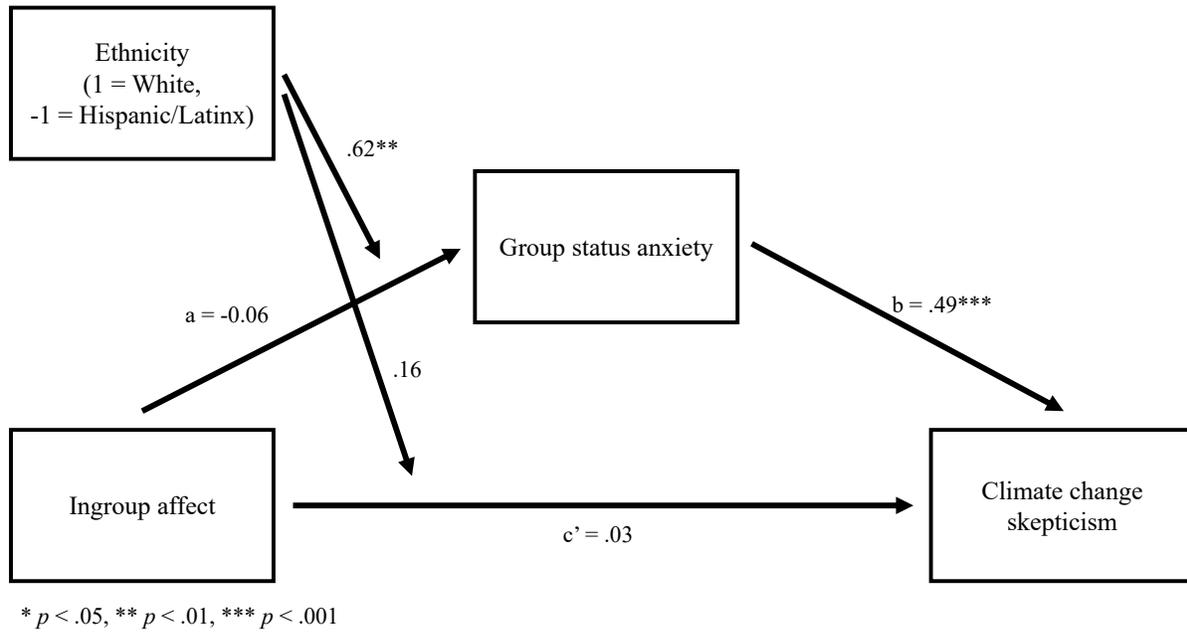
Figure 1. Results of PROCESS Model 8 exploring moderated mediation on climate change skepticism in Study 1
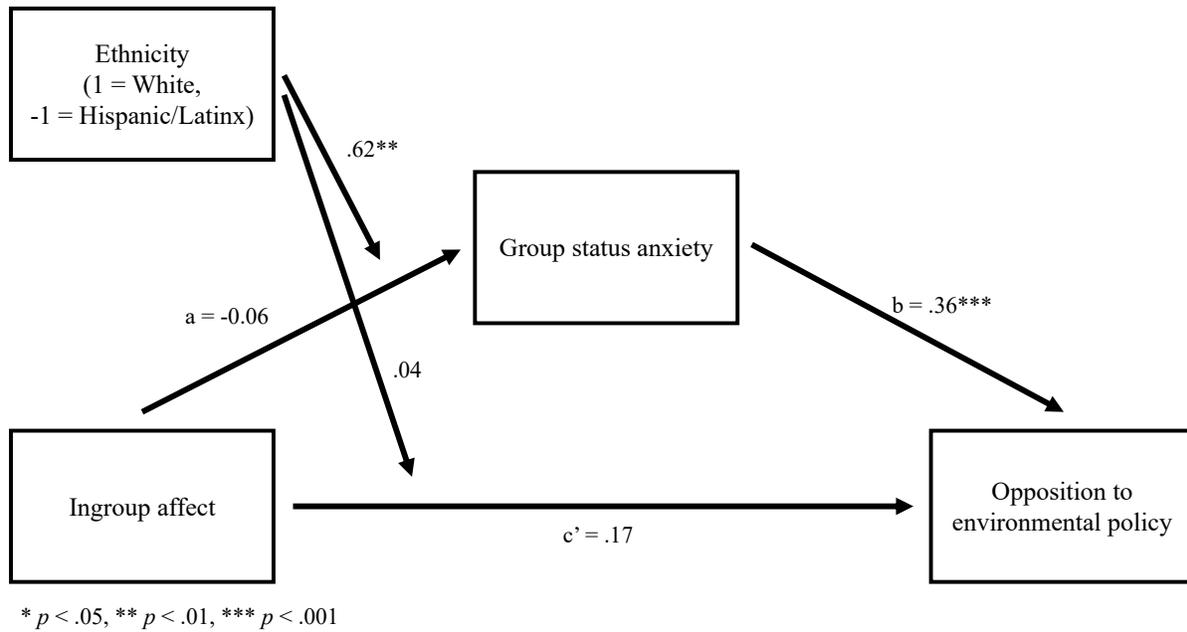
**Figure 2.** Results of PROCESS Model 8 exploring moderated mediation on opposition to environmental policy in Study 1
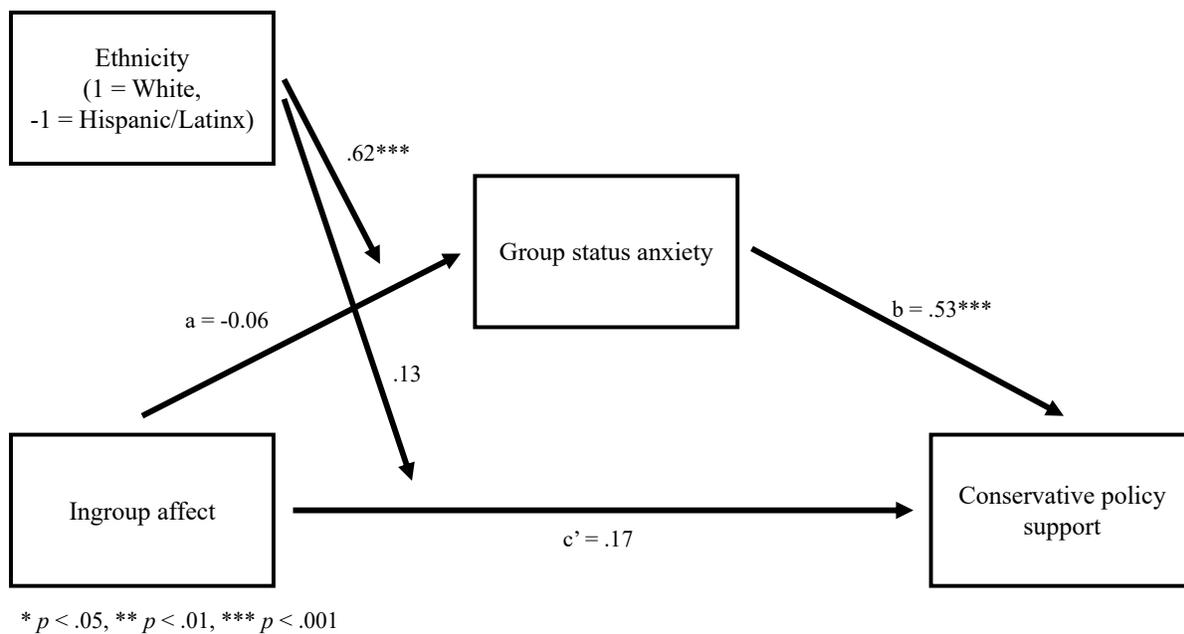
**Figure 3.** Results of PROCESS Model 8 exploring moderated mediation on conservative policy support in Study 1

* p < .05, ** p < .01, *** p < .001
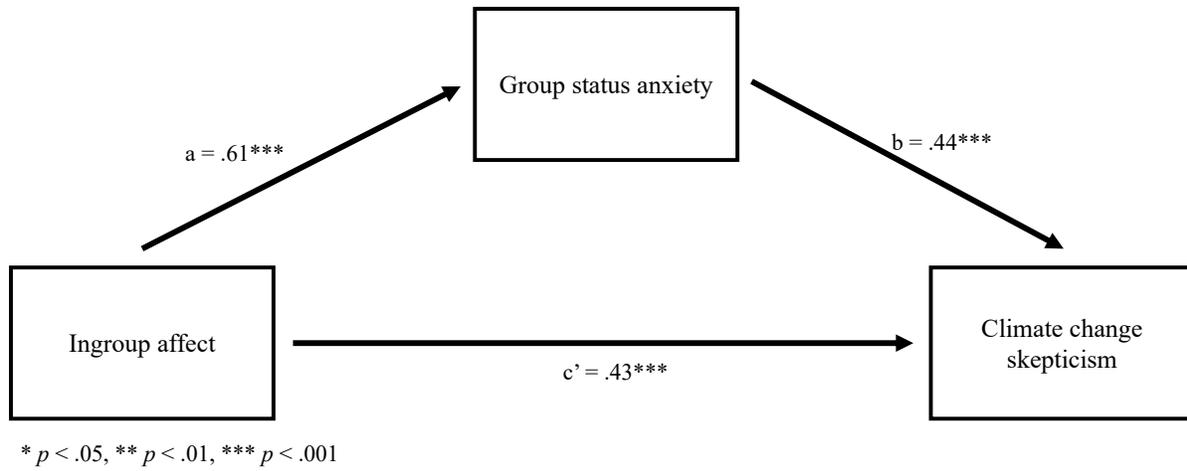
Figure 4. Results of PROCESS Model 4 exploring mediation of ingroup affect via group status anxiety on climate change skepticism in Study 2 across both conditions
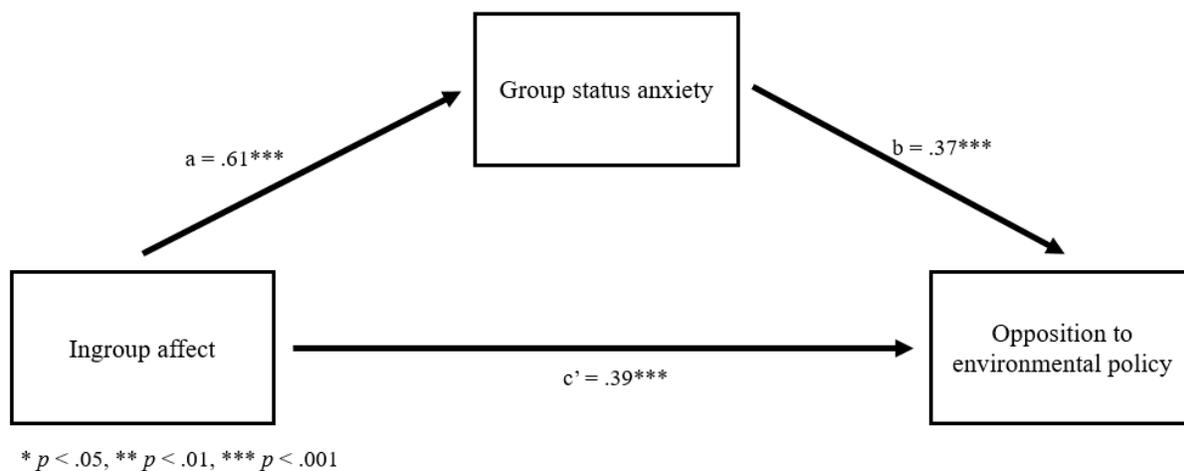
Figure 5. Results of PROCESS Model 4 exploring mediation of ingroup affect via group status anxiety on opposition to environmental policy in Study 2 across both conditions

* *p* < .05, ** *p* < .01, *** *p* < .001
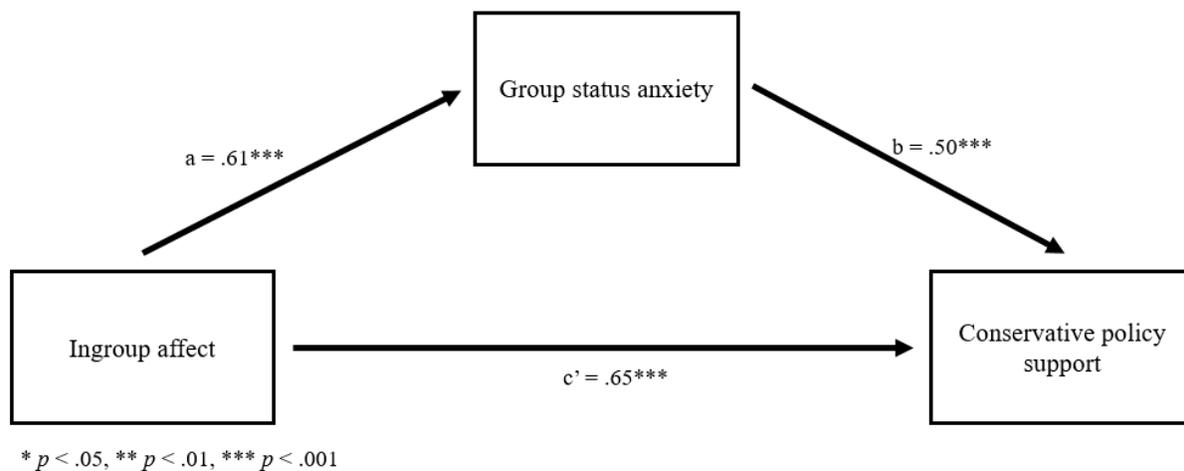
Figure 6. Results of PROCESS Model 4 exploring mediation of ingroup affect via group status anxiety on conservative policy support in Study 2 across both conditions

Appendix C. Study 1 Materials

Climate Change Skepticism (1 & 2 from McCright & Dunlap, 2011; 3 & 4 from Jylhä & Akrami, 2015)

1. The effects of climate change are already happening.

2. Increases in Earth's temperature over the last century are mostly due to human activities.

3. Scientists and the media have exaggerated the threat of climate change.

4. Human activities are changing the Earth's climate.

Ecological threat of climate change

- I am concerned about the potential for climate change to cause ecological devastation.

--Page Break—

The following items refer to the measures that environmentalists commonly propose to address climate change (e.g., the Green New Deal, Paris Climate Accords).

Threat of climate change solutions

- I am concerned that the economic impact of these environmentalist measures will be too harmful.

- I am worried that these environmentalist measures will disrupt the American way of life.

Policy Support

1. **Conservative policy** (a, b, c, d, h adapted from Craig & Richeson, 2014)

   a) I approve of efforts to increase the required time to be eligible for U.S. citizenship.

   b) I support strengthening barriers to foreign immigration to the United States.

   c) *I support affirmative action policies which aim to increase the representation of groups who have been excluded in the past.

d) I support legislation to make English the official language of the U.S.

e) I support limiting the federal government's regulation of small businesses.

f) I oppose increasing the number of justices on the U.S. Supreme Court.

g) I support the abolishment the electoral college.

h) I approve of the legalization of same-sex marriage in the United States.*

2. **Environmental policy** (c adapted from Craig & Richeson, 2014)

a) The U.S. government should address the issue of widespread groundwater contamination in marginalized communities.

b) I oppose the continued construction of oil pipelines through Indigenous territories in the United States (e.g., Dakota Access Pipeline).*

c) I support the U.S. government's recent decision to open the Arctic National Wildlife Refuge and other traditional tribal territories for oil drilling.*

d) I support a national commitment to 100% reliance on clean energy sources by 2030.

e) Demonstrate that you are paying attention by selecting the number "2" for this question.

f) The U.S. government should increase its oversight of corporations to prevent indiscriminate dumping of toxic waste.

g) I oppose legislation which aims to ban single-use plastics by 2030.*

h) The U.S. government should invest in reuse and recycling programs for state and local governments.

Group status anxiety (adapted from Danbold & Huo, 2014)

The United States is currently undergoing significant demographic changes due to increased immigration and higher birth rates among ethnic minorities. The U.S. Census Bureau projects that by the year 2042, White Americans will no longer be the U.S. majority.

1. **Realistic threat**

   a. Ongoing demographic changes in American society will increase the tax burden on people like me.

   b. Social services have become less available to people like me due to the ongoing demographic shift in the United States.

   c. Because of the demographic shifts in American society, people like me are at risk of losing their jobs.

2. **Symbolic threat**

   a. Demographic changes in American society are causing changes to values and beliefs that are not compatible with those of people like me.

   b. Ongoing demographic changes in the U.S. are undermining American culture.

   c. The ongoing demographic shifts are causing changes in values and beliefs about work that are not compatible with those of people like me.

DEMOGRAPHICS

1. What is your race? _____

Racial Identification (adapted from Cameron, 2004)

*Please rate the extent to which you agree with the following statements **with respect to** **your race** on a scale from -3 (Strongly disagree) to 3 (Strongly agree). **For example:** I have a lot in common with other [members of my racial ingroup].*

1. Ingroup Ties

    a. I have a lot in common with other _____.

    b. I feel strong ties to other _____.

    c. I feel a sense of being "connected" with other _____.

    d. In a group of _____, I really feel that I belong.

2. Centrality

    a. I often think about the fact that I am _____.

    b. In general, being _____ is an important part of my self-image.

    c. I am usually conscious of the fact that I am _____.

    d. Being _____ is an important reflection of who I am.

3. Ingroup Affect

    a. In general, I'm glad to be _____.

    b. Generally, I feel good when I think about myself as _____.

    c. Just thinking about the fact that I am _____ can make me feel good.

2. What is your gender? _____

3. What is your ethnicity? _____

4. What is your age? _____

5. Subjective SES

   a. People define community in different ways; please define it in whatever way is most meaningful to you. At the top of the ladder are the people who have the highest standing in their community. At the bottom are the people who have the lowest standing in their community.

   b. Please place indicate on a scale from 1 (Very bottom) to 7 (Very top) where you think you stand at this time in your life, relative to other people in your community.

6. What is your education level?

Political Orientation

1. "When it comes to economic issues (leaving aside social issues), how would you describe your political orientation?"

2. "When it comes to social issues (leaving aside economic issues), how would you describe your political orientation?"

Religiosity

- Do you identify with any religious group or religion?   ☐ Yes   ☐ No

- How much do your religious beliefs affect your daily life on a scale from 0(Not at all) to 6(Quite a lot)?

Appendix D. Study 2 Materials

Low threat

- Data from the 2020 U.S. census suggest that White Americans will be the minority in the U.S. by the end of the century.

- Despite the shift, researchers predict that white Americans will maintain economic power relative to ethnic minorities.

- Likewise, researchers predict that the white Christian heritage will continue to define U.S. culture and what it means to be American.
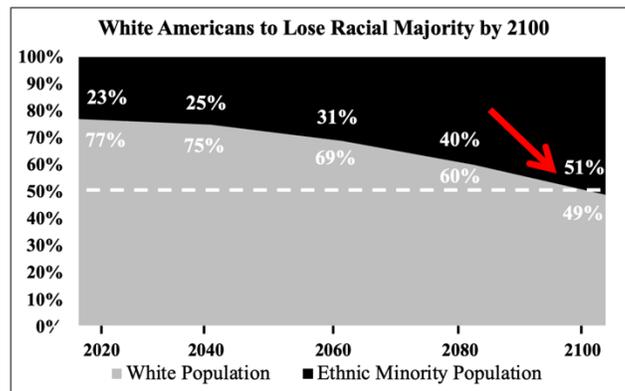

Figure 1. *U.S. Census demographic projections 2020 - 2100*

High threat

- Data from the 2020 U.S. census suggest that White Americans will be the minority in the U.S. by 2042.

- Due to this shift, researchers predict that White Americans will lose economic power due to competition from ethnic minorities

- Researchers also predict that the increasing influence of ethnic and religious minorities will shift U.S. culture away from its white Christian heritage.

Demographic Shift Brings Cultural and Economic Transformation in Coming Decades
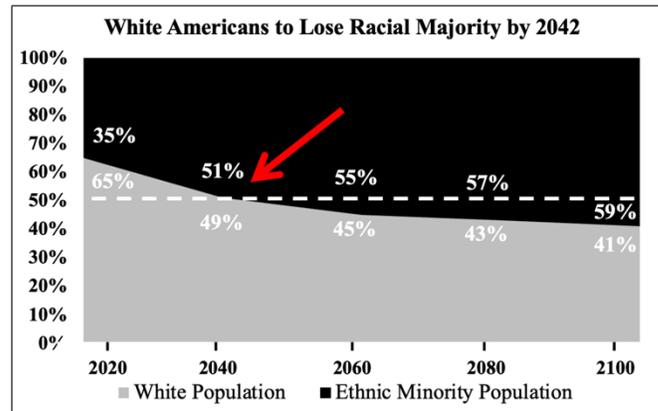

Figure 1. *U.S. Census demographic projections 2020 - 2100*

Group status anxiety (adapted from Danbold & Huo, 2014)

Researchers have noted gradual changes in American society such that by 2042 [2100], white Americans will no longer constitute the majority of the U.S. population. The following items refer to this process. Please indicate the extent to which you agree with the following statements on a scale from -3 (Strongly disagree) to 3 (Strongly agree).

1. **Realistic threat**

   a. White Americans bear an increasing tax burden

   b. White Americans have decreasing access to social services.

   c. White Americans find it increasingly difficult to keep jobs and stable employment.

2. **Symbolic threat**

   a. Values and beliefs about freedom and responsibility are changing in ways that are not compatible with white American heritage.

   b. Social changes are undermining white American culture.

   c. Social changes are undermining values and beliefs about work and family that are central to white American cultural heritage.

Conservative policy (a, b, c, d, h adapted from Craig & Richeson, 2014)

    a. I approve of efforts to increase the required time to be eligible for U.S. citizenship.

    b. I support strengthening barriers to foreign immigration to the United States.

    c. *I support affirmative action policies which aim to increase the representation of groups who have been excluded in the past.

    d. I support legislation to make English the official language of the U.S.

    e. I support limiting the federal government's regulation of small businesses.

    f. I support federal tax cuts to reward entrepreneurship.

    g. I support federal government assistance for small businesses affected by the COVID-19 pandemic.

Environmental policy (c adapted from Craig & Richeson, 2014)

    a. The U.S. government should address the issue of widespread groundwater contamination in marginalized communities.

    b. I oppose the continued construction of oil pipelines through Indigenous territories in the United States (e.g., Dakota Access Pipeline).*

    c. I support the U.S. government's recent decision to open the Arctic National Wildlife Refuge and other traditional tribal territories for oil drilling.*

    d. I support a national commitment to 100% reliance on clean energy sources by 2030.

    e. Demonstrate that you are paying attention by selecting the number "2" for this question.

    f. The U.S. government should increase its oversight of corporations to prevent indiscriminate dumping of toxic waste.

    g. The U.S. government should invest in reuse and recycling programs for state and local governments.