



# The perceived psychological distance of climate change impacts and its influence on support for adaptation policy



Ajay S. Singh<sup>a,\*</sup>, Adam Zwickle<sup>b</sup>, Jeremy T. Bruskotter<sup>c</sup>, Robyn Wilson<sup>c</sup>

<sup>a</sup> Department of Forestry and Natural Resources, Purdue University, 195 Marsteller St., West Lafayette, IN 47907, United States

<sup>b</sup> Michigan State University, Environmental Science and Policy Program and School of Criminal Justice, 655 Auditorium Road, East Lansing, MI 48823, United States

<sup>c</sup> The Ohio State University, School of Environment and Natural Resources, 210 Kottman Hall, 2021 Coffey Road, Columbus, OH 43210, United States

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## ABSTRACT

Factors influencing support for climate mitigation policy in the United States are well researched, however, research regarding individuals' support for climate adaptation policy is relatively sparse. This study explores how an individual's perception of climate change impacts may influence their support for adaptation actions. Results of a survey of the U.S. public ( $n = 653$ ) indicates that individuals who believe climate change impacts are unlikely to happen or will primarily affect other people in other places are less likely to be concerned about climate change impacts and less likely to support climate adaptation. However, an individual's support for climate change adaptation measures is not influenced by their perception of when climate change impacts will occur even when taking into account concern for climate impacts. Critical for policy-makers, a belief that climate adaptation measures will not be effective attenuates the relationship between psychological distance, concern for climate change impacts, and adaptation policy measures. Our results indicate that to effectively communicate about climate change, policy-makers should emphasize that: (i) climate change impacts are occurring, (ii) that their constituents are being affected now, or will be in the future, and (iii) communicate that adaptation measures can be effective in addressing risks associated with climate change impacts.

## 1. Introduction

The ability to enact policy to address anthropogenic climate change is influenced, in part, by how individuals perceive the risks associated with climate change. Social and behavioral scientists have focused on public perceptions of climate change (i.e., belief in climate change, understanding of climate change, and perception of associated impacts) as explanations for individuals' motivation to address climate risks through collective action (Weber and Stern, 2011). The literature explaining support for climate-related policies explores relationships among beliefs, risk perception, attitudes, norms, political orientation, knowledge, and willingness to address human contributions to climate change (Brulle et al., 2012; Dietz et al., 2007; Krosnick et al., 2006; Leiserowitz, 2006; Marquart-Pyatt et al., 2011). Until recently, climate policy research in the U.S. focused primarily on the willingness to engage in individual-level behavioral changes or support policies aimed at climate change mitigation (Dietz et al., 2007; Krosnick et al., 2006; Leiserowitz, 2006). However, because of the delay in adopting and implementing comprehensive mitigation policies, there is also a need to adopt and implement measures to help communities adapt to changing

environmental conditions in tandem with mitigation measures.

While considerable scholarship is devoted to exploring individual and community adaptation and capacity to adapt to climate change (Adger, 2003; Grothman and Pratt, 2005; Smit and Wandel, 2006), including how adaptation might occur (Füssel, 2007; Smith and Lenhart, 1996), literature addressing factors that explain support for climate adaptation policy (opposed to mitigation policy) is sparse. One reason for the lack of literature exploring support for adaptation policy in the U.S. may be the notion that adaptation would reduce the need to address climate change through mitigation measures (see Pielke et al., 2007). While existing research illuminates linkages among socio-psychological factors and preferences for climate mitigation policy, there is a need to also understand the factors that influence an individual's perceptions of adaptation policy (Dietz et al., 2007; Roser-Renouf and Nisbet, 2008).

Because people often lack the time, interest, and background knowledge to develop an in-depth understanding of policy issues (Krosnick, 1990), decisions about complex environmental issues such as climate change may be subject to simplifying rules and patterns of judgment based on limited and sometimes even irrelevant information

\* Corresponding author.

E-mail addresses: [singh364@purdue.edu](mailto:singh364@purdue.edu) (A.S. Singh), [zwicklea@msu.edu](mailto:zwicklea@msu.edu) (A. Zwickle), [bruskotter.9@osu.edu](mailto:bruskotter.9@osu.edu) (J.T. Bruskotter), [Wilson.1376@osu.edu](mailto:Wilson.1376@osu.edu) (R. Wilson).

(Weber and Stern, 2011; Etkin and Ho, 2007). For example, existing research on climate change indicates there are complex associations between an individual's personal experience with extreme weather changes, emotional affect, concern about climate change, and their willingness to take action to address climate change (Akerlof et al., 2013; Weber and Stern, 2011; Weber, 2010; Leiserowitz and Broad, 2008). However, Leiserowitz (2005, 2006) found that although there is general awareness, belief, and concern for climate change in the U.S., there is a perception that climate change is a moderate risk that will impact people far away in the future, which may contribute to a relative lack of action. Conversely, when people associate impacts of climate change in places that are known to them, they exhibit greater concern and willingness to act to address climate change (Raymond and Brown, 2011).

Findings point towards an idea that if an individual believes climate change is psychologically distant that individual will be less motivated to address climate change or support their government in attempts to address climate change. However, Spence, et al. (2011) found that when climate change impacts are framed as occurring in other countries, individuals are still motivated to engage in environmental behaviors that reduce GHG emissions; thus complicating how perceptions of psychological distance might influence future actions regarding climate change. Understanding how perceived distance might factor in to people's decisions about climate change adaptation policy could help policy-makers and issue advocates to better communicate about climate adaptation and propose adaptation policy alternatives.

## 2. Theoretical framework

### 2.1. Adaptation approach to addressing impacts of climate change

Human adaptation to climate change refers to actions that help individuals, communities, and governments prepare for and adjust to changing climatic conditions or their effects in such a way that 'moderates harm or exploits beneficial opportunities' (IPCC, 2007; Melillo et al., 2014). Adaptation measures range from changing farming practices to reducing impacts of heavy rainfall events on soils, to decreasing institutional barriers, to increase adaptive capacity and resiliency to climate change impacts (Melillo et al., 2014). Climate adaptation research has focused on the applicability and adoption of measures at local and regional levels; however, there is now recognition of the need to address both mitigation and adaptation when developing climate policy at the national level (Urwin and Jordan, 2008). In 2011, the White House Council on Environmental Quality (CEQ) outlined how federal agencies can assist and support stakeholders at all scales of government to address climate adaptation (Council on Environmental Quality, 2011). The CEQ recommended the government support U.S. adaptation efforts through a variety of intra and inter-governmental efforts. Since the CEQ Interagency Task force first report, President Obama has issued Executive Order 13514 allowing development of agency adaptation plans and, in November 2013 authorized agencies to implement the remaining recommendations from the CEQ. As federal adaptation planning and policy efforts are implemented it will be important to understand how and if the U.S. general public will support adaptation measures.

In contrast to literature on climate mitigation policy, the majority of research on climate adaptation has drawn on sociological theory to assess a community or individual's vulnerability or capacity to adapt to the effects of climate change (e.g., Brooks et al., 2005; Grothmann and Patt, 2005; Kelly and Adger, 2000; Pelling et al., 2008; Smit and Wandel, 2006). Generally, these studies suggest that proactively preparing for projected local climate change impacts can increase a community's ability to adapt by providing additional preparation time to raise funds and implement projects to reduce vulnerability to climate change impacts or increase the adaptive capacity of communities. Yet part of a community's ability to adapt to climate change will also

depend on the extent to which that community supports the government institutions focused on preparing for and adapting to climate change impacts. Therefore, a more in-depth understanding of the underlying factors driving support for adaptation may help policy makers understand if or when an adaptation policy may gain traction at the national or subnational level.

### 2.2. Risk perception and public policy

How hazardous events are estimated and evaluated by laypeople—their risk perception, depends on numerous factors (Slovic et al., 1982; Slovic, 1986; Renn et al., 1992). Studying how the public perceives risk can help policy makers better understand how, or if, a target population may believe a hazard should be addressed. If individuals believe they are personally at risk of experiencing negative impacts of climate change, they are more likely to support climate policies (Weber and Stern, 2011; Weber, 2006). Although individuals can reduce their personal risk, to a limited extent, from climate change impacts through individual changes in behavior (e.g., not living in a floodplain), they do not have control over most of the hazard (e.g., coastal inundation). In these instances, climate risks must be addressed as a community at the proper scale, requiring the creation of policies to guide the formation and implementation of adaptation strategies. The need for adaptation policy to facilitate adaptive behavior can be viewed as a form of collective risk management. Climate policy provides a method for addressing a risk at the community level, when addressing the risk at the individual level is not feasible (Lorenzoni et al., 2007). Assessing perception of climate related risk, and the underlying factors that influence how those risk perceptions are formed, can increase our understanding of public support for climate policy.

In addition to assessing the perceptions of climate risks and the effect those perceptions have on support for public policy, it is important to also understand the perceived response efficacy of potential policies, i.e., the likelihood of the policy actually addressing the problem (Roser-Renout and Nisbet, 2008). As the perceived effectiveness of the response increases, individuals will be more motivated to choose that method of addressing that risk (Witte, 1992). Kellstedt et al. (2008) found that self-efficacy was strongly and positively associated with concern for climate change. However, little research to date has examined the interactions of perceived response efficacy and support for climate adaptation policy.

### 2.3. Psychological distance of climate change

One factor that may influence risk perceptions and policy preferences is the perceived psychological distance between climate change impacts and an individual. Psychological distance is an individual's perception of how removed an object, risk, or event is from that individual (Liberman et al., 2007; Liberman and Trope, 2008; Trope and Liberman, 2010). Psychological distance is measured in four dimensions: *hypotheticality* or the likelihood of an event occurring (with unlikely events being more psychologically distant), *temporal* or when an event is occurring (with events in the past or future being more distant), *social* or who the event will be experienced by (with dissimilar people being more distant), and *spatial* or the physical distance an event will take place (with geographically distant places being more psychologically distant). The psychological distance at which an event, or object, is removed from one's direct experience influences how it is perceived and evaluated, which, in turn, influences an individual's motivation and preferences for action (Todorov et al., 2007; Trope and Liberman, 2003). For example, individuals tend to discount those aspects of a risk that are more distant (e.g., increased risk of lung cancer over time from smoking) and focus more on those aspects which are psychologically nearer (e.g., the immediate pleasure derived from satisfying a nicotine craving) (Zwickle and Wilson, 2013).

The connection between psychological distance and perceptions of

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