



Does learning about climate change adaptation change support for mitigation?



Amanda R. Carrico^{a,*}, Heather Barnes Truelove^b, Michael P. Vandenberg^c, David Dana^d

^a Environmental Studies Program, University of Colorado at Boulder, USA

^b Department of Psychology, University of North Florida, Jacksonville, FL, USA

^c Climate Change Research Network, Vanderbilt University Law School, 131 21st Avenue South, Nashville, TN 37203, USA

^d Northwestern University School of Law, USA

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ABSTRACT

Many have speculated that increased attention to climate change adaptation will reduce support for mitigation. The Risk Compensation Hypothesis suggests that remedies to reduce the impacts of risky behaviors can unintentionally increase those behaviors. The Risk Salience Hypothesis suggests that information about adaptation may increase the salience of impacts, and therefore increase mitigation support. Experiment 1 presented participants with a news article about an irrigation technology described as a way to improve efficiency (Pure Control), reduce emissions (Mitigation Control), or reduce drought vulnerability (Adaptation). Political moderates in the adaptation condition rated climate change as a higher political priority and were more supportive of a policy to subsidize the technology than those in both controls. Results were not replicated in Experiment 2. These results partially support the Risk Salience Hypothesis. There was no evidence to justify the concern that discussing adaptation will reduce support for mitigation or concern about climate change.

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1. Introduction

The climate change discourse in North America and Europe has focused on mitigation over the last several decades. Mitigation typically involves measures to reduce the emission of greenhouse gasses by reducing reliance on fossil fuels. However, in recent years the scientific community has concluded that the effects of climate change are already occurring and that existing greenhouse gas (GHG) concentrations make further warming inevitable (IPCC, 2007). Consequently, the need for measures to adapt to climate change (which typically involves infrastructure or technological changes to cope with the impacts of climate change), in addition to efforts to reduce GHG emissions, has been widely acknowledged by scientists and policymakers (IPCC, 2007; Keskitalo, 2012; National Research Council, 2010). This realization is reflected in the media's handling of climate change as an issue of public significance. Between 1988 and 1990 the topic of adaptation represented less than 1% of all climate related coverage in major news outlets within the US and Great Britain. Since 2003, coverage of this topic has risen dramatically (Boykoff & Roberts, 2007). Thus, an important

question is whether this shift in the climate change discourse has affected public perceptions of climate change in a manner that has policy implications.

The addition of adaptation to the public policy discourse is of central importance to both climate mitigation and adaptation policy. If adaptation is necessary, as is becoming increasingly clear, it will warrant discussions of how to design and implement optimal adaptation policies. At the same time, policymakers and scholars in the United States appear to have shied away from discussing adaptation until recently, out of concern that learning about adaptation could reduce policy support for mitigation (Pielke, Prins, Rayner, & Sarewitz, 2007; Ruhl, 2010). According to Victor and colleagues, "until just a few years ago, even discussing adaptation to climate change was taboo" (Victor, Kennell, & Ramanathan, 2012, p. 119). In addition, for the substantial subset of climate policies that achieve both adaptation and mitigation, the consequences of framing them as one or the other could have important effects on public support for adoption and implementation.

With these concerns in mind, in this study we pose the question: does learning about initiatives to adapt to climate change affect attitudes towards climate change in general and mitigation in particular? After providing a brief review of the relevant literature we describe two studies that examine the effects of framing a policy as climate change mitigation vs. adaptation on attitudes and policy support.

* Corresponding author. University of Colorado at Boulder, UCB 215, Boulder, CO, 80309, USA. Tel.: +1 303 492 9163.

E-mail address: amanda.carrico@colorado.edu (A.R. Carrico).

1.1. Risk compensation

There is some, albeit limited, theoretical and empirical work to suggest that learning about adaptation may, in fact, “spill over” into attitudes towards mitigation. A related phenomenon in the domain of energy consumption and efficiency is the *rebound effect* (also “take-back effect”), which refers to the pattern in which a proportion of the technically achievable energy savings that result from an efficiency upgrade are “taken back” by an increase in usage of the product (Binswanger, 2001; Herring, 2006). Rebound effects occur, for example, when a household increases its thermostat settings during the winter after weatherizing the home (Hirst, White, & Goeltz, 1985). Rebound effects are often explained in economic terms, i.e., improvements in efficiency lead to lower energy costs which lead to an increase in consumption (e.g., Gillingham, Kotchen, Matthew, Rapson, & Wagner, 2013; Jevons, 1866). Although sometimes cited as a reason against promoting energy efficiency (Jenkins, Nordhaus, & Shellenberger, 2011; Tierney, 2011), rebound effects rarely, if ever, fully negate the benefits of energy efficiency improvements, and typically displace less than 30% of expected savings (e.g., Ehrhardt-Martinez & Laitner, 2010; Gillingham et al., 2013; Sorrell, 2007).

In a closely related line of work, others have debated the existence of *negative spillover effects* in pro-environmental actions (Bratt, 1999; Thøgersen, 1999; Tiefenbeck, Staake, & Roth, 2013; Truelove, Carrico, Weber, Raimi, & Vandenberg, 2014), in which the adoption of one pro-environmental behavior reduces the likelihood of adopting a subsequent pro-environmental action because the individual feels morally “off the hook” (i.e., moral licensing, Zhong, Liljenquist, & Cain, 2009) or that the problem has been dealt with (i.e., single action bias, Weber, 1997). In particular, Weber’s work on single action bias has found that farmers who adapt their cultivation practices (such as crop selection) to cope with climate change are unlikely to adopt off-farm adaptations (such as investing in futures) (Weber, 1997, 2006). Similarly, farmers who had engaged in either of these types of adaptations were less supportive of government intervention to mitigate climate change (Weber, 1997). Weber attributed these effects to a reduction in the perceived risk of climate change that resulted from engaging in an initial risk reducing behavior. However, neither study directly tested this explanation for the effect.

Both of these lines of work—rebound and spillover—suggest a negative relationship between engaging in one action and the performance of subsequent behaviors. In addition, work on spillover, moral licensing, and single action bias suggests an important relationship between behavior and attitudes. However, none of these lines of work addresses the potential impact of adopting a remedy in the future on risk perceptions and behavior. The most closely related body of work is in the area of risk compensation. This work suggests that remedies designed to reduce the impacts of high risk behavior can have the unintended consequence of reinforcing it by reducing the actual or perceived risk of engaging in the action. Early theorizing on this phenomenon (e.g., the “Peltzman Effect”) originated alongside analyses suggesting that, even after controlling for a host of explanatory variables, the existence of a state seatbelt law is correlated with an increase in motor-vehicle fatalities (Calkins & Zlatoper, 2001; Peltzman, 1975). Authors interpreted this finding as evidence that drivers feel more secure when wearing seatbelts and compensate by driving more recklessly, leading to a greater number of overall traffic accidents and fatalities. As such, this phenomenon is often referred to as an “offsetting effect” or “compensatory behavior” (Calkins & Zlatoper, 2001; Cohen & Einav, 2003).

Although some have challenged this conclusion as it relates to seatbelt usage and driving behavior (e.g., Cohen & Einav, 2003), the

underlying theory has been supported with data in other domains (e.g., Bolton, Cohen, & Bloom, 2006). For example, Viscusi argued that at least a portion of the increase in aspirin-related child poisonings after the introduction of child safety caps was due to a “lulling effect” in which consumers were lulled into less safety-conscious behavior by the new technology (Viscusi, 1984). Studies in the wake of major medical advances in the treatment of HIV found that a small but nontrivial proportion of gay or bisexual men (15–25%) reported that they were less concerned about becoming infected with HIV, and roughly 10% reported that they had engaged in higher risk sexual activity since new treatments had become available (Dilley, Woods, & McFarland, 1997; Kelly, Hoffman, Rompa, & Gray, 1998). Using an experimental design, Bolton and colleagues also found evidence that remedy messages (e.g., information about medicinal smoking cessation or debt consolidation opportunities) undermined risk perceptions and intentions to reduce risky behaviors—in this case smoking and credit card usage behaviors (Bolton et al., 2006).

Although more often discussed within the context of individual risk-taking behavior, multiple studies have found a relationship between knowledge of a remedy to reduce the impacts of high risk behavior and risk perceptions associated with the behavior in question (Bolton et al., 2006; Dilley et al., 1997; Kelly et al., 1998). Others have hypothesized that a reduced sense of concern over the impacts of one’s behavior accounts for risk compensation behaviors (Peltzman, 1975; Viscusi, 1984). It is plausible that a similar *lulling effect* may also influence beliefs about the risks presented by climate change and the necessity of efforts to mitigate climate change. Like many health behaviors, climate change can be managed to some degree through prevention (akin to mitigation) or by coping with its impacts (akin to adaptation). If individuals learn about opportunities to adapt to future climate change impacts, they may see adaptation as a viable alternative to mitigation. In other words, individuals may become less concerned about climate change because they view adaptation as a remedy to the problem that can be paid for in the distant future and therefore believe that present costly preventative actions are no longer necessary. Adaptation may be costly as well; however, work on inter-temporal discounting suggests that individuals tend to apply steep discount rates to future costs relative to upfront costs (e.g., Ainslie & Haslam, 1992; Soman et al., 2005; Thaler, 1981). Individuals thus may perceive the future costs of adaptation to be lower than the current costs of mitigation, thereby reinforcing the perception that adaptation is an attractive alternative to mitigation.

1.2. Risk salience

An alternative and competing hypothesis is that learning about adaptation information may make climate change impacts more salient and thus increase concern about climate change and support for preventive measures. Although a majority of the public in North America and Europe believe that climate change is occurring, most see it as a problem that will occur in the distant future or in distant places (Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007; Spence, Poortinga, & Pidgeon, 2011; Whitmarsh, 2008b) and few cite climate change as a top priority among national issues (Lorenzoni et al., 2007; Nisbet & Myers, 2007). Likewise, although global surface temperatures have already begun to rise, the impacts of climate change are subtle, slowly evolving, and typically overwhelmed by day-to-day variations in weather. As a result, climate change itself is not directly observable, particularly by the lay public. Some have hypothesized that this has led to low risk salience for individuals, which reduces motivation to take actions to prevent the problem (Whitmarsh, 2008a).

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