Social Norms and the Conditional Impact of Appeals to Action for the Public Good

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Abstract: When do individuals make sacrifices to provide public goods? What role do values, social norms, and rhetoric play in shaping these decisions? Few studies in political science examine these questions beyond electoral forms of activism. This paper explores the factors that make it more or less likely that individuals engage in behaviors – in the domain of energy – that are individually costly but collectively beneficial. Past research on electoral activism focuses on whether specific types of messages (threat appeals) promote action. I extend this work by developing a theory in which the effects of rhetoric seeking to increase private action for the public good is moderated by social norms – i.e., what others are doing. In other words, performing these behaviors requires (1) a direct motivation to do it (e.g., from an appeal), and (2) perceptions that the behavior is efficacious - insofar as others are perceived as doing it too, because if they are not then one person doing it will not make a difference. I test predictions generated by my theory in a survey-experiment that examines attitudes about energy conservation, as well as actual behavior (i.e., a financial contribution to a non-profit conservation organization). The results indicate that norms moderate the impact of an appeal that focuses on the collective *benefits* of taking action (but not a threat appeal associated with inaction). This research accentuates the importance of incorporating norms into the study of political behavior.

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A fundamental problem in societies involves how best to coordinate behavior for the provision of public goods – that is, things that benefit everyone but which no one has an individual incentive to provide. Democratic governments exist, in part, to serve this role. But how governments determine what laws and regulations need to be in place depends, often times, on citizens' willingness to take action in areas of their lives that may involve assuming personal costs for the collective good. When do individuals make sacrifices to provide public goods? What role do values, social norms, and rhetoric play in shaping these decisions? Few studies in political science have explored these questions beyond electoral forms of activism (Gerber, Green, & Larimer, 2008; Gerber & Rogers, 2009; Brader, Valentino, & Suhay, 2008; Miller & Krosnick, 2004; Campbell, 2003; Miller et al., 2002; Marcus, Neuman, & MacKuen, 2000).

This paper explores the factors that make it more or less likely that individuals engage in behaviors – in the domain of energy – that are individually costly but collectively beneficial. Several studies on electoral activism look at whether specific types of messages (e.g., threat appeals) promote taking action. I extend this work by developing a theory in which the effects of rhetoric seeking to increase private actions for the public good is moderated by social norms – i.e., what others are doing. In other words, taking action requires (1) a direct motivation to do it (e.g., from an appeal), and (2) perceptions that the behavior is efficacious - insofar as others are perceived as doing it too, because if they are not then one person doing it will not make a difference.[1] The research I suggest has implications more generally for when individuals take actions that promote the public good. Understanding these conditions helps us to make sense of what governments need to do in terms of providing collective goods, and what can be done to promote individual contributions. It is also novel in that it is one of the few forays in political

[1] Norms may also enhance the credibility of an appeal, which, in turn, may strengthen the effectiveness of appeals for action (Druckman, 2010: 102; see also, Brewer, 2003; Druckman, 2001a; 2001b).

science that looks at actual behavior – aside from work on participation – and incorporates the impact of values, rhetoric, and norms.

I begin by developing a theory that accounts for two internal (values and attitudes) and two contextual forces (rhetoric and norms) that shape individuals' willingness to take action. This generates predictions that I test in a survey-experiment that explores the determinants of attitudes about energy conservation, intentions to talk with others about ways to reduce consumption, and actual behavior (i.e., a decision about whether or not to make a financial contribution to a non-profit energy conservation organization). The results show that norms moderate the impact of an appeal that focuses on the collective *benefits* of taking action (but not a threatening message associated with inaction). This research accentuates the importance of incorporating social forces, in addition to psychological determinants, into the study of political behavior. It also provides insight into energy conservation behaviors more generally.

A Psychological and Contextual Theory of Behavior

The theory I advance draws from *reasoned-action* approaches to understanding behavior (Ajzen & Fishbein, 1980; Ajzen, 1991) and more recent work in social cognition (Fazio, 2007). This research demonstrates that behavior is the product subjective cost-benefit assessments about the likely outcomes from an action. I focus on the determinants of behavior taken to secure a public good. Behavior refers to "observable activity in a human or animal" (Merriam-Webster Online Dictionary);[2] however, it is often captured in the literature by assessing intentions – e.g.,

[2] While there are exceptions (e.g., Lau & Redlawsk, 2001; Green, Gerber, & Larimer, 2008; Bolsen, 2010a), most research on political behavior focuses exclusively on measures of attitudes and intentions and does not assess actual behavior. Even among psychologists, measures of actual behavior are relatively uncommon. In a meta-review of 185 independent studies testing the *theory of planned behavior* (Ajzen, 1991), Armitage and Conner (2001) find that only 19 studies contain overt measures of behavior. In addition, the few studies that examine energy consumption almost exclusively use households as the unit of analysis rather than individuals (but see Stern, 2000; Nolan et al., 2008).

to vote or engage in environmental activism. Therefore, I also account for the determinants of behavioral intentions.[3]

I define a public good as something that cannot feasibly be withheld from others in a group if it is provided for any other member of that group (Olson, 1965). A nation's energy supply is a public good that the government plays a central role in providing for its citizens. Although the government generally takes the lead in formulating and implementing energy policies, citizens are primary users of energy, and individuals' actions ultimately shape collective outcomes. Energy policy, therefore, includes encouraging reductions in the demand of energy by households and individual citizens (Prontera, 2009).[4]

Internal Dimensions of Influence: Attitudes and Values

One criticism of psychological approaches to studying behavior is that they often fail to account for influences stemming from the context in which decisions are executed (Druckman & Lupia, 2000; Stern, 2000; Druckman, 2004).[5] My framework synthesizes literatures explaining the processes by which two internal (attitudes and values) and two external forces (rhetoric and social norms) shape action. While I account for factors well known to influence behavior, this is one of the few studies in political science to bring social norms into the framework and examine the conditional effect norms may have on appeals for collective action.

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[3] Intentions refer to a "person's readiness to perform a behavior…[it] is a person's estimate of the likelihood or perceived probability of performing a given behavior" (Fishbein & Ajzen, 2010: 39; also see, Sheeran, 2002; Ajzen & Fishbein, 2005: 188).

[4] As is common in this literature (see Stern, 2000; Black, Stern, & Elworth, 1985), I distinguish between two distinct classes of energy conservation behaviors: (1) actions aimed at curtailing energy usage (e.g., driving less, adjusting the thermostat to save energy, etc.) - which generally require habitual action - and (2) capital investments in energy efficiency (e.g., buying more fuel efficient vehicles and appliances, energy efficient light bulbs, etc.) – which generally involve infrequent action and may face greater situational constraints.

[5] For instance, Stern (2000: 418) bemoans the "large number of single variable studies of environmentally significant behavior" and calls for research "[synthesizing] theories or models that incorporate variables" known to shape behavior.

An attitude is a weighted sum of evaluative beliefs about an object (e.g., person, policy, or behavior) (Chong & Druckman, 2010: 8; 2007a, 2007b). For instance, one's attitude toward taking public transit may include considerations about the economic and/or environmental implications of this action. One's overall evaluation (i.e., attitude toward the behavior) is affected primarily by beliefs about a behavior's likely consequences (e.g., its effects). Attitudes are a proximate determinant of action when measures are target and context specific (Ajzen & Fishbein, 2005: 199; see also, Sheeran, 2002; Albarracin et al., 2001; Armitage & Conner, 2001).

Two specific attitudes that derive from the public goods aspects of energy conservation influence individuals' decisions about whether to take action: (1) the perceived *importance* of the action; and (2) the perceived *efficacy* of the action. Important attitudes have been shown to guide actions such as voting, writing letters to public officials, and making contributions to political organizations (Krosnick, 1990; Krosnick & Sowmya, 2003; Visser, Bizer, & Krosnick, 2006). This literature provides clear evidence that people take action in areas of their lives deemed important. Thus, I expect people who say energy conservation is important will be more likely to take action to reduce consumption (relative to those who view such actions as less important) *(hypothesis 1a)*. Second, attitudes about the efficacy of one's own action to secure a public good may also be an important determinant of behavior. Collective efficacy (CE) refers to the extent to which individuals believe they have an influence on collective outcomes. Research on protest behavior and environmental activism indicates that individuals consider not only the personal costs and benefits resulting from an action (as in traditional expected-utility models), but also one's perceived personal influence over collective outcomes, whether the group is likely to succeed, and the expected reciprocity of others (Finkel, Muller & Opp, 1989; Lubell et al., 2007). Other research shows that individuals may perceive their own behavior as diagnostic of

how similar others will act; thereby reasoning that their own behavior is critical to the outcome (Quattrone & Tversky, 1984). The end result of these "miscalculations" is that individuals engage in collective actions more often than anticipated by traditional expected-utility models of behavior. Consequently, I predict that the more people see their actions as making a difference in for the collective outcome, the more likely they will be to take action to reduce energy consumption *(hypothesis 1b).*

Values are deeply rooted, abstract *motivations* that guide, justify, and explain attitudes and actions (Davidov, Schmidt, & Schwartz, 2008; Schwartz, 1992). The Schwartz Values Theory (SVS, Schwartz, 1992) specifies 10 basic values that individuals in all cultures recognize.[6] Individuals pursue important values by performing actions that express those values (Bardi & Schwartz, 2003). The SVS explains that the higher the priority given to a value the more likely people will form action plans that lead to its expression in behavior. Values serve as internalized guides that motivate and coordinate individual and group interactions by shaping attitudes and behaviors across decision contexts.

Universalism is a SVS value defined by its motivational drive toward social justice, tolerance, and the concern for the welfare of all in society. Because taking action to provide a public good often requires self-sacrifice, I expect individuals who place a high value on universalism to attach greater importance to conservation, view their actions as efficacious, and be more willing to take action (relative to those who do not value universalism) (*hypothesis 2)*.[7]

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[6] Values are presumed universal because they are grounded in three universal requisites of human existence: biological needs as an organism, need for social coordination, and need for the survival and welfare of groups. The ten motivationally distinct values Schwartz (1992) identifies include: self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universalism.

[7] The value-belief-norm model of environmental action links private-sphere environmental action (e.g., energy conservation) to the moral-activation of altruism and egalitarianism (Stern, 1999; 2000). These values are strongly and positively correlated with universalism, and have

External Dimensions of Influence: Rhetoric & Social Norms

A vast literature shows that *rhetoric* (i.e., communications targeting attitude change) can shape individuals' attitudes and preferences (Hovland, Janis, & Kelley, 1953; Petty & Cacioppo, 1986; Zaller, 1992; Bartels, 1993; O'Keefe, 2002; Chong & Druckman, 2007a; 2007b). In political science, an example of this work is the large literature on how campaigns attempt to influence election outcomes (e.g., Druckman & Miller, 2004; Druckman & Holmes, 2004; Druckman & Parkin, 2005). For instance, campaigns may *prime* specific issues in order to shape voters' evaluations of candidates (Iyengar & Kinder, 1987; Miller & Krosnick, 2000). But the vast majority of these studies focus on explaining how rhetoric shapes *attitudes*, not behavior.

Rhetoric that evokes fear, or a perception of threat, is often thought to be a powerful behavioral motivating force. Evolutionary theories of cognitive development explain that parts of the brain are attuned to respond quickly and automatically to threatening stimuli (Gray, 1990; Miller & Krosnick, 2004; also see Fiske & Taylor, 1991; Taylor, 1991).[8] *Threat appeals* are a class of rhetoric that has received considerable attention by scholars in various fields.[9] A threat appeal is defined as "an informative communication about a threat to an individual's well-being… along with details of the threat itself, the communication suggests measures that can be

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been shown to underlie attitudes about the development of various energy sources (Smith, 2002; Ansolabehere, 2007). I include measures for these related values in the analyses below.

[8] The effects of threatening messages on behavior have also been explained by Tversky and Kahneman's prospect theory (1981). Prospect theory explains that individuals' preferences are reference dependent – i.e., they depend on whether choices are cast in a positive or negative light. A key fact is that losses tend to loom larger than comparable gains for individuals, and behavior is contingent on whether individuals are in a frame of gains (promoting risk aversive action) or losses (promoting risk seeking action).

[9] These appeals are commonly referred to as "fear appeals" in the communication literature. However, in empirical tests, the focus is often on the cognitive processes involved in evaluating a message designed to arouse an emotional state. In this paper, I use the terms fear appeals and threat appeals interchangeably (see also Beck & Frankel, 1981).

taken to avoid or to reduce its impact" (Milne, Sheeran, & Orbell 2000: 107).[10] Although threat appeals can be an effective psychological motivator of action, the effectiveness of any particular appeal is contingent on the behavior being studied and the context in which the information is encountered (Rothman et al., 2006; O'Keefe & Jensen, 2007; O'Keefe & Jensen, n.d.).

Applications of the threat appeal literature to political behavior have explored questions such as whether individuals are more likely to vote for a non-threatening candidate, seek out political information, or make a financial contribution to an advocacy group to fight against threatening policy change.[11] Miller and Krosnick (2004) demonstrate that a fundraising letter with information about a threatening policy change (toward abortion) was more likely to motivate a financial contribution (to a pro-choice organization) compared to a letter emphasizing the potential opportunities of passing favorable legislation (see Campbell, 2003, for a similar study about Social Security and Medicare).

Despite the large body of empirical evidence that shows threat is a powerful motivator of action, recent studies have begun to question whether more negativity is always better. In a meta-analysis of 53 studies that test whether threat appeals are more effective in motivating disease detection behaviors, O'Keefe & Jensen (n.d.) find that threatening (i.e., *loss framed*) messages – emphasizing the negative consequences of failing to comply with a communicator's

[10] Explanations of how threat/fear appeals affect behavior continue to be a subject of debate among experts. The primary disagreement is over whether the key factor at work is taken to be an emotional reaction (e.g., fear) or a cognitive reaction (e.g., a judgment of the seriousness of the problem) (O'Keefe 2002: 227). The psychological literature on these appeals can be classified according to three major groups: drive-reduction theory, parallel response models, and subjective expected utility models (Witte & Allen, 2000). Some research offers a greater role to fear (e.g., Hovland, Janis, & Kelley 1953; Witte 1992a; 1992b), whereas others such as protection-motivation theory (PMT) (Rogers 1975; see also, Levanthal, 1971) ascribe very little role to emotion. PMT depicts such actions as influenced by various cognitive assessments (threat appraisal and coping appraisal) (Ruiter et al, 2001; Witte & Allen, 2000).

[11] See for instance, Brader, Valentino, & Suhay, 2008; Miller et al., 2002; Marcus, Neuman, & MacKuen, 2000; Campbell, 2003; Hansen, 1985; Loomis & Cigler, 1995; Ornstein & Elder, 1978; Miller & Krosnick, 2004: 509).

recommendations – are only slightly more effective than messages that emphasize the positive outcomes resulting from an action. In a different meta-analysis of this literature, Witte & Allen (2000) find that threat appeals are often ineffective at motivating action. They attribute this to a two-step cognitive process in which individuals first evaluate their own susceptibility to a threat, and, subsequently, begin a second appraisal in which the efficacy of the proposed response is considered. They find that when information is provided about an efficacious response, threatening messages are likely to produce adaptive behavior; however, in the absence of perceptions of an efficacious response, individuals are motivated to control aroused fear by dismissing the communication or denying they are at risk (Witte & Allen, 2000: 294). A key finding is that perceptions about the efficacy of a response tends to be more important in predicting action relative to descriptions of the severity of an impending threat (Ruiters et al., 2001; Floyd et al., 2000). [12] Thus, assuming threat appeals are always more effective at motivating action may be misplaced. When it comes to decisions about whether or not to take action to help secure a public good, threat appeals may be ineffective unless the behavior is perceived as *efficacious* – i.e., as "having the power to produce a desired effect" (Merriam-Webster Online Dictionary). Given this literature, in the absence of any cues about an action's efficacy, I expect threat appeals will have no greater effect on attitudes and behavior relative to equivalent messages that focus on the benefits of taking action (*hypothesis 3a*).

More recent studies conducted by scholars in the field of health-communications shows that the effectiveness of a threat appeal depends on the nature of the behavior in question – i.e., whether the action is preventative or detective (Rothman et al., 2006; O'Keefe & Jensen, 2007; O'Keefe & Jensen, n.d.). Communications emphasizing the benefits of preventative health

[12] "Response efficacy is the belief that the adaptive response will work, that taking the protective action will be effective in protection the self or others" (Floyd, Prentice-Dunn & Rogers 2000:411; see also Abraham et al.,1999; Rippetoe & Rogers, 1987; Witte et al., 1998).

behaviors (e.g., wearing sunscreen) are more likely to motivate action than threatening appeals (Salovey & Williams-Piehoeta, 2004; O'Keefe & Jensen, 2007); but messages focusing on the threat, or losses, associated with inaction are slightly more likely to motivate detection behaviors (e.g., cancer screening) (O'Keefe & Jensen, n.d.). This finding is attributed to different levels of risk being associated with these actions.[13] Conserving energy is often advocated as a way to *prevent* energy shortages and future environmental catastrophe (Bolsen, 2010b). Energy conservation, in this sense, is akin to taking preventative health action – because the underlying motivation is to prevent the occurrence of an undesirable outcome (or preserve a desirable state). Therefore, I expect appeals focusing on the *benefits* of conservation will be more effective at motivating action [relative to a threat appeal] *but only in contexts in which taking action is perceived to be efficacious (hypothesis 3b).*

Social norms are a contextual force that can provide cues about the efficacy of an action. Norms refer to socially shared agreement about what constitutes appropriate and inappropriate behavior (Cialdini, 2005). Normative influence arises from both an internal process in which norms affect attitudes (e.g., generating considerations about the importance and/or efficacy of an action), and from an external process in which people monitor and regulate public behavior (Bolsen, 2010a; Berinsky, 2004; Mutz, 1998; Noelle-Neuman, 1989; Snyder, 1987). For instance, merely increasing the salience of a norm (e.g., by priming normative considerations) often induces conformity to actions such as recycling (Schultz, 1999), re-using towels in hotels

[13] This literature focuses on a particular type of framing device referred to as goal, or message, frames (Levin, Schneider, & Gaeth, 1998; Bolsen, 2009; Druckman, 2009). Message frames are designed to increase a targeted, desired behavior (e.g., pre-cancer screening). As opposed to other types of equivalency (valence) frames, the dependent variable in this research is a measure of the actual number of people that perform a recommended behavior. Few studies explore whether goal frames affect political behavior; however, this literature is instructive in terms of understanding how various appeals may affect willingness to take *preventative*-environmental actions such as reducing energy consumption.

(Goldstein, Cialdini, & Griskevicious, 2007), and buying energy efficient light bulbs (Bolsen, 2010a). [14]

As defined above, efficacy refers to beliefs about whether one's own actions exert an influence on collective outcomes. Prior research has shown that individuals base their actions, in part, on perceptions about the likely actions of others, as well as using their own behavior as a diagnostic cue of how others will act (e.g., see Quattrone & Tversky, 1984, experiment 2). Thus, a pro-energy-conservation norm (but not a norm against taking action) should provide a context in which behavior is perceived as efficacious. Consequently, I expect a pro-conservation-norm to moderate (i.e., strengthen) the impact of an appeal focusing on the benefits of energy conservation - increasing favorable attitudes, intentions, and actions (relative to the threat and benefit or threat appeal alone) (*hypothesis 4*).

Experimental Procedure and Design

To test my hypotheses, I designed a survey- experiment. The study was implemented by Bovitz Research Group in December of 2009, using a web-based panel that draws a sample demographically representative of the overall U.S. population. Each respondent (n = 750) agreed to participate in an IRB-approved "study about political learning" and was informed he/she would be paid $1 for completing the survey.[15]

[14] Norms also affect behavior through an external mechanism in which individuals monitor and regulate their observable actions. Gerber, Green, and Larimer (2008) conducted a field experiment on the impact of various messages on voter turnout. One treatment (mailer) reminded households that voting was a matter of public record, and included the recent voting history for household members and neighbors. The results from this study showed that a message designed to create social pressure to vote significantly increased turnout above all other conditions (8% above the baseline). A key implication is that although behavior is affected by internal considerations (e.g. sense of civic duty, obligation, expressive act), external pressure (e.g. fear of isolation, social sanctions, etc.) also regulates thoughts and actions.

[15] The demographic profile of the sample is reported in Table A-1 in the Appendix.

The main dependent variables consisted of measures for: (a) attitudes about the importance and (b) efficacy of conserving energy, (c) intentions talk with others about ways to reduce energy consumption, and (d) a measure of overt behavior – i.e., whether at the conclusion of the survey the respondent chose to donate a portion of their remuneration to a non-profit organization that promotes energy conservation.

- I measured attitude about the importance of reducing energy consumption by asking participants to rate on 7-point scales, how important it is to: (a) "take action to conserve energy"; (b) "make a conscious effort to reduce driving"; (c) "replace incandescent light bulbs with energy efficient light bulbs"; (d) "adjust the thermostat setting to reduce home energy usage"; (e) "turn off lights and appliances when not in use to conserve energy"; (f) "purchase energy efficient appliances"; and, (g) "drive cars that get better gas mileage" (1=not too important, 4=moderately important, 7= extremely important) (see Bolsen, 2010a, Stern, 1999; 2000).[16]
- To measure perceptions about the efficacy of taking action, participants rated on 7-point scales the extent to which they agreed or disagreed with two statements: (a) "I believe my actions have an influence on the nation's energy situation"; (b) "My actions to help the nation achieve energy independence encourage others in my community to take action that will lead to greater energy independence" (1 = strongly disagree, 4= not sure, 7 = strongly agree) (see Bolsen, 2010a, Lubell et al., 2007; Finkel, Mueller, & Opp, 1989).[17]
- I measured intentions to talk with others about conserving energy by asking participants to rate on a 7 point scale how likely they are to "make an effort to talk with others (e.g.,

[16] I aggregated these items to create an attitude *importance scale* (alpha = .92).
[17] I averaged these items into a *collective efficacy* scale (alpha = .81).

family and friends) about ways to reduce energy consumption?" (1 = extremely unlikely, 4 = not sure, 7 = extremely likely).

- I measured overt behavior at the conclusion of the study by giving all participants the option to donate a portion of their $1 to "the American Council for an Energy Efficient Economy (ACEEE) – a non profit organization dedicated to advancing energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection"[18] (see similar measures in Miller & Krosnick, 2004; Miller et al., 2002).

Finally, I included two items each measuring the values of universalism,[19] environmentalism,[20] and humanitarianism.[21] The survey included standard demographic measures such as education, party identification, age, sex, income, political interest, trust in government, media usage, and a few other items. I report the descriptive statistics for the sample in Table A-1 in the Appendix.

Experimental Conditions

[18] Participants were given the option of checking a box to donate $0.25, $0.50, $0.75, $1.00, or a box labeled "I'm not interested in donating." Because over 90% of respondents chose either to donate the entire $1 or not make a donation, I collapse this to a dichotomous variable in the analyses below.

[19] Participants responded to four items measuring this value – 2 items from the Schwartz PVQ battery and 2 items from the original SVS battery. Specific wordings of these items are available upon request from the author. I averaged these items into a *universalism* scale for the analyses (alpha = .82) (see Schwartz, 1992; Schwartz & Bardi, 2003).

[20] Each participant answered two questions on 7 point scales about the relative importance of protecting the environment at the risk of curbing economic growth (1 = definitely protect the environment, 4= equally important, 7 = definitely maintain a prosperous economy) and the degree to which environmental regulations are necessary to protect the environment (1= tougher environmental regulations needed, 4 = not sure, 7= environmental regulations already too tough). I averaged these 2 items for an *environmentalism* scale (alpha = .77) (see Druckman, 2001).

[21] Each participant responded to 2 statements on 7 point scales (1= strongly disagree; 7= strongly agree): (a) One should always find ways to help others less fortunate than oneself; (b) One of the problems of today's society is that people are often not kind enough to others. I averaged responses to these items into a single *humanitarianism* scale (alpha = .71). (ANES items).

I designed the experiment to test the effectiveness of different types of appeals to conserve energy – i.e., an appeal focusing on the benefits of taking preventative action or the threat associated with inaction - across three normative contexts (no norm, pro-norm, con-norm). The conditions were designed to replicate and extend those employed in Bolsen (2010a). Table 1 lists the full set of conditions, to which respondents were randomly assigned.[22]

[Insert Table 1 Here]

As shown in the second column of Table 1, participants were randomly assigned, in *all conditions,* to read one of two "excerpts" from a "non-partisan editorial" that had "recently appeared in U.S. newspapers." Both versions stated that "decisions about energy consumption have important environmental implications" and taking personal steps to reduce consumption (or failing to do so in the case of the threat appeal) would help "ensure continued human existence with an adequate quality of life" (benefit appeal) or "result in increasingly uncomfortable [lives]… and eventually make Earth uninhabitable" (threat appeal). Thus both appeals focus on taking action as a means of preventing an undesirable future state; the treatments differ only in terms of gains or losses associated with action or inaction. The benefit appeal stated that decreasing energy consumption would "reduce greenhouse gas emissions the equivalent of removing all U.S. passenger vehicles off the road for a year," whereas the threat appeal focused

[22] There were two other conditions in the survey that I do not discuss here. These conditions received only pro or con normative information (in the absence of an explicit appeal to conserve energy). Focusing exclusively on a comparison of these two conditions, the data indicate that the pro-norm information has a positive and significant affect on attitudes, intentions, and action; but my focus here is on the conditional effects of appeals in various normative contexts. In addition ½ of respondents in the dual treatment conditions (PnBa, CnBa, PnTa, and CnTa) were told that their responses and decisions would be made public to "local and regional news outlets" either to thank participants for their donations or for a story "about the misplaced beliefs that small contributions matter" – depending on the direction of the normative treatment to which a person was assigned. However, adding this "external" normative information – i.e., about making the results public – had no impact whatsoever on respondents' attitudes, intentions, or actions. Therefore I do not report these as separate conditions in Table 1.

on the "harmful and possibly irreversible changes to the environment" resulting from fossil fuel consumption. To test my expectations, it is essential to show the rhetoric treatments are perceived as the same in terms of conveying support for taking action to reduce energy consumption, and differ only in terms of threat arousal (e.g, see Levin, Schneider, & Gaeth, 1998). To ensure this, I pre-tested both versions of the appeal on 153 undergraduate students enrolled in an introductory political science class. The pre-test results confirmed that the appeals were seen as equally supportive of taking action to reduce energy consumption and equally understandable; however, the threat appeal was seen as arousing a significantly greater perception of threat/fear relative to the benefit/gain appeal (2.9 versus 4.97, 1-7 scale very threatening/not at all threatening, $t= 13.45$, $p < .000$).

Table 1 also shows that I randomly assigned participants to one of three normative conditions: no norm, pro-conservation norm, or con-conservation norm condition. The manipulation itself consisted of "excerpts" from a "press release that recently appeared in U.S. newspapers." The pro and con treatments varied in terms to the degree to which Americans were portrayed as supporting steps to reduce energy consumption (i.e., the pro manipulation stated "the vast majority of Americans support taking steps to conserve energy," whereas the con condition stated "only a small minority of Americans think it is necessary to take small steps to conserve energy"). In addition, the treatments differed in terms of the percentage of people subjects were told had made a contribution to a non-profit organization that promotes conservation in a similar study (i.e., "over 90%" versus "only 3" for the pro and con treatments, respectively).

The third column in Table 1 lists the predicted effect of each condition on behavior. Because my theoretically derived predictions focus on the conditional effect of rhetoric across

normative contexts, a key comparison in the analyses below involves the effects of a benefit/threat appeal encountered in the absence of an efficacious context (i.e., Ba and Ta), to the same appeals encountered in an efficacious normative context (PnBa and PnTa), and to the effects of the appeal within a "con-norm" (i.e., the behavioral context does not provide efficacy because others are described as not performing these actions) environment that should obviate any impact of appeals for action (CnBa/CnTa). Ba is the baseline condition in the analyses below, and I follow the vast majority of scholars in the framing literature in making comparisons between subjects in conditions that received different information treatments (but see Chong & Druckman, 2007a:105, on the advantages of making these comparisons to a control group). In addition, Druckman (2001c: 99) highlights the importance of using an empirically derived baseline to evaluate message framing. Thus, the benefit appeal only condition (i.e., Ba) serves as an empirically derived baseline by which to compare the impact of this same appeal encountered in an efficacious normative context (PnBa), as well as to other conditions where I predict there should be no effect – i.e., Ta, PnTa, CnBa, and CnTa. It is essential to include the additional conditions where I predict "no effect" in Table 1 to determine whether action results from the unique combination of a benefit appeal coupled with a pro-normative behavioral context.

Results

I begin by investigating, in Table 2, the effects of the experimental conditions (and values hypothesized to shape attitudes and behavior) on four main dependent variables: attitudes about the importance and CE of conserving energy, intentions to discuss with others ways to conserve energy, and whether a financial contribution was made to a nonprofit organization that promotes

energy conservation.[23] In the statistical analyses, I use OLS regression and Probit estimation and transform all independent variables to 0 to 1 scales or dummy variables for each condition.

[Insert Table 2 Here]

The results reported in Table 2 provide strong evidence in support of hypotheses 3a, 3b, and 4. Hypothesis 3a predicts that the threat appeal alone will have no greater impact on attitudes and behaviors relative to the benefit appeal alone (baseline), and in three of four models reported in Table 2 this is precisely what the data indicate (the lone exception is that the threat appeal causes significantly greater intentions to discuss ways to reduce energy consumption with others). Thus, in support of hypothesis 3a, the threat appeal has no greater effect than the benefit appeal on beliefs about the importance of reducing energy consumption, the efficacy associated with taking action, or willingness to make a financial contribution to a conservation organization in a context with no normative cue.

Significant differences emerge when social norms are introduced (supporting hypothesis 3b & 4). Relative to the baseline condition (Ba), PnBa is positive across all dependent variables and statistically significant in three of the four models i.e., *reading the pro-norm press release and benefit appeal significantly increases the importance associated with taking action, willingness to talk with others about ways to reduce consumption, and donations to an energy conservation organization*. The pro normative treatment appears to have provided a context in which the impact of the benefit appeal is magnified. This supports my expectation that the effectiveness of an appeal is conditional on the context in which the appeal is encountered. Also of interest, the "con-norm" treatment in conjunction with the benefit appeal (CnBa) is ineffective

[23] The abbreviations for each condition are consistent with those used in Tables 1. The results are unchanged if only the conditions are included in the models as opposed to the conditions and the values measures. The results are robust to the inclusion of all demographic variables listed in Table A-1 in the Appendix. The means and standard deviations for each dependent variable are reported in Table A-2 in the Appendix.

in motivating action. The null effect of the con norm treatment is interesting because it may suggest potential limits of manipulating the direction of a social norm, i.e., because respondents did not become less likely to take action.[24] Also of interest is the powerful effect that values have across the models in Table 3. This offers strong support for my predictions that specific values that promote self-sacrifice (universalism, environmentalism, humanitarianism) increase favorable attitudes, intentions, and actions to reduce energy consumption (hypothesis 2).

To further illustrate the results from my predictions about the effects of different types of appeals across contexts, I plot the results from three of the models in Figures 1-3. I used *Clarify* to generate predicted probabilities for these select dependent variables (Tomz et al., 1999).[25] Recall that hypothesis 3b predicted that because taking action to reduce energy consumption for environmental purposes is akin to preventative action, the benefit appeal would be more effective than the threat appeal in motivating action when the action is seen as efficacious. The data provide strong support for this prediction. Across *all models*, PnBa is significantly greater than PnTa ($p < .05$, one-tailed test). As shown in Figure 1, PnBa increases the importance associated with taking action to reduce energy consumption (9% above PnTa). A similar gap (8%) is shown in Figure 2 looking at the predicted effects of the conditions on intentions to talk with others. The gap widens when looking at actual behavior in terms of making a financial contribution – i.e., the manipulations led to a 21% predicted difference in likelihood of donating due to assignment to PnBa versus PnTa (see Figure 3). The other striking result in all three figures is the ineffectiveness of the appeals in any other condition besides the pro-conservation-

[24] This result generally holds for CnTa condition too – i.e., random assignment to this condition has no effect, relative to the baseline, in three of the four models; however, curiously, this condition does lead to greater intentions to discuss ways to reduce energy consumption with others.

[25] I do not plot the results for CE because the experimental conditions did not significantly affect these variables (see Table 2).

norm condition (although the exception is the impact of the threat appeal in Figure 2). In general, and in support of my expectations, the unique combination of an appeal focusing on the benefits of a preventative action to reduce energy consumption coupled with a normative context in which others are seen as taking action significantly increases the favorable attitudes and overt action to reduce energy consumption.

[Insert Figures 1-3 Here]

Having demonstrated the direct effect of the experimental conditions (and values) on attitudes, intentions, and overt action, I next turn to testing my predictions that attitude importance (hypothesis 1a) and CE (hypothesis 1b) increase actions to secure a public good. I also test for mediation to see whether the experimental conditions and values are no longer predictive of behavior once I control for attitude importance and efficacy - using a conventional method that entails re-estimating the models in columns 3 and 4 in Table 2 with the inclusion of attitude importance and CE as independent variables (Baron & Kenny, 1986). The results from these estimations are reported in Table 3.

[Insert Table 3 Here]

The data reported in Table 3 provide strong support for hypothesis 1a - attitude importance significantly increases intentions to talk with others about ways to reduce consumption (column 1, Table 3) and donations to an energy conservation organization (column 2, Table 3). I use Clarify to compute the predicted change in each dependent variable as the importance measure increases from its minimum to maximum value, and the probability of talking with others increases by 39%; the probability of making a donation increases by 38%. Thus, individuals are much more likely to take action for the sake of a public good when the action is deemed important. In support of hypothesis 1b, beliefs about the efficacy (CE) of an

action play a role in determining whether or not to talk with others about ways to reduce consumption; however, somewhat surprisingly, CE does not significantly increase willingness to make a donation.

I also find, in Table 3, very little evidence that the effect of rhetoric and a pro-conservation norm is mediated by attitude importance and CE. In both estimations reported in Table 3, random assignment to the PnBa condition significantly increases willingness to talk with others and donation-behavior - even when measures of attitude importance and collective efficacy are included as predictor variables in these regressions. Although there is no evidence of mediation for the experimental manipulations, there is evidence that the impact of values on behavior is mediated by attitudes about the importance and efficacy of taking action, as these measures become less significant (or insignificant altogether) once importance and CE are accounted for in the estimations (e.g., compare the effect of values in columns 3 and 4 of Table 2 with their effects in Table 3).

Conclusion

The question of what shapes citizens' willingness to make sacrifices for the provision of a public good is increasingly important as humanity faces the daunting challenge of maintaining an adequate energy supply and simultaneously mitigating the emission of pollutants associated with global warming (Bolsen & Cook, 2008). Although numerous studies have explored the effects of single variables that influence private actions undertaken for a public good, extant work has often ignored the influence of social context in determining attitudes and behaviors (Druckman & Lupia, 2000; Stern, 1999; 2000). I presented a theory and evidence that supports previous findings regarding the powerful role that social norms play in shaping behavior in this domain (see also, Bolsen, 2010a; Nolan et al., 2008). The normative manipulation I implemented

significantly increased (moderated) the impact of an appeal focusing on the benefits of taking action to conserve energy. This mirrors results from research on the effectiveness of messages that focus on the benefits of taking preventative health behaviors in contexts in which the action is perceived as efficacious (O'Keefe & Jensen, 2007; Salovey et al., 2002; Rothman et al., 2006; but see, Witte & Allen, 2002).

Interestingly, threat appeals were ineffective at motivate action - these messages alone or in combination with a pro normative message had almost no effect on attitudes and behavior. This finding has implications for scholars interested in communicating the need for behavior change with respect to issues related to global warming. In particular, negative and threatening messages may not always be an effective motivator of action; rather the effect of this class of rhetoric appears to depend crucially on the context in which the appeal is encountered and the nature of the behavior in question. If negative outcomes are viewed as unavoidable (e.g., if response efficacy is perceived as low), threat appeals may be dismissed, or their perceived impacts psychologically discounted, instead of promoting behavior change (Corner & Hahn, 2009: 207-208). Similar arguments already have been made by communication scholars studying the issue of global warming – i.e., with respect to the use of a *Pandora's box* frame about a looming "climate crisis" unless preventative action is taken and/or specific polices adopted (Nisbet & Scheufele, 2009: 5-6; Nisbet, 2009). More specifically, the use of threat appeals (especially by partisans) is easily re-cast as "alarmism" by opponents, evoking frames related to scientific uncertainty and ultimately reinforcing skepticism about the extent of a threat.

My results also may suggest limitations in terms of the ability to test my theory in the context of a web-survey. Previous research conducted in a laboratory setting shows that normative influence can operate independently of its effects on attitudes (e.g., through an

external mechanism in which individuals monitor and regulate their behavior to bring it in line with prevailing normative standards). The inability to uncover evidence of an external mechanism of influence in this study likely resulted from the difficulty of incorporating external normative cues into the survey context.[26] In addition, the inability of the con-norm to significantly decrease willingness to take action (i.e., below the baseline condition) may suggest limitations in terms of the ability to manipulate the direction of a norm. In other words, while an existing pro-energy-conservation norm may have been primed by the pro-treatment there is no evidence that a new norm can be created (this may be thought of as a kind of "pre-treatment" effect, insofar as a norm may already exist in society that limits the extent to which a norm can be moved). In sum, this study accentuates the importance of the social and political context in moderating the influence of rhetoric targeting collective action. Moreover, it is one of the few studies to move beyond self-reports and measure overt behavior. Future work should continue to test the framework across operationalizations, contexts, populations, and settings.

References

Albarracin, Doloris, Blair T. Johnson, Martin Fishbein, & Paige A. Muellerleile (2001). "Theories of Reasoned Action and Planned Behavior as Models of Condom Use: A Meta-Analysis." *Psychological Bulletin*, 127: 142-161.

Ansolabehere, Stephen & David M. Konisky. (2009). "Public Attitudes toward the Construction of New Power Plants." Unpublished manuscript.

Armitage, Christopher J. & Mark Conner. (2001). "Efficacy of the Theory of Planned Behavior: A Meta-Analytic Review," *British Journal of Social Psychology*, 40: 471-499.

Ajzen, Icek. 1991. "The Theory of Planned Behavior." *Organizational Behavior and Human Decision Processes*, 50: 179-211.

[26] Bolsen (2010a) operationalized the external normative treatment by informing participants they would be asked to justify their actions to others in a group discussion following the laboratory session. The external treatment in this study was evidentially much weaker as there was no observed effect of adding this statement to any condition in the study.

Ajzen, Icek & Martin Fishbein. (2005). "The Influence of Attitudes on Behaviors." In Dolores Albarracin, Blair T. Johnson, & Mark P. Zanna (Eds.), *The Handbook of Attitudes*. London: Lawrence Erlbaum Associates.

Ajzen, Icek., & Fishbein, Martin. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Baron, Reuben M. & David A. Kenny. (1986). "The Moderator-Mediator Variable Distinction in Social Psychology Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology*, 51 (6): 1173-1182.

Bardi, Anat & Shalom H. Schwartz. (2003). "Values and Behavior: Strength and Structure of Relations." *Personality and Social Psychology Bulletin*, 29: 1207-1220.

Bartels, Larry M. (1993). "Messages Received: The Political Impact of Media Exposure." *American Political Science Review*, 87: 267-285.

Berinsky, Adam T. (2004). "Can We Talk? Self-Presentation and the Survey Response." *Political Psychology*, 25 (4), 643-659.

Black, Stanley J., Paul C. Stern, & Julie T. Elworth. (1985). "Personal and Contextual Influences on Household Energy Adaptations." *Journal of Applied Psychology*, 70 (1): 3-21.

Brewer, Paul R. (2003). "Values, Political Knowledge, and Public Opinion about Gay Rights: A Framing-Based Account." *Public Opinion Quarterly*, 67: 173-201.

Beck, Kenneth H. & Arthur Frankel. (1981). "A Conceptualization of Threat Communications and Protective Health Behavior." *Social Psychology Quarterly*, 44: 204-217.

Berinsky, Adam J., & Donald R. Kinder. (2006). "Making Sense of Issues Through Media Frames: Understanding the Kosovo Crisis," *The Journal of Politics*, 68: 640-656.

Bolsen, Toby. (2010a). "A Light Bulb Goes On: Values, Attitudes, Social Norms, and Personal Energy Consumption." Unpublished manuscript: Northwestern University.

Bolsen, Toby. (2010b). "The Construction of News: Energy Crises, Advocacy Messages, and Frames toward Conservation." Unpublished manuscript: Northwestern University.

Bolsen, Toby. (2009). "Framing Effects and Political Behavior." 2009. In *From the Mind to the Feet: Assessing the Intent-to-Action Dynamic*. Larry Kuznar (Ed). Office of the Secretary of Defense, Directorate of Defense Research and Engineering, and The U.S. Global Innovation and Strategy Center, Washington, D.C.

Bolsen, Toby & Fay Lomax Cook. (2008). "Public Opinion on Energy Policy, 1974-2006." *Public Opinion Quarterly*, 72 (2): 364-388.

Boninger, David S., Jon A. Krosnick, & Matthew K. Berent. (1995). "Origins of Attitude Importance: Self-Interest, Social Identification, and Value Relevance." *Journal of Personality and Social Psychology*, 68 (1): 61-80.

Brader, Ted, Nicholas A. Valentino, & Elizabeth Suhay. (2008). "What Triggers Public Opposition to Immigration? Anxiety, Group Cues, and Immigration Threat." *American Journal of Political Science,* 52 (4): 959-978.

Brouwers, Melissa C., & Richard M. Sorrentino. (1993). "Uncertainty Orientation and Protection Motivation Theory: The Role of Individual Differences in Health Compliance." *Journal of Personality and Social Psychology*, 65: 102-112.

Chong, Dennis & James N. Druckman. (2010). "Dynamics in Mass Communication Effects Research." In Holli Semetko & Maggie Scammel (Eds.), *The Sage Handbook of Political Communication*. Thousand Oaks, CA: Sage Publications, Forthcoming.

Chong, Dennis & James N. Druckman. (2007a). "A Theory of Framing and Opinion Formation in Competitive Elite Environments." *Journal of Communication*, 57: 99-118.

Chong, Dennis & James N. Druckman. (2007b). "Framing Public Opinion in Competitive Democracies." *American Political Science Review*, 101: 637-655.

Cialdini, Robert B. (2005). "Basic Social Influence is Underestimated." *Psychological Inquiry*, 16: 158-161.

Cialdini, Robert B. (2001).*Influence: Science and Practice*. Boston, MA: Allyn & Bacon. 4th ed.

Davidov, Eldad, Peter Schmidt, & Shalom H. Schwartz. (2008). "Bringing Values Back In: The Adequacy of the European Social Survey to Measure Values in 20 Countries." *Public Opinion Quarterly*, 72 (3): 420-445.

Druckman, James N. & Arthur Lupia. (2000). "Preference Formation." *Annual Review of Political Science*, 3: 1-24.

Druckman, James N. (2001a). "The Implications of Framing Effects for Citizen Competence." *Political Behavior*, 23(3): 225-256.

Druckman, James N. (2001b). "On the Limits of Framing Effects: Who Can Frame?" *Journal of Politics*, 63(4): 1041-1066.

Druckman, James N. (2001c). "Evaluating Framing Effects." *Journal of Economic Psychology*, 22: 91-101.

Druckman, James N. (2004). "Political Preference Formation: Competition Deliberation, and the (Ir)relevance of Framing Effects." *American Political Science Review*, 98 (November), 671-86.

Druckman, James N. (2010). "Competing Frames in a Political Campaign." In Brian F. Schaffner & Patrick J. Sellers, (Eds.), *Winning with Words: The Origins and Impact of Framing*, pp. 101-120. New York: Routledge.

Druckman, James N., Kiefer, Martin, & Michael Parkin. (2009). "Timeless Strategy Meets New Medium: Going Negative on Congressional Campaign Websites, 2002-2006." Paper presented at the annual meeting of the American Political Science Association Toronto, Ontario, September 3-6, 2009.

Druckman James N. & Justin W. Holmes. (2004). "Does Presidential Rhetoric Matter?: Priming and Presidential Approval." *Presidential Studies Quarterly*, 34: 755-778.

Druckman, James N. & Michael Parkin. (2005). "The Impact of Media Bias: How Editorial Slant Affects Voters." *The Journal of Politics*, 67: 1030-1049.

Druckman, James N. & Joanne M. Miller. (2004). "The Political Psychology of Electoral Campaigns: Introduction to the Symposium." *Political Psychology*, 25: 501-506.

Druckman, James N. (n.d.). "What's it All About?: Framing in Political Science." In Gideon Keren, (Ed.), *Perspectives on Framing*. New York: Psychology Press/Taylor and Francis. Forthcoming.

Campbell, Andrea Louise. (2003). "Participatory Reactions to Policy Threats: Senior Citizens and the Defense of Social Security and Medicare." *Political Behavior*, 25 (1): 29-49.

Corner, Adam & Ulrike Hahn. (2009). "Evaluating Science Arguments: Evidence, Uncertainty, and Argument Strength." *Journal of Experimental Psychology: Applied*, 15 (3): 199-212.

Fazio, Russ H. (2007). "Attitudes as Object-Evaluation Associations of Varying Strength." *Social Cognition*, 25(5): 603-637.

Finkel, Steven E., Edward N. Mueller, & Karl-Dieter Opp. (1989). "Personal Influence, Collective Rationality, and Mass Political Action." *The American Political Science Review*, 83 (3): 885-903.

Fishbein, Martin & Icek Ajzen. (2010). *Predicting and Changing Behavior: The Reasoned Action Approach.* New York: Psychology Press.

Fiske, Susan T. & Shelley E. Taylor. (1991). *Social Cognition*. (2nd Edition). New York: McGraw-Hill.

Floyd, Donna L., Steven Prentice-Dunn & Ronald W. Rogers. (2000). "A Meta-Analysis of Research on Protection Motivation Theory." *Journal of Applied Social Psychology,* 30 (2): 407-429.

Goidel, Kirby & Matthew Nisbet. (2006). "Exploring the Roots of Public Participation in the Controversy Over Embryonic Stem Cell Research and Cloning." *Political Behavior*, 28: 175-192.

Gerber, Alan S., Donald P. Green, and Christopher W. Larimer. (2008). "Social Pressure and Vote Turnout: Evidence from a Large-Scale Field Experiment." *American Political Science Review*, 102 (1): 33-48.

Gerber, Alan S. and Todd Rogers. (2009). "Descriptive Social Norms and Motivation to Vote: Everybody's Voting and so Should You." *The Journal of Politics*, 71 (1): 178-191.

Gray, Jeffrey A. (1990). "Brain Systems that Mediate both Emotion and Cognition." *Cognition and Emotion,* 4: 269-288.

Hansen, John Mark (1985). "The Political Economy of Group Membership." *American Political Science Review*, 79: 79-96.

Hovland, Carl., Irving L. Janis, & Harold H. Kelley. (1953). *Communication and perxuasion.* New Haven, CT: Yale University Press.

Iyengar, Shanto, & Donald R. Kinder. (1987). *News That Matters: Television and American Opinion*. Chicago: University of Chicago Press.

King, David C., & Jack L. Walker. (1991). "An Ecology of Interest Groups in America." In *Mobilizing Interest Gropus in America*, ed. Jack L. Walker. Ann Arbor, MI: University of Michigan Press.

Krosnick, Jon A. (1990). "Government Policy and Citizen Passion: A Study of Issue Publics in Contemporary America." *Political Behavior*, 12(1): 59-92.

Lau, Richard R. & David P. Redlawsk. (2001). "Advantages and Disadvantages of Cognitive Heuristics in Political Decision Making." *American Journal of Political Science*. 45(3): 951-71.

Levanthal, Howard. (1970). "Findings and Theory in the Study of Fear Communications." In *Advances in Experimental Social Psychology (Vol 5)* (Ed.) Leonard Berkowitz. NY: Academic Press.

Levin, Irwin P., Sandra L. Schneider & Gary J. Gaeth. (1998). "All Frames Are Not Created Equal." *Organizational Behavior and Human Decision Processes* 76 (November): 149-88.

Loomis, Burdett A. & Allan J. Cigler. (1995). "Introduction: The Changing Nature of Interest Group Politics." In Allan J. Cigler and Burdett A. Loomis (eds.), Interest Group Politics, pp. 1–10. Washington DC: CQ Press.

Lubell, Mark, Sammy Zahran, & Arnold Vedlitz. (2007). "Collective Action and Citizen

Responses to Global Warming." *Political Behavior*, 29(3): 391-414.

Maddux, James E. & Ronald W. Rogers. (1983). Protection Motivation Theory and Self Efficacy: A Revised Theory of Fear Appeals and Attitude Change." *Journal of Experimental Social Psychology,* 19: 242-253.

Marcus, George E., William R. Neuman, & Michael B. MacKuen. (2000). *Affective Intelligence and Political Judgment*. Chicago: University of Chicago Press.

Miller, Joanne M., & Jon A. Krosnick. (2004). "Threat as a Motivator of Political Activism." *Political Psychology*,25 (4): 507-533.

Miller, Joanna M., Jon A. Krosnick, Laura Lowe, & Allyson Holbrook, A. (2007). *The impact of policy change threat on financial contributions to interest groups*. Unpublished manuscript, University of Minnesota.

Milne, Sarah, Paschal Sheeran, & Sheina Orbell. (2000) "Prediction and Intervention in Health-Related Behavior: A Meta-Analytic Review of Protection Motivation Theory." *Journal of Applied Social Psychology,* 30: 106-143.

Mutz, Diana C. (1998). *Impersonal Influence: How Perceptions of Mass Collectives Affect Attitudes*. Cambridge University Press.

Nisbet, Matthew C. & Dietram A. Scheufele. (2009). "What's Next for Science Communication? Promising Directions and Lingering Distractions." *American Journal of Botany*, 96(10): 1-12.

Nisbet, Matthew C. (2009). "Communicating Climate Change: Why Frames Matter for Public Engagement." *Environment*, 51: 12-23.

Nolan, Jessica, P. Wesley Schultz, Robert B. Cialdini, Noah J. Goldstein, Vladas Griskevicius. (2008). "Normative Social Influence is Underdetected," *Personality and Social Psychology Bulletin*, 34: 913 – 23.

Noelle-Neumann, Elisabeth. (1984). The *Spiral of Silence: Public Opinion – Our Social Skin*. University of Chicago Press

O'Keefe, Daniel J. 2002. *Persuasion: Theory and Research*. London: Sage Publications.

O'Keefe, Daniel J. & Jakob D. Jensen (n.d.). "The Relative Persuasiveness of Gain-Framed and Loss-Framed Messages for Encouraging Disease Detection Behaviors: A Meta-Analytic Review." Forthcoming. *Journal of Communication*.

O'Keefe, Daniel J. & Jakob D. Jensen. (2007). "The Relative Persuasiveness of Gain-Framed and Loss-Framed Messages for Encouraging Disease Prevention Behaviors: A Meta-Analytic Review." *Journal of Health Communication,* 12: 623-644.

Olson, Mancur. (1965). *The Logic of Collective Action*. Harvard University Press, MA.

Ornstein, Norman J. & Shirley Elder. (1978). *Interest Groups, Lobbying and Policymaking*. Washington DC: CQ Press.

Prontera, Andrea. (2009). "Energy Policy: Concepts, Actors, Instruments, and Recent Developments." *World Political Science Review*, 5(1): 1-30.

Quattrone. George A. & Amos Tversky (1984). "Causal Versus Diagnostic Contingencies: On Self-Deception and on the Voter's Illusion." *Journal of Personality and Social Psychology*, 46 (2): 237-248.

Rippetoe, Patricia A., & Ronald W. Rogers. (1987). "Effects of Components of Protection Motivation Theory on Adaptive and Maladaptive Coping with a Health Threat." *Journal of Personality and Social Psychology,* 52: 596-604.

Rogers, Ronald W. (1975). "A Protection Motivation Theory of Fear Appeals and Attitude Change." *The Journal of Psychology,* 91: 93- 1 14.

Rogers, Ronald W. & Steven Prentice-Dunn. (1997). "Protection Motivation Theory. In David S. Gochman (Ed.). *Handbook of Health Behavior Research. I: Personal and social determinants* (pp. 113-132). New York, NY: Plenum.

Rothman, Alexander J., Roger D. Bartels, Jhon Wlaschin & Peter Salovey. (2006). "The Strategic Use of Gain- and Loss-Framed Messages to Promote Healthy Behavior: How Theory Can Inform Practice." *Journal of Communication*, 56: S202-S220.

Ruiter, Robert A., Charles Abraham & Gerjo Kok. (2001). "Scary Warnings and Rational Precautions: A Review of the Psychology of Fear Appeals." *Psychology and Health*, 16: 613-630.

Salovey, Peter, Tamera R. Schneider & Anne Marie Apanovitch. (2002). "Message Framing in the Prevention and Early Detection of Illness." In James Prince Dillard & Michael Pfau (Eds), *The Persuasion Handbook: Developments in Theory and Practice* (pp391-406). Thousand Oaks, CA: Sage.

Salovey, Peter & Pamela Williams-Piehota. (2004). "Field Experiments in Social Psychology." *American Behavioral Scientist*, 47(5): 488-505.

Schultz, Wesley P., Jessica M. Nolan, Robert B. Cialdini, Noah J. Goldstein, and Vladas Griskevicius. (2007). "The Constructive, Destructive, and Reconstructive Power of Social Norms." *Psychological Science*, 18 (5): 429-434.

Schultz, Wesley P. (1999). "Changing Behavior with Normative Feedback Interventions: A Field Experiment on Curbside Recycling." *Basic and Applied Social Psychology*, 21: 25-36.

Schwartz, Shalom H. (1992). "Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries." In *Advances in Experimental and Social Psychology, vol. 24*, pp. 1-65. (Ed.) Mark P. Zanna. San Diego: Academic Press.

Sheeran, Paschal. (2002). "Intention-Behavior Relations: A Conceptual and Empirical Review." In Wolfgang Stroebe & Miles Hewstone (Eds.), *European Review of Social Psychology* (Vol. 12, pp. 1-36). Chichester, UK: Wiley

Smith, Eric R.A.N. (2002). *Energy, the Environment, and Public Opinion*. New York: Rowman & Littlefield.

Snyder, Mark. (1987). *Public Appearances/Private Realities: The Psychology of Self-Monitoring*. New York: Freeman.

Stern, Paul C. (2000). "Toward a Coherent Theory of Environmentally Significant Behavior," *Journal of Social Issues*, 56 (3): 407-424.

Stern, Paul. C. (1999). "Information, Incentives, and Proenvironmental Consumer Behavior." *Journal of Consumer Policy*, 22: 461–478.

Taylor, Shelley E. (1991). "Asymmetrical Effects of Positive and Negative Events: The Mobilization-Minimization Hypothesis." *Psychology Bulletin*, 110: 67-85.

Tomz, Michael, Jason Wittenberg & Gary King. (2003). "CLARIFY: Software for Interpreting and Presenting Statistical Results. Version 2.1." Stanford University, University of Wisconsin, and Harvard University. January 5. Available at http://gking.harvard.edu/

Tversky, Amos & Daniel Kahneman. (1981). "The Framing of Decisions and the Psychology of Choice." *Science*, 211: 453-458.

Visser, Penny S., George Y. Bizer, & Jon A. Krosnick. (2006). "Exploring the Latent Structure of Strength-Related Attitude Attributes." *Advances in Experimental Social Psychology,* 38: 1-67.

Witte, Kim. (1992a). "Putting the Fear Back into Fear Appeals: The Extended Parallel Process Model (EPPM)." *Communication Monographs,* 59: 329-349.

Witte, Kim (1992b). "The Role of Threat and Efficacy in AIDS Prevention." *International Quarterly of Community Health Education,* 12: 225-249.

Witte, K., & Mike Allen. (2000). "A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns." *Health Education and Behavior,* 25: 571-585.

Zaller, John. (1992). *The Nature and Origin of Mass Opinion*. New York: Cambridge University Press.

Table 1. Experimental Conditions, Treatments, and Expectations

Condition	Treatment	Predicted effect on behavior	*N*
Benefit appeal (Ba)	editorial	baseline	50
Pro-norm-benefit-appeal (PnBa)	press-release (pro) & editorial	increase action	100
Con-norm-benefit-appeal (CnBa)	press-release (con) & editorial	no effect	100
Threat appeal (Ta)	editorial	no effect	50
Pro-norm-threat-appeal (PnTa)	press-release (pro) & editorial	no effect	100
Con-norm-threat-appeal (CnTa)	press-release (con) & editorial	no effect	100
			N=500

Table 2. Effects of Experimental Conditions & Values on Attitudes and Behaviors

	Attitude Importance (1)	Collective Efficacy (2)	Discuss with Others (3)	Financial Contribution (4)
PnBa	.16 (.11)*	.12 (.14)	.61 (.27)***	.53 (.24)**
CnBa	-.03 (.11)	.09 (.14)	.19 (.27)	.21 (.25)
PnTa	-.10 (.11)	-.04 (.14)	.20 (.26)	-.08 (.26)
CnTa	.05 (.11)	.22 (.14)	.53 (.27)**	.30 (.25)
Ta	.10 (.13)	.09 (.16)	.58 (.31)**	.40 (.28)
Universalism	.37 (.04)***	.31 (.05)***	.59 (.10)***	.15 (.09)*
Environmentalism	.18 (.03)***	.27 (.04)***	.33(.08)***	.30 (.07)***
Humanitarianism	.18 (.04)***	.10 (.04)***	.23 (.09)*	.14 (.09)*
	N=500/ R^2=.36	N= 500/ R^2=.24	N= 500 R^2 = .22	N=500 *LL* = - 262.56

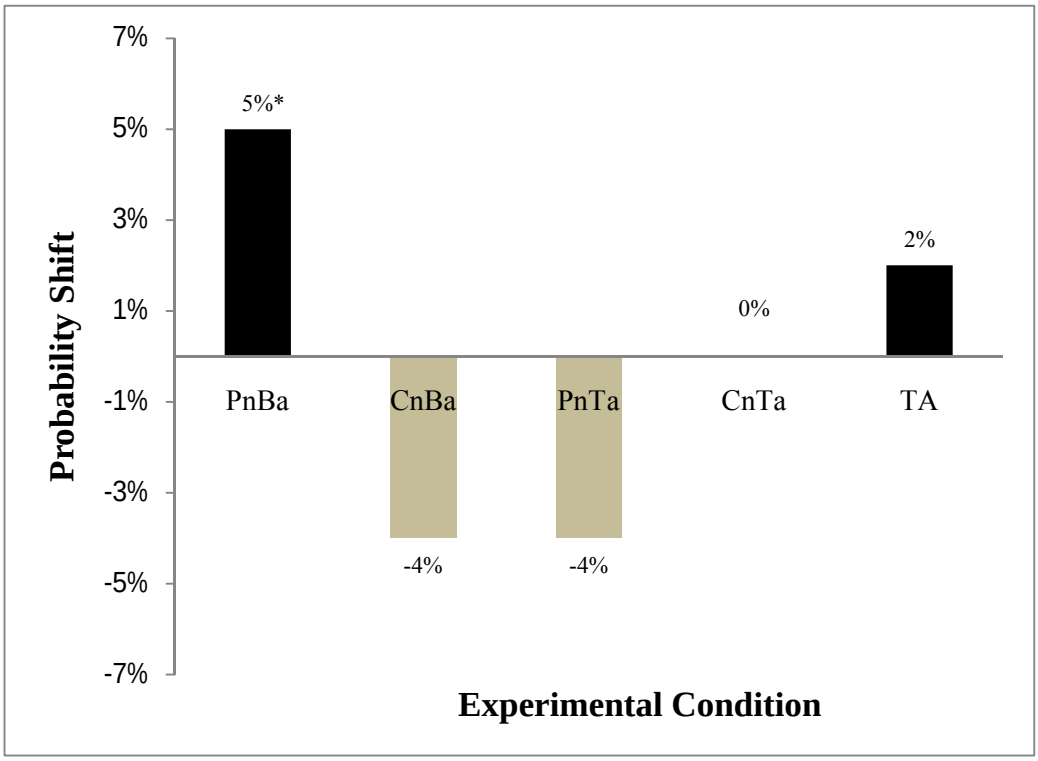
(*) indicates significant differences relative to the baseline (Ba); *p≤ .10, one-tailed test; ** p≤ .05, *** p≤ .01.

Table 3. Determinants of Talking with Others and Making a Donation

	Discussion	Financial Contribution
Att. Importance	.59 (.09)***	.43 (.12) ***
Collective Efficacy	.64 (.08)***	-.07 (.09)
PnBa	.44 (.23)**	.48 (.25)**
CnBa	.05 (.23)	.23 (.26)
PnTa	.29 (.23)	-.04 (.26)
CnTa	.35 (.23)	.30 (.25)
Ta	.45 (.27)**	.37 (.28)
Universalism	.16 (.09)**	.02 (.11)
Environmentalism	.04 (.07)	.26 (.08) ***
Humanitarianism	.06 (.08)	.09 (.09)
	N=500 R^2 = .41	N= 500 LL: -255.34

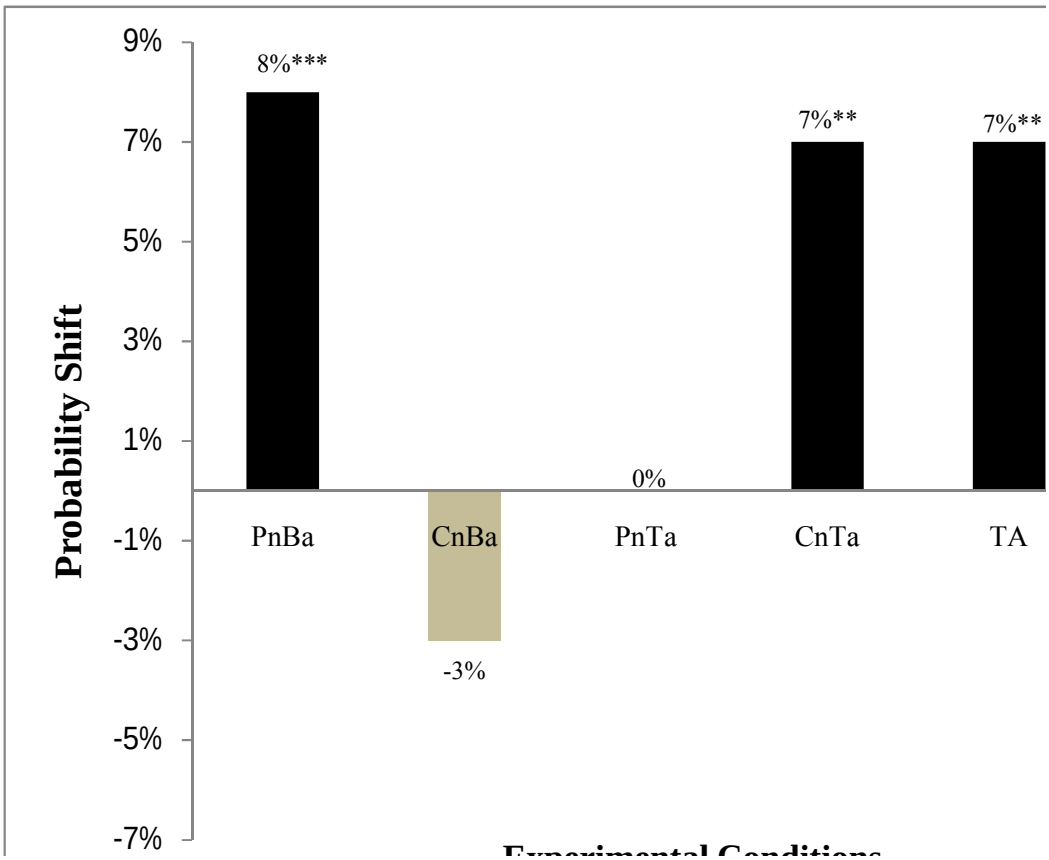
(*) indicates significant differences from the baseline condition (Ba); *p≤ .10, one-tailed test; ** p≤ .05, *** p≤ .01.

Figure 1. Effects of Exp. Conditions on Attitude about the Importance of Energy Conservation



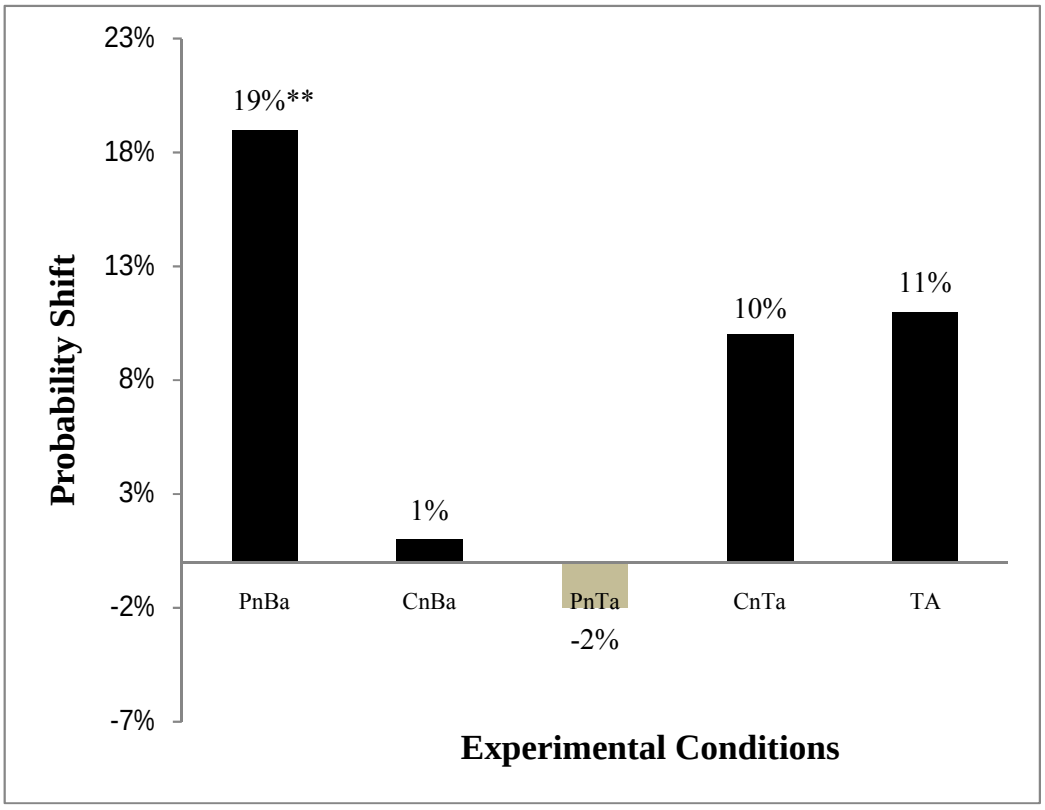
(*) indicates significant differences relative to the baseline (Ba); *p≤ .10, one-tailed test; ** p≤ .05, *** p≤ .01.

Figure 2. Effects of Exp. Conditions on Intentions to Discuss Ways to Reduce Consumption



(*) indicates significant differences relative to the baseline (Ba); *p≤ .10, one-tailed test; ** p≤ .05, *** p≤ .01.

Figure 3. Effects of Exp. Conditions on Making a Financial Contribution



(*) indicates significant differences relative to the baseline (Ba); *p≤ .10, one-tailed test; ** p≤ .05, *** p≤ .01.

Appendix

Editorial [excerpt] – Benefit Appeal
Decisions about energy consumption have important environmental implications. Energy sustainability involves using resources to ensure continued human existence with an adequate quality of life. Along these lines, purchasing energy efficient products would reduce greenhouse gas emissions the equivalent of removing all U.S. passenger vehicles off the road for an entire year.

Editorial [excerpt] – Threat Appeal
Decisions about energy consumption have important environmental implications. Human actions are producing harmful and possibly irreversible changes to the environment. Many threats are a direct result of our reliance on fossil fuels (such as oil) for energy. Unless individuals take steps to reduce consumption, these changes will make life increasingly uncomfortable (due to pollution) and eventually make the Earth uninhabitable.

Press Release [excerpt] – Pro norm
National opinion polls show that the vast majority of Americans support taking small steps to conserve energy (e.g., switching to energy efficient light bulbs). They believe in the worth of making small contributions. Moreover, over 90% of individuals who completed a public opinion survey about U.S. energy policy chose to donate the pay they received to a non-profit organization that promotes conservation.

Press Release [excerpt] – Con norm
National opinion polls show that only a small minority of Americans think it is necessary to take small steps to conserve energy (e.g., switching to energy efficient light bulbs). They do not believe small contributions payoff in the larger picture. Moreover, only 3% of individuals who completed a public opinion survey about U.S. energy policy chose to donate the pay they received to a non-profit organization that promotes conservation.

Table A-1.Demographic and Political Profile of the Sample

Variable	Scale (overall distribution %)	Average (std. dev)
Education (N=750)	Less than high school (1)	3.35 (0.93)
	High school (18)	
	Some college (38)	
	4 yr. degree (31)	
	Advanced degree (12)	
Age (N=750)	18yrs - 83yrs	43 (16)
Income (N=750)	Less than $50,000 (42)	n/a
	$50,000 to < $100,000 (37)	
	$100,000 to < $200,000 (15)	
	More than $200,000 (1)	
	Rather not say (5)	
Ethnicity (N=750)	White (81)	n/a
	African American (9)	
	Asian American (4)	
	Hispanic (6)	
Sex (N=750)	Male (50)	
	Female (50)	
Party Identification (N=750)	1= strong Democrat (10)	3.8 (1.65)
	2 (15)	
	3 (12)	
	4=Independent (34)	
	5 (12)	
	6 (10)	
	7=strong Republican (7)	
Ideology (N=750)	1= very liberal (6)	4.08 (1.56)
	2 (12)	
	3 (11)	
	4= moderate (38)	
	5 (13)	
	6 13)	
	7=very conservative (7)	
Interest in politics	1 = not interested at all (6) 2 (9) 3 (12) 4= moderately (28) 5 (17) 6 (15) 7= extremely interested (13)	4.36 (1.67)
Trust in government	1 = none of the time (12) 2 (25) 3 (17)	3.19 (1.36)
	4= sometimes (31) 5 (12) 6 (3)	
	7= just about always (1)	
Number of days a week watches TV news	1 = never (5) 2 (11) 3 (7) 4= a few times a week (18) 5 (14) 6 (22) 7 = every day (24)	4.85 (1.85)
Number of days a week reads the front page (print or online)	1 = never (9) 2 (18) 3 (9) 4= a few times a week (17) 5 (10) 6 (13) 7 = every day (25)	4.37 (2.07)

Table A-2. Scores for Key Dependent Variables Across Conditions

Condition	Means (Std. deviations) for key DVs	*N*
Benefit appeal (Ba)	*Importance* = 5.61 (0.93) *CE* = 4.79 (1.19) *Discussion* = 4.06 (1.63) *Financial Contribution* = .20 (.40)	50
Pro-norm-benefit-appeal (PnBa)	*Importance* = 5.82 (1.01) *CE* = 4.96 (1.42) *Discussion* = 4.65 (1.57) *Financial Contribution* = .37 (.49)	100
Con-norm-benefit-appeal (CnBa)	*Importance* = 5.35 (1.29) *CE* = 4.7 (1.48) *Discussion* = 3.9 (1.86) *Financial Contribution* = .24 (.43)	100
Threat appeal (Ta)	*Importance* = 5.63 (1.13) *CE* = 4.81 (1.28) *Discussion* = 4.5 (1.61) *Financial Contribution* = .30 (.26)	50
Pro-norm-threat-appeal (PnTa)	*Importance* = 5.28 (1.25) *CE* = 4.54 (1.53) *Discussion* = 4.05 (1.81) *Financial Contribution* = .16 (.37)	100
Con-norm-threat-appeal (CnTa)	*Importance* = 5.64 (1.11) *CE* = 5.07 (1.37) *Discussion* = 4.53 (1.69) *Financial Contribution* = .28 (.45)	100
		N=500