



# From plastic bottle recycling to policy support: An experimental test of pro-environmental spillover



Heather Barnes Truelove<sup>a, \*</sup>, Kam Leung Yeung<sup>a</sup>, Amanda R. Carrico<sup>b</sup>, Ashley J. Gillis<sup>a</sup>, Kaitlin Toner Raimi<sup>c</sup>

<sup>a</sup> Department of Psychology, University of North Florida, United States

<sup>b</sup> Environmental Studies Program, University of Colorado at Boulder, United States

<sup>c</sup> Gerald R. Ford School of Public Policy, University of Michigan, United States

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## ABSTRACT

Little research has investigated the extent to which performance of one pro-environmental behavior (PEB) spills over to increase or decrease support for pro-environmental policies or the mechanisms underlying spillover effects. In this study, 283 U.S. university students were randomly assigned via situational manipulations to either recycle a water bottle, throw the bottle in the trash, or a control condition. All participants then completed surveys assessing environmental identity, guilt, and environmental worry, as well as support for a pro-environmental campus green fund. Results showed evidence for negative spillover among Democrats only, which was mediated by environmental identity: Democrats who recycled the water bottle had lower environmental identities and were less supportive of the green fund than those in the control condition. Neither Republicans nor Independents displayed spillover. The results have implications for those interested in increasing small, easy PEBs in hopes of gaining future support for environmental policies.

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## 1. Introduction

### 1.1. Background

The climate system is experiencing unprecedented changes (IPCC, 2014a; Melillo, Richmond, & Yohe, 2014). Effects of these changes are currently being felt across the world and are becoming more severe (IPCC, 2014a; Melillo et al., 2014). To avoid catastrophic effects, climate scientists argue that temperatures must not rise more than 2 °C relative to the pre-industrial era (IPCC, 2014a). However, only scenarios that include drastic reduction of global greenhouse gas emissions show any promise of stabilizing global temperatures below this threshold (IPCC, 2014a). Meeting this target will likely require a large-scale shift away from carbon-based energy sources; however, many scholars have also recognized that a reduction in energy demand through improvements in efficiency and lifestyle changes will also be needed (IPCC, 2014b).

Despite numerous calls in the U.S. to take action at a national

level, legislation to ensure meeting those targets has not been passed. In response, the U.S. Environmental Protection Agency began regulating greenhouse emissions of domestic power plants (particularly those that burn coal). Yet, these regulations have been hotly contested by Republicans in Congress (Gardner, 2011), exemplifying the political divide regarding climate change in the U.S. Polls show that even among Democrats, climate change is often ranked as a lesser priority than other policy issues such as hunger and homelessness, unemployment, healthcare affordability, and the economy (Riffkin, 2014). Thus, although there is great need for policy-level change to occur in the U.S. in order to meet worldwide emissions targets, the likelihood of passing climate change legislation in the near future is slim.

Recognizing this problem, researchers have proposed a “behavioral wedge”, a sort of stopgap measure, whereby individual household-level behavior changes can be adopted to help reduce emissions until comprehensive climate policy is enacted (Dietz, Gardner, Gilligan, Stern, & Vandenberg, 2009). Several studies have examined the effectiveness of interventions geared toward environment-related behavior change and have made recommendations on the best avenues to change environment-related behavior and resulting greenhouse gas (GHG) emissions

\* Corresponding author.

E-mail address: [h.truelove@unf.edu](mailto:h.truelove@unf.edu) (H.B. Truelove).

(Abrahamse, Steg, Vlek, & Rothengatter, 2005; Bain, Hornsey, Bongiorno, & Jeffries, 2012; Carrico et al., 2011). It has been estimated that, when aggregated at a national level, a behavioral wedge could reduce U.S. emissions by as much as 7% (Dietz et al., 2009).

Although the concept of the behavioral wedge is intuitively appealing, some have suggested that individual behavior change campaigns can actually backfire and lead to less support for policy (Wagner, 2011). Specifically, Wagner (2011) has argued that people who adopt small, individual behaviors (e.g., recycling or changing out light bulbs) then feel they have done their part to solve the problem of climate change. They are, in turn, less inclined to support climate policy, which is arguably more effective than individual behavior at mitigating climate change (Stavins, 2008). Interestingly, little research has directly investigated the effect of performing small pro-environmental behaviors (PEBs) on environmental policy support.

### 1.2. Pro-environmental behavior spillover

Wagner's (2011) criticism centers on the concept of behavioral spillover, the extent to which performance of a behavior in one domain carries over to increase (i.e., positive spillover) or decrease (i.e., negative spillover) the likelihood of performance of additional behaviors in that domain (Dolan & Galizzi, 2015; Susewind & Hoelzl, 2014; Thøgersen, 1999; Truelove, Carrico, Weber, Raimi, & Vandenberg, 2014). In line with Wagner's (2011) argument, some researchers have found negative correlations between PEBs (Barr, Shaw, Coles, & Prillwitz, 2010; Weber, 1997), suggesting negative PEB spillover. However, several other researchers have found positive correlations between different PEBs (Berger, 1997; Bratt, 1999; Thøgersen & Ölander, 2006; Thøgersen & Ölander, 2003; Thøgersen, 1999; Whitmarsh & O'Neill, 2010), which may indicate positive PEB spillover.

Only a handful of studies has tested whether PEB correlates with environmental policy support. Specifically, purchasing environmentally-friendly products has been shown to be positively related to support for wind power development and policies supporting social justice (Thøgersen & Noblet, 2012; Willis & Schor, 2012). Further, performance of low cost environmental behaviors were positively correlated with support for climate policies among a Swiss sample (Tobler, Visschers, & Siegrist, 2012). On the other hand, farmers who have taken actions on their farm to adapt to climate change have shown less support for climate change policy (Weber, 1997). Although the correlational studies provide more evidence of positive, rather than negative, spillover between PEBs and policy support, causal conclusions cannot be drawn.

In an attempt to assess causality, some recent scholars have turned to experimental designs (Baca-Motes, Brown, Gneezy, Keenan, & Nelson, 2013; Lanzini & Thøgersen, 2014). In one of the most direct tests of spillover in the environmental domain, Baca-Motes et al. (2013) conducted a field study among hotel guests to assess the impact of committing to reduce towel use during their stay on both towel use and light use. They found evidence of positive spillover, with guests who made a specific commitment (vs. a general commitment) and guests who received a lapel pin upon check in to make their environmental identities salient (vs. those who did not receive a pin) being more likely to reduce both towel use (targeted PEB) and light use (additional PEB) (Baca-Motes et al., 2013). In another recent study, Lanzini and Thøgersen (2014) investigated whether interventions designed to increase green purchasing via monetary or praise-focused interventions spilled over to other pro-environmental behaviors. They found evidence of positive spillover such that the monetary intervention increased green purchasing, which was in turn associated with increases in

six of the nine secondary PEBs assessed (Lanzini & Thøgersen, 2014). Even more recently, Steinhorst, Klöckner, and Matthies (2015) conducted a field study among German residents on spillover from reducing home electricity use to other environmental behaviors. They found that individuals who received energy saving tips in terms of environmental (CO<sub>2</sub>) showed intentions to engage in non-targeted environmental behaviors outside of saving electricity (Steinhorst et al., 2015).

Overall, the evidence for spillover between PEBs seems to lean more toward positive rather than negative spillover. However, as described in more detail below, several experiments investigating spillover between PEB and other related, though non-environmental, behaviors have found evidence for negative spillover, muddying the waters. Additionally, no experimental research could be located that experimentally tested spillover from PEB to pro-environmental policy support. Taken together, these findings illustrate the need for additional experimental research.

### 1.3. Mechanisms underlying pro-environmental behavior spillover

Although little experimental research has been conducted to test the existence of spillover effects between PEBs, a relatively large body of psychological research has been drawn upon to theorize when and why PEB spillover effects might occur (for a review see Truelove et al., 2014). Proposed mechanisms assumed to underlie positive PEB spillover relate to identity and the motivation to behave consistently (Thøgersen & Crompton, 2009; Thøgersen & Noblet, 2012; Truelove et al., 2014), while negative spillover is expected to be mediated by moral licensing/guilt and feelings of worry or fear (Truelove et al., 2014). Most of the work testing these mechanisms relates to moral behavior more generally, not necessarily PEB specifically.

#### 1.3.1. Identity

As a core part of one's self-concept, self-identity (how one defines one's self) influences everyday behavior (Fekadu & Kraft, 2001; Sparks & Shepherd, 2012; Terry, Hogg, & White, 1999). When an individual performs an initial behavior that they deem central to their identity, performing an inconsistent subsequent behavior leads to distressful cognitive dissonance, which could theoretically lead to behavioral change (Festinger & Carlsmith, 1959; Freedman & Fraser, 1966). Gneezy and colleagues found evidence of the mediating effects of prosocial identity on spillover between prosocial behaviors (Gneezy, Imas, Brown, Nelson, & Norton, 2012). Specifically, those who performed a costly initial prosocial behavior (compared to a costless behavior or no behavior) displayed increases in prosocial identity compared to the other participants and were, in turn, more likely to carry out a secondary prosocial behavior, demonstrating positive spillover (Gneezy et al., 2012). On the other hand, participants who performed an initial, costless behavior demonstrated negative spillover, most likely because the easy behavior did not make participants' prosocial identity salient enough to motivate behavior consistency (Gneezy et al., 2012).

People hold multiple social identities (Brewer, 1991) and activation of any number of these identities could theoretically influence PEB spillover (Truelove et al., 2014). Most scholars theorizing about PEB spillover have focused on pro-environmental identity (Whitmarsh & O'Neill, 2010), though political party affiliation also has major relevance for PEBs (McCright, Dunlap, & Xiao, 2014). Therefore, we will examine each in detail.

**1.3.1.1. Pro-environmental identity.** Specifically within the realm of environmentalism, an individual's environmental values and identity as an environmentalist has been shown to influence PEB

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