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Not in my back yard: Egocentrism and climate change skepticism across the globe

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ABSTRACT

Unusually warm or cool weather has a short-term influence on public opinion of "global warming." This paper extends this idea by showing that both regional *climate* (average long-term temperature) and seasonal variation in average temperature predict variation in public skepticism about global warming. Analyses of both polling data and Google search volume data show that in regions with colder climates (both U.S. states and nations), there is more public skepticism about global warming. The effects of climate remained even after controlling for regional confounds such as age, education, income, cultural values, and political attitudes. Follow-up analyses suggested that cold temperatures play a stronger role than hot temperatures in shaping public skepticism about global warming. A third study set focusing on four English-speaking nations suggested that seasonal variation in temperature is also predictably related to public skepticism about global warming. Public opinion about the reality of this specific aspect of climate change appears to be susceptible to egocentric biases such as memorial availability and construct accessibility. All else being equal, climate change educators will likely face more pushback about global warming in places with cold climates and at times of the year when the weather is cold.

1. Introduction

A great deal of evidence shows that human activity, especially greenhouse gas production, has changed the earth's climate (Lambeck et al., 2014; Oreskes, 2004; Solomon et al., 2009).This includes not only an average increase in global temperature but also phenomena such as shifting precipitation patterns and fewer but more severe hurricanes (Holland and Bruyère, 2014). Although there is strong scientific consensus about the reality of climate change, many laypeople are skeptical (Howe and Leiserowitz, 2013; Jones, 2014). A common skeptical belief is that climate change is happening but is not anthropogenic. In other words, it may have gotten a little warmer in the last century, but this warmth reflects natural variation rather than human despoliation. This form of skepticism became especially alarming in March of 2017 when Scott Pruitt, the newly appointed head of the U.S. Environmental Protection Agency publicly affirmed his own skeptical position on climate change (Davenport, 2017). About a year later, Pruitt went so far as to suggest that warming temperatures might be good for the planet (Stone, 2018).

Surprisingly, whether people endorse the idea of anthropogenic climate change varies with the current ambient temperature. Rather than maintaining stable beliefs about climate change based on scientific consensus, people are biased by whether they are currently hot or cold. Risen and Critcher (2011) asked participants to report their beliefs about climate change in a comfortable or a hot room. Those in the cooler room expressed more skepticism about the reality of "global warming." The same pattern occurred when the researchers made an excuse to take participants outside on fall days that ranged from cool (9.5 degrees C) to toasty (31.7 degrees C). Students expressed greater climate change skepticism on cooler days. Similarly, Zaval et al. (2014) found that when people felt that the weather where they lived had been cooler than usual lately, they were less likely to agree that the earth's climate is becoming warmer (see also Joireman et al., 2010). Perhaps the most definitive evidence that recent weather influences perceptions of global warming comes from Egan and Mullin (2012). These researchers collated recent temperature patterns and the attitudes about global warming reported by Americans in the 48 contiguous U.S. states. In zip codes where the recorded temperature had been much warmer than usual in the past week or so, survey respondents were more likely to agree that the earth's climate is gradually warming. Such studies show that superficial, egocentric judgments can trump rational judgments about climate change.

These findings are all consistent with a great deal of research in social cognition showing that human judges are highly *egocentric*. The term egocentric was popularized by Jean Piaget – who argued that young children are highly egocentric, trusting their own immediate

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perceptions rather than engaging in abstract perspective taking (Piaget and Inhelder, 1956). Although Piaget was surely correct that children are more egocentric than adults, modern research has revealed a myriad of ways in which even mature human adults remain highly egocentric (Epley et al., 2004; Kruger and Burrus, 2004). For example, Ross et al. (1977) demonstrated the false consensus effect. When people prefer or have done something, they overestimate the number of other people who prefer or have done that same thing. Human adults also have difficulty appreciating the fact that other people do not know what they happen to know (Pronin and Olivola, 2006). As yet another example of adult egocentrism, Bargh et al. (1988) showed that both temporarily-accessible and chronically-accessible mental constructs (ideas to which people happen to have been recently exposed) bias people's judgments of a stranger's personality (see also Williams and Bargh, 2008). Tina seems more introverted than usual when judges have recently been exposed to the concept of introversion. Research on the availability heuristic (Tversky and Kahneman, 1973) makes a very similar point. When making likelihood or frequency judgments, people strongly trust that which very easily comes to mind. Gilbert (1991) goes so far as to argue that the human brain is programmed by evolution to accept everything it experiences as real. In fact, Schuldt and Roh (2014) specifically argued (a) that experiencing colder than average weather reduces people's belief in "global warming" and (b) that this is due to accessibility (aka semantic priming). They showed that exposure to either a real spring snowfall or photos of snowy April weather reduced people's beliefs in "global warming" but had little effect on whether they believed in "climate change."

If recent cold weather temporarily increases skepticism about climate change, then *chronically* cold weather (regional climate) might chronically increase skepticism about climate change. Research on focalism (Wilson et al., 2000) further suggests that people might overweight their own chronic local experiences when making judgments about the planet. There is some indirect evidence that people's views of climate change might be biased by their own local climate. Akerlof et al. (2013) showed that residents in rural Alger County, Michigan were pretty good at remembering recent meteorological events (but cf. Niles and Mueller, 2016, who found that farmers in New Zealand were not so accurate). Akerlof et al. found that respondents' "personal experience of global warming" predicted a stronger perception that their county was at risk of harm due to global warming. This was true after controlling for competing predictors such as political party affiliation. Lee et al. (2015) also found that people who reported that their local temperature had recently been getting warmer were more likely to report believing in "global warming." Such beliefs might reflect a sensitivity to recent local temperature. But research also shows that beliefs about climate change can bias people's perceptions of recent weather events (Howe and Leiserowitz, 2013).

The present research examines both the long-term effect of *climate* and seasonal variation in average temperature on public opinion about climate change. Because climate change is happening at a rate of about 1/10 of a degree Celsius per decade, we concur with Kempton et al. (1996) that most people could not easily detect something so subtle. Instead, believing in climate change may often make people feel it is getting warmer where they live (Balcetis and Dunning, 2006; Hastorf and Cantril, 1954; Wason, 1960). In apparent contrast to the idea that climate influences attitudes about global warming, Egan and Mullin (2012, p. 803) argued that "attitudes on global warming shift as rapidly as the weather: isolated days of abnormally high or low temperatures *leave no permanent trace on public opinion* as they recede into the past" (emphasis added). This implies that local climate does not matter. However, Egan and Mullin based their conclusion on lags in short-term weather variation that stretched back only a few weeks. They did not assess – nor did they claim to assess – either local *climate* (e.g., average temperature over a long period) or seasonal variation in average temperature. Thus, past work has not examined important questions about whether either local climate or seasonal variation in temperature influence public opinion about climate change.

In addition to the physical atmosphere, the cultural atmosphere might also influence public opinion on climate change. After all, climate change is a social dilemma. The large SUV that helps Jason get around comfortably has a carbon footprint whose price is paid by everyone. Further, most of the specific costs of climate change represent threats to unspecified members of large social groups. For example, neither an increase in the severity of hurricanes nor rising sea levels pose direct threats to most Nebraskans. But both problems pose serious threats to Floridians. Likewise, the warmer summers and shorter winters that may prove nightmarish in Morocco may be welcome news in Siberia. People living in cool regions who think only of themselves may not be too worried about climate change.

If climate change is a social dilemma, then people from collectivistic cultures may be less skeptical than usual of the reality of climate change. Collectivism refers to a cultural orientation that emphasizes group needs and wishes over those of the individual. In most collectivistic cultures, people are expected to put family, community, and nation ahead of the self (Markus and Kitayama, 1991). To the degree that climate change threatens the long-term survival of one's family or nation, collectivists might consider climate change more worrisome. As long as the members of collectivistic cultures are dealing with fellow ingroup members, they appear to be more cooperative than people from individualistic cultures (e.g., see Earley, 1993; Parks and Vu, 1994; but cf. Probst et al., 1999). The tendency for people from collectivistic cultures to care deeply about ingroup members appears to be highly overlearned (Hetts et al., 1999).

In addition to studying collectivism for its own sake, it is important to control for this cultural variable as a potential confound in any cross-regional study focusing on public perceptions of global warming. Warmer regions tend to be more collectivistic than cooler regions. The most collectivistic U.S. state, for example, is Hawaii, which is also the warmest (Vandello and Cohen, 1999). Warmer states and regions also tend to have high pathogen loads, which are strongly associated with collectivism (Fincher et al., 2008). Globally speaking, this means that most African nations are much more collectivistic than most European nations (Pelham et al., 2018). Thus, to assess whether a colder climate is associated with greater skepticism about global warming, one must control for collectivistic cultural attitudes. I tested this hypothesis in both a study of U.S. states and a study of nations across the globe.

2. Study 1: methods

Study 1 examined variation in public skepticism about climate change across the 50 U.S. states. To assess climate change skepticism, I harvested data from Google Correlate. This on-line research tool allows users to compare per capita internet search volumes across the 50 U.S. states (since January 2004) for almost any search term. The score for each U.S. state is a *z*-score that reveals how that state compares with all other U.S. states for the entire search window (January 2004–February 2017 for Study 1 of this report). To assess skepticism about climate change, I searched "global warming myth". The Google Correlate result file automatically included a list of other search terms that were highly correlated with this search phrase (as it does for any search). The two conceptually-relevant searches that proved to be most highly correlated with "global warming myth" were "global warming hoax" and "against global warming." I created a reliable indicator of state-by-state skepticism about global warming by averaging these three scores ($\alpha = .98$). There has been some debate about how well Google Correlate search volume scores predict what will happen in the future (Lazer et al., 2014). However, there is little debate about whether such scores capture past search activity. For example, Americans living in the cold state of Minnesota search for "mittens" at a much higher rate than Americans living in the warm state of Hawaii. If you want to know what Americans think about in different states, one way to find out is to see what they Google (Pelham et al., 2018; Stephens-Davidowitz, 2014).