**Hearts or Minds? Persuasive Messages on Climate Change**

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Abstract: What kinds of appeals do the public find persuasive for global causes? Are arguments that appeal to so-called rational self-interest more persuasive than those that appeal to morality? Are mixed messages that combine appeals of self-interest with morality more successful than streamlined single themed messages? The causal mechanisms by which transnational advocacy movements are able to generate political support for their campaigns are poorly specified in the literature in international relations and public opinion. This paper explores the relative persuasiveness of advocacy appeals for the issue of climate change. Using an experimental design, this paper reports the results of survey market research of a diverse sample of 360 subjects, each of whom was assigned to one of four conditions, a control condition with no message appeal, an economic self-interest appeal, a secular moral appeal, and a mixed appeal combining self interest and morality. Subjects were then asked a series of questions about their willingness to support advocacy efforts, including such actions as writing a letter to the member of Congress, signing a petition, and joining an organization. We hypothesized that for issues like climate change for which the costs of action are higher and for which there is a more direct cost to individuals or the country, arguments based on economic self-interest are more likely to be persuasive than moral appeals. Where the direct risks or costs to individuals or the country are lower (like the global AIDS crisis), moral messages are more likely to have appeal. For especially religious subjects, however, we hypothesize that moral arguments may be as if not more persuasive even on issues like climate change where the direct costs to the individual or country are likely to be higher.

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*The need to transform the world's energy systems to deal with climate change is a daunting challenge, but it is also an enormous business opportunity.*
- Energy Future Coalition

*This is a moral moment of great magnitude. This is not ultimately about any scientific discussion or political dialogue. It is about who we are as human beings and our capacity to transcend our limitations and rise to meet this challenge.*
- former Vice-President Al Gore

For more than a decade, federal policy in the United States on climate change has been stuck, with the Clinton Administration lacking Senate support for the Kyoto Protocol, the Bush Administration openly hostile to Kyoto, and the Obama Administration struggling to pass domestic climate legislation. While there are many institutional barriers that have made it difficult to ratify international climate agreements and pass domestic legislation, advocates of more vigorous action on climate change also view weak public support as a barrier. To that end, activists have sought to re-frame the issue to be more appealing to the public or segments of the American electorate, the idea being that a more persuasive message might motivate sufficient interest and support among the public so that their legislators take heed. Given intense partisan polarization of the issue and heavy skepticism among Republicans about the causal connections between greenhouse gases and climate change, advocates have been particularly concerned about arguments that might move Republicans to become more supportive of action to address climate change.[1]

The goal of the project is to shed light on whether, for certain kinds of issues, people find arguments framed in moral terms more compelling than material self-interest

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arguments or if the converse is true. What kinds of appeals do the public find persuasive

for global causes like climate change? Are arguments that appeal to so-called rational

self-interest more persuasive than those that appeal to morality? Are mixed messages that

combine appeals of self-interest with morality more successful than streamlined single

themed messages? What actions are people willing to take in support of climate change

policy?

This paper explores the relative persuasiveness of advocacy appeals for one

global issue, climate change. Using an experimental design, this paper reports the results

of survey market research of a diverse sample of 360 subjects, each of whom was

assigned to one of four conditions, a control condition with no message appeal, an

economic self-interest appeal, a secular moral appeal, and a mixed appeal combining self

interest and morality.[2] Subjects were then asked a series of questions about their

willingness to support advocacy efforts, including such actions as writing a letter to the

member of Congress, signing a petition, and joining an organization. We hypothesized

that for issues like climate change for which the costs of action are higher and for which

there is a more direct cost to individuals or the country, arguments based on economic

self-interest are more likely to be persuasive than moral appeals. Where the direct risks or

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messages are more likely to have appeal. For especially religious subjects, however, we

hypothesize that moral arguments may be as if not more persuasive even on issues like

climate change where the direct costs to the individual or country are likely to be higher.

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[2] In the first stage of our research, we asked 100 subjects to rate the persuasiveness of four different frames: a security frame, a secular moral frame, a Christian moral frame, and an economic frame. The secular moral frame and the economic frame were rated as the most persuasive. In the second stage of our research, we used those two frames as the basis of our experimental work.

Our initial hypothesis was that mixed messages would likely take away from the force of the initial message, making the net persuasive effect less than the sum of their parts.

Our experiment yielded some surprising results. Knowledge was an important moderator of people's attitudes on climate change. We found that among respondents that were more knowledgeable about climate change that the economic frame was most the persuasive in terms of subject's willingness to take action to support the cause. However, among low knowledge respondents, the control condition without messaging yielded the most concern. The moral argument was marginally less persuasive but more effective than either the economic argument or mixed messages.

This paper unfolds in four sections. The **first section** assesses the literature in international relations, public opinion, and political psychology on framing and messaging. The **second section** develops an argument for frame success based on a theory of proximity and personal anxiety. The **third section** sketches the methods and experimental design. **Section four** discusses our results.

## I. Background and Significance

International relations, public opinion, and political psychology have approached similar questions about persuasive messages from different perspectives. In international relations, the constructivist approach has mined the literature on social movements from sociology to develop insights on how successful advocates frame their argument for fit with local cultural circumstances. In public opinion, survey work has sought to understand the appeal of messages through polling, while political psychologists have conducted more-fine grained analyses of causal mechanisms at the micro-level using

experimental methods. Across these diverse approaches, the causal mechanisms by which advocates are able to generate political support for their campaigns remain poorly specified.

This project builds upon existing research, marrying experimental methods with an approach designed to test long-running debates from international relations. In so doing, we locate this paper as part of the emerging research in international relations that uses survey experiments to test the causal logic of various theories (Tomz 2007; Hiscox 2006; Hainmueller and Hiscox 2008; Horowitz 2009; Johnson et al. 2006).

*International Relations*

In international relation, two posited mechanisms by which elite decision-makers and states change behavior are through logics of consequences and logic of appropriateness. In the former, actors respond to material incentives and make cost-benefit calculations of utility. In the other, actors respond to what are deemed right or normatively appropriate given their personal beliefs and the morality of their societies (March and Olsen 1998) The dominant traditions in international relations—neo-realism and neo-liberalism—are primarily though not essentially consequentialist. They assume the state as unitary actor has interests that can be objectively read from conditions in the international system. The major difference between them is in their assessments of how much cooperation can be fostered by institutions. Thus, both are based on *material interest* where states respond to calculations of cost/benefit.[3] Neither looks inside the state to examine the impact of domestic politics nor are these approaches able to account for actors being motivated by moral concerns. While rational choice and pluralist

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[3] The "neo-utilitarian" foundations of realism and neo-liberalism were noted by (Ruggie 1999)

approaches get at the micro-foundations of state behavior, actors are still by and large

understood to be self-interested maximizers of material utility.[4] These approaches all

typically see logics of consequences as the primary animating logic of decision.

Another theoretical approach—constructivism—takes ideas, culture, and values

more seriously but has difficulty explaining under which conditions ideational factors and

norms matter (Checkel 1997, 476; Kowert and Legro 1996, 486) By norms, the emphasis

is on regulatory norms, the social conventions or rules, procedures, and principles that

establish the standards of behavior for members of a group in a given context (Finnemore

and Sikkink 1999, 251) This approach is more comfortable with logics of appropriateness

being a driving logic of decisions.

In their search for specific mechanisms by which states come to embrace policies

championed by principled advocacy groups, scholars identified coercion and persuasion

as two primary mechanisms, the former more consistent with a logic of consequences and

the latter more identifiable with logics of appropriateness.[5]

Early accounts of persuasion by Finnemore and Sikkink ultimately relied on more

instrumental pressure from lobbying and strategic use of language. Several scholars

influenced by Jürgen Habermas' theory of communicative action have differentiated

"true" persuasion from rhetorical action, distinguishing a logic of argumentation distinct

from logics of consequences and appropriateness (Risse 2000) "True" persuasion ideally

involves situations cleaved of material and social power; such accounts of persuasion are

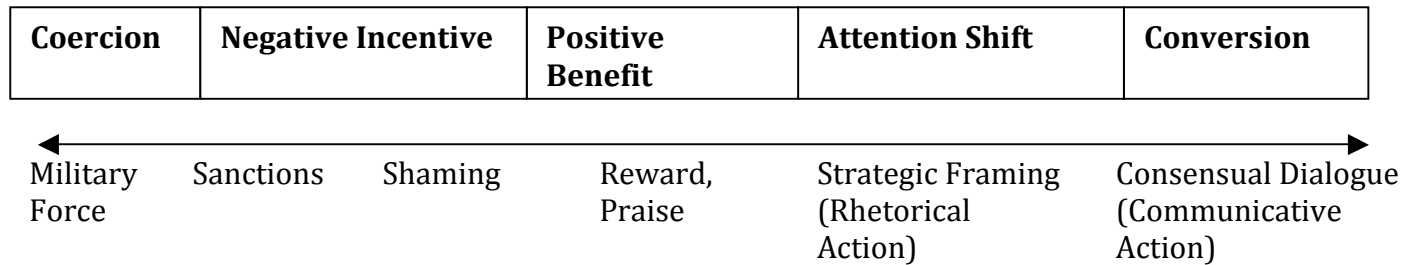based on a mechanism of dialogue, consensus, and actors embracing norms as a result of

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[4] Most "liberal" accounts emphasize rational action in terms of material interest (Milner 1997) Moravscik's
discussion of ideational and republican liberalism is an exception (Moravscik 1997)

[5] For surveys of these mechanisms, see (Cardenas 2004; Cortell and Davis 2000) In general, these accounts
focus on states taking action on causes like human rights that are not manifestly in their self-interest, which,
like coercion, is animated by a logic of consequences.

deeper preference change (Payne 2001) This portrait of political change may be rather rare in political life (Jackson and Krebs 2003, 6)

Those that study processes of norms diffusion recognize this, suggesting that in pluralistic liberal polities like the U.S., advocates of norms generally succeed through instrumental pressure/lobbying. Persuasive dynamics of social learning are thought to occur in more statist regimes (Checkel 1999, 89; 2001) However, this move concedes too much empirical terrain to explanations that rely on coercion, material sanctions, and political pressure. We can identify the range of mechanisms by which states may accept a norms-based policy on a *Coercion—Persuasion continuum* (see *Figure 1*). On one extreme, military action forces a state to accept a policy. On the other, policymakers undergo an epiphany once presented with arguments in favor of a policy. In between, a variety of mechanisms exist to induce changes in state behavior**.**

### FIGURE 1: COERCION-PERSUASION CONTINUUM

| Coercion | Negative Incentive | Positive Benefit | Attention Shift | Conversion |
|---|---|---|---|---|

←——————————————————————————————————————————→

| | | | | |
|---|---|---|---|---|
| Military Force | Sanctions    Shaming | Reward, Praise | Strategic Framing (Rhetorical Action) | Consensual Dialogue (Communicative Action) |

Scholars have recognized that framing, the strategic use of rhetoric, by advocates is a particularly potent strategy by which weak actors are able to exercise influence and induce states to embrace new policy commitments inspired by norms (Betsill 2000; Sell and Prakash 2004b) Such "symbolic politics" are necessary given the relative weakness of proponents and because norms emerge "in a highly contested normative space where

they must compete with other norms and perceptions of interest" (Finnemore and Sikkink 1999, 257) Advocacy movements for these new international issues rarely have sufficient political power to alter elections.

Framing here is imported from the social movement literature in sociology pioneered by Mayer Zald, David Snow, Sidney Tarrow and others. Snow defines framing as "the conscious strategic efforts by groups of people to fashion shared understandings of the world and of themselves that legitimate and motivate collective action" (McAdam, McCarthy, and Zald 1996, 6) Frames serve as mental short-cuts by which policymakers can sort information and understand the causes of a problem, its consequences, and potential solutions (Zald 1996, 262) Frames thus link specific policies to a particular evaluative lens, facilitating shifts in support for the policy even as long-run values remain largely unchanged.[6] While policy entrepreneurs may invent new rhetoric, they typically find a repertoire of arguments in the public arena that they can appropriate, what Jackson and Krebs call "rhetorical commonplaces" (Jackson and Krebs 2003) Nonetheless, framing is a synthetic activity rather than a purely evocative one. While advocacy groups may employ a dominant frame, they may also employ multiple messages to appeal to different groups.

While social movements may have relatively weak sources of political power, advocates can shape the general image and reputation of decision-makers through praise

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[6] This understanding of preference change may be problematic to some rationalists and constructivists, going too far or not far enough. For a sophisticated treatment of this issue, see (Fearon and Wendt 2003). The assumption of largely stable preferences does not preclude long-run preference change, as has taken place on civil rights in the American South. Jones makes the distinction between preference change (when minds change) and attention shifts (when the focus changes) through use of two-dimensional spatial models. Where a change in the ideal point reflects preference change, changes in the shape of indifference curves reflect attention shifts, where an actor becomes increasingly willing to trade off one good for another (Jones 1994).

and shame, making them "look good" or "look bad." The less coercive side of framing appeals to mass publics and policymakers, engaging them on grounds they agree with already. If advocates' appeals to decision-makers' existing values initially fall short, they and their allies can become more coercive, beginning with shaming other policymakers for failure to uphold societal values. Recent articles have taken steps in this direction (Joachim 2003; Hawkins 2004; Schimmelfennig 2001; Carpenter 2005; Acharya 2004; Sundstrom 2005) Hawkins, like Finnemore, focuses on the importance of international normative pressures in shaping state behavior (Finnemore 1996) However, as both Acharya and Sundstrom argue, international norms are less likely to be effective without domestic bases of support.

While advocacy groups may employ a single dominant frame, they may also be strategically ambiguous in their framing in an effort to say the same thing with different meanings for different groups.[7] Advocates may also employ multiple messages to appeal to different groups. For example, climate change has been framed as an environmental crisis, a justice issue, a moral problem, an economic issue, and a security problem.

As this multiplicity of frames implies, not all frames tap into moral values. Some frames make claims about what is true, and others make claims about what is right.[8] In other words, some frames appeal to actors' causal beliefs about the likely effects of different policies while other frames appeal to their principled beliefs about right and wrong.[9] For example, a frame that suggests "Climate change is a national security threat" seeks to make a causal connection between the disease's consequences and its

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[7] This effort to speak simultaneously to multiple audiences has been called "multivocality" (Padgett and Ansell 1993, 1263).
[8] On cognitive heuristics and bounded rationality, see (Jones 2001).
[9] (Goldstein and Keohane 1993, 8-9).

implications for the target's interests. Frames that rely on causal claims as the logic to animate decision making depend primarily on credible evidence. By contrast, a frame that suggests "We need to respond to climate change to prevent suffering by future generations and people in the Third World" relies more upon community values and morality for its persuasive appeal.[10] Not all frames evoke moral considerations, though even truth-based frames will feed into prescriptive recommendations. For frames that invoke causal claims, technical experts, so-called "epistemic communities," can validate whether or not an issue is really a problem.[11]

What determines which frames are more successful? Most of the international relations literature focuses on broader political success at the national level, which ultimately depends on many other attributes besides public opinion (for such a structural argument, see Busby 2010, forthcoming). This paper is concerned with more micro-level processes and whether or not individuals are persuaded by the message enough that they would be willing to take some modest action in support of the cause, like telling their friends, writing a letter, volunteering their time, or donating to an organization.

While much of the international relations literature focuses on broader structural features of states, the dominant theme in much of the related literature is that countries are most likely to embrace normative commitments that are framed to fit with local cultural traditions.[12] Frames that lack such a cultural match should be less successful.

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[10] For this distinction, see (March and Olsen 1998). As Sell and Prakash argue, actors that promote logics of appropriateness often have intermingled concerns about consequences, whether they be organizational survival or funding. Likewise, businesses that seem to care only about consequences also believe their actions are right (Sell and Prakash 2004a).

[11] (Haas 1992).

[12] Different terms describe this concept: grafting (Price), cultural match (Cortell, Davis and Checkel), fit (Kingdon, Betsill), the nature of political discourse (Hall), resonance (Snow, Ikenberry), political culture (Risse-Kappen), legitimacy (Jacobsen), concordance/intersubjective agreement (Legro), localization/congruence (Acharya), salience (Entman), and shared lifeworld (Habermas). (Cortell and Davis

This emphasis on cultural match is bound up with public opinion, but suggests more long-lived values attachments than ephemeral effects of polls. That said, as evidence of cultural match, scholars look for long-running patterns across opinion polls like the World Values Survey and polls by Gallup, Pew, among other commercial polling outfits.

*Public Opinion and Political Psychology*

The public opinion literature has focused on varying levels of concern about climate change by the mass public and what causes support or opposition to climate-related policies.  In surveys of Americans, climate change is an important environmental concern, but environmental concerns rank lower than issues such as national security and the economy (Pew Research Center 2010; Busby and Ochs 2004; Busby 2008d; Busby 2008a). Advocates of climate change policies must confront the challenges of a public that views the effects of climate change as physically and temporally remote (Nisbit and Myers 2007).

A high-profile political event such as the Kyoto Protocol or a weather-related catastrophe such as Hurricane Katrina might catch people's attention and put climate change on the political agenda. But attitudes about the causes of climate change and the appropriate level of government response are affected by political factors such as partisanship and one's sense of personal risk. People who believe they are more vulnerable to the effects of climate change (whether or not they are objectively at greater risk) are more likely to support proactive climate change policies (Leiserowitz 2005; Leiserowitz 2006; Leiserowitz, Maibach, and Roser-Renouf 2008).

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2000, 29; Acharya 2004; Kingdon 1995; Betsill 2000; Checkel 1999, 86; Hall 1989, 363-365; Jacobsen 1995, 295; Legro 1997, 35; Risse-Kappen 1995, 188; Habermas 1996, 358; Entman 1993; Snow et al. 1986; Snow and Benford 1988; Price 2003).

Other factors influencing the public's level of concern over climate change include their knowledge about climate change (its causes and impacts), their trust in scientists, and their belief in a scientific consensus on the causes of climate change (Malka, Krosnick, and Langer 2009). However, partisanship and trust in science may override the limits of individual knowledge.

People in the United States appear to use a partisan filter to influence their attitudes about the underlying scientific connections between greenhouse gas emissions and climate change. In 2006, a Pew Center poll found that a majority of Democrats (81%), Republicans (58%), and Independents (71%) agree that there is solid evidence of global warming. However, only 24% of Republicans were willing to say there was solid evidence that this was due to human activity, compared to 54% of Democrats and 47% of Independents (The Pew Research Center for the People & the Press 2006). By March 2008, the partisan gap on whether climate change was already occurring had grown to more than thirty percentage points, up from an indistinguishable difference in 1998 (see *Figure 4*) (Dunlap 2008).

**Figure 4: Partisan Gaps on Climate Change, Mass Public**



*Percentage Saying the Effects of Global Warming Have Already Begun* by Party ID*

Republicans    Democrats
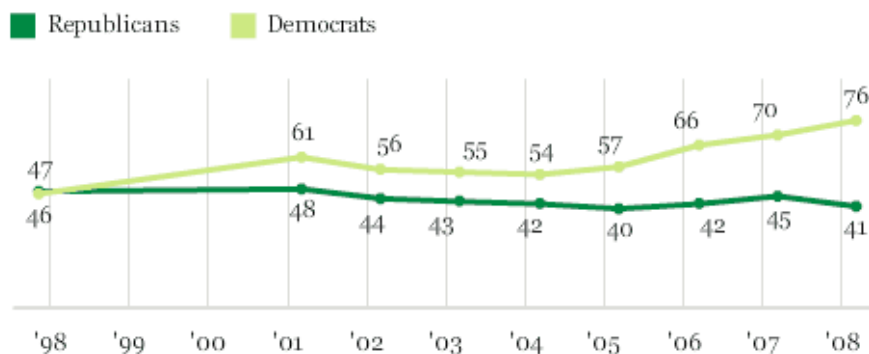
*Results for political independents not shown

GALLUP POLL

U.S. elites are even more divided than the mass public. Extreme partisanship has paralyzed the policy debate on climate change in the United States for more than a dozen years. In February 2007, in a poll of some 113 members of Congress, only 13% of Republicans (down from 23% in April 2006) said it had been proven beyond a reasonable doubt that man-made causes were responsible for warming compared to 95% of Democrats (National Journal 2007).

In the wake of the 2008 financial crisis, public support for action on climate change has softened. In March 2009, Gallup reported that 41%, the highest proportion ever believe the threat of climate change has been exaggerated (*Figure 3*).[13]

**<u>Figure 3: Public Opinion on Climate Change Exaggeration</u>**



*Thinking about what is said in the news, in your view is the seriousness of global warming -- [generally exaggerated, generally correct, or is it generally underestimated]?*

■ % Exaggerated    □ % Correct/Underestimated

GALLUP POLL
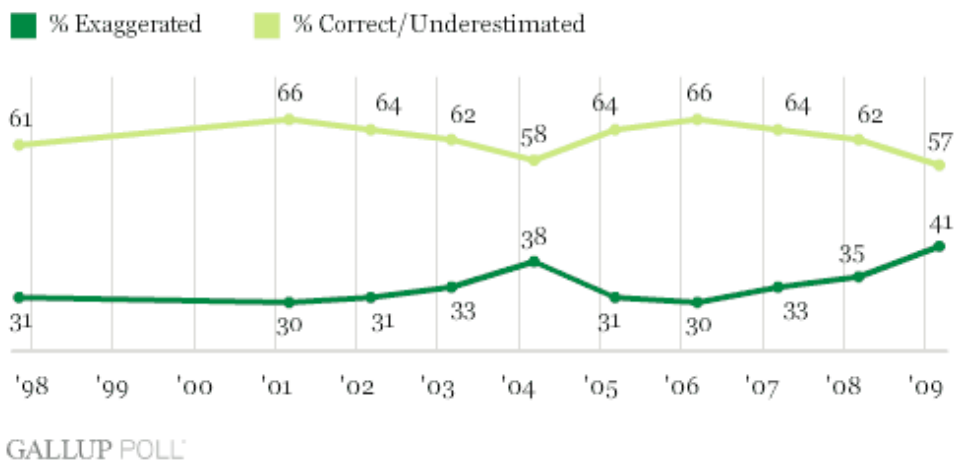
Beyond documenting trends in public beliefs about climate change and support for action on climate change broadly, pollsters have sought to which messages are

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[13] (Saad 2009). Other polls have shown similar declines in support for action on climate change and beliefs about climate change. See also (Leiserowitz, Maibach, and Roser-Renouf 2010; Pew Research Center 2009).

resonant. In general, these have produced discordant findings. One set of findings, which included polling, focus groups, and other messaging methods, found that Americans were particularly interested in solutions-oriented language on climate change and the crisis framing of the problem was potentially de-motivating, leading people to throw up their hands that problem could be solved (FrameWorks Institute 2001). Such findings fed in to messaging efforts by the Rockefeller Foundation funded effort U.S. in the World[14] and former Vice President Al Gore's We Can Solve it Campaign.[15] Beyond these broad messaging efforts, pollsters have also sought to identify the public's willingness to support particular policies.  While the public has been broadly supportive of action on climate change, including the Kyoto Protocol, few know the particular details and could likely be moved by elite opinion. Moreover, when it comes to supporting specific instruments like taxes on fuels, which would impose costs, the public has been less supportive, though they tend to support initiatives like fuel efficiency standards, where the costs to themselves ultimately are less transparent (Leiserowitz 2006).

Another line of research has relied on experimental methods to evaluate the efficacy of frames.  Like the social movement literature in sociology, Iyengar argues that frames can determine how a problem is understood and who is responsible for solving it (Iyengar 1991). Frames can also trigger different political attitudes: when understood as a First Amendment issue, most people support the right of a KKK group to demonstrate, but when understood as a public safety issue, that support dissipates. We draw upon this methodological approach, as well as a current line of research that evaluates the effects of competitive framing (Chong and Druckman 2007). There has been little to no

[14] See http://www.gii-exchange.org/guide/
[15] See http://wecansolveit.org/

experimental work done on climate change. That said, the expectation from both polling and experimental work is that climate change policy advocates can achieve greater public support when the immediate physical risk from climate change is low by shifting how the problem is framed. People who do not perceive risk might support environmental policies when they are framed as economic opportunities. Those not immediately vulnerable to the effects of climate change might pay more attention when they realize that economic and military resources are (or may be) being shifted to address weather-related catastrophes in other states and other countries.

This project therefore examines which frames at the micro-level are most effective: whether tapping into people's moral values or appealing to more material interests is effective, and how a mixed frame environment differs from a single frame.


## II. The Argument

We expect that the nature of the issue shapes when a moral argument is potentially more persuasive than a self-interested one. Domestic political issues typically revolve around distributional issues over the benefits of public policies with different interest groups vying for special dispensation based on their interest group (unions, farmers, business owners, middle class, the elderly), their class (the rich, the poor), their ethnicity (whites, blacks), their gender, and other distinctions. Many issues at the domestic level, of course, transcend pure distributional questions and involve morality: Should abortion be allowed? Should homosexuals be allowed to marry?

This paper focuses on global public goods, which are several steps removed from these debates. These are issues that potentially involve broader transnational spillover

effects which may not be easily captured by market transactions. While provision of global public goods (like clean air worldwide or public health in the developing world) could create positive benefits to Americans (or costs if they are not addressed), it is not immediately obvious that they will. As a result, advocates have choices to make in terms of convincing publics to care about their issues. They can appeal broadly to hearts and minds, or, in international relations jargon, to logics of appropriateness or consequences. Within each of these classes, there are a number of different kinds of appeals. For example, within logics of appropriateness, they are appeals to secular and religious morals. Among secular appeals, advocates can evoke concerns about transnational justice and intergenerational equity. Within logics of consequences, there are appeals to national security, economic self-interest, and environmental impacts. As suggested already, a number of these frames have been applied to climate change (Busby 2004; Busby and Ochs 2004; Busby 2008c).

Which of these frames are likely to be most effective for global public goods problems in general and climate change in particular? For public goods problems, the benefits to individuals are small and diffuse, leading to collective action problems. Addressing global public goods problems like AIDS and climate change not only would produce diffuse benefits, but the primary beneficiaries are likely to be poor foreigners who will otherwise bear a disproportionate share of the costs. All else equal, for global public goods where the primary beneficiaries are foreigners, a self-interest frame for Americans is likely to be less convincing than a moral claim. A moral claim speaks to the extended obligation of Americans to others. For such a claim to resonate among Americans, however, the potential injustice has to be quite grave in terms of severity and

scope to arouse the passion of Americans, not least of which to generate sufficient media attention that people hear about it. For both climate change and HIV/AIDS, these tests are passed. In the case of climate change, whole island nations are set to be under water from climate change, and scientists have warned about the direct effects of melting glaciers, drought, and other consequences on the developing world. In the case of HIV/AIDS, nearly 30 million people have died (Busby 2010, forthcoming; Kapstein and Busby 2009).

That said, climate change may be different from other global public goods problems. Even if climate change will disproportionately harm poor people in the developing world, the consequences in terms of natural disasters, effects on agriculture, public health, recreation are likely to be quite significant for rich countries in general and the United States in particular (IPCC 2007; HM Treasury 2006; Global Change Research Program 2009). Both the direct national security consequences of climate change on the U.S. homeland and the indirect effects on U.S. national interests are potentially serious (Busby 2008b, 2007; CNA Corporation 2007; Campbell et al. 2007). In addition, the costs of action are likely to be quite significant, requiring a whole-scale movement away from carbon-based fuels. In such circumstances of high costs, moral arguments can only take a global public goods campaign so far.

By contrast, other global issues have less credible claims of having an impact on U.S. citizens or interests. For example, the AIDS crisis in the developing world has limited scope for transnational impact on Western countries. Unlike the early days of the epidemic, prevalence levels in advanced industrialized countries have dropped below 1%, though there are still pockets of high incidence of new infections, particularly among

African-Americans in the District of Colombia (Timberg 2009). Moreover, unlike other

swift-moving and novel infectious diseases like SARS or bird flu, the imminent, cross-

border risks of infection for AIDS appear quite remote by comparison. In general, for

global public goods, the individual material self-interest at stake is even more tenuous

than a typical public goods issue. It could be that Americans are misinformed and believe

that they are at graver personal risk from AIDS externalities from abroad, either in terms

of direct transmission risks from the disease or as a consequence of the security risks

emanating from countries overwhelmed by the pandemic. At the same time, the decline

of prices of drug therapy in the early 2000s made action on HIV/AIDS less difficult.

Comparing the problems of HIV/AIDS and climate change, we can combine these

three attributes—of degree of injustice, personal consequences, and costs--in to a table,

with high personal consequences and high costs, making it likely that a consequentialist

argument will be more persuasive to publics for climate change, trumping the moral

rationale while high injustice potential, limited personal consequences, and the modest

cost of action make the moral argument a likely winner for HIV/AIDS.

|  | Potential for Global Injustices | Personal Consequences of Inaction | Costliness of Action | Prediction |
|---|---|---|---|---|
| AIDS | High | Low | Modest (after ARV prices fell) | *Hearts* |
| Climate change | High | High | High | *Minds* |

Thus, our expectations for climate change (as compared to other global public goods problem like the AIDS crisis) that consequentialist arguments ought to be more persuasive than moral arguments.[16]

However, for global public goods with little empirical evidence to suggest a direct causal link to U.S. physical risk, we should expect moral arguments to be more persuasive. These effects may be mediated by people's knowledge about an issue. If people know a lot about climate change, we would expect them to be more alarmed by consequentialist appeals than moral appeals. If people are not aware of the physical connections one way or the other, then we would not be surprised that subjects with low knowledge about climate change are not persuaded by consequentialist appeals. For broader public goods issues like the AIDS crisis that have a limited impact on U.S. physical security, we expect knowledgeable subjects to find a consequentialist appeal less persuasive than a moral appeal. Less knowledgeable subjects, by contrast, might not demonstrate statistically significant patterns one way or the other in terms of which appeals move them.

In addition to knowledge, other attributes of individuals may moderate what messages they find persuasive. For example, we make the rather obvious hypothesis that

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[16] Of course, these are but two of the eight potential categories. The other possibilities include:

| Potential for Global Injustices | Personal Consequences of Inaction | Costliness of Action | Prediction |
|---|---|---|---|
| High | Low | Modest (after ARV prices fell) | *Hearts* |
| High | High | High | *Minds* |
| High | High | Low | *Tossup, lean Minds* |
| High | Low | High | *Tossup* |
| Low | Low | Low | *Tossup* |
| Low | High | Low | *Minds* |
| Low | High | High | *Minds* |
| Low | Low | High | *Tossup, leans Minds* |

more religious subjects will find moral appeals more persuasive than less religious subjects. Extending this argument further, our working hypothesis is that the United States is a pluralistic place, and messages will likely have to be pitched to appeal to different audiences. Evangelicals will respond better to themes based on Christian morality; the business community will respond better to arguments that stress economic efficiency. Foreign policy types may find the national security implications to be more compelling. While the current study did not allow us to test all of these ideas, we sought to get at them through questions about religion as a well as a battery of questions regarding people's attitudes towards individualism.[17]

Finally, in terms of single messages frames versus mixed message frames, our working hypothesis coming into this project was somewhat agnostic. We had some prior expectations that simpler single message frames are more likely to be persuasive on the assumption that people have difficulty absorbing diverse rationales to support a cause and that a single dominant frame, repeated again and again, is likely to be more effective than multiple frames. That said, given that multiple frames might provide additional rationale to support a cause and that different messages might appeal to different constituencies, our theoretical expectations here are not strong.


**III. Research Design:**

We carried out two studies designed to test these hypotheses. Both samples were recruited from a marketing firm. These are not nationally representative samples, but

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[17] For a similar effort to look for segmentation of the American electorate on climate change, see (Leiserowitz, Maibach, and Roser-Renouf 2008). This has parallels to the literature on micro-targeting and narrowcasting in public opinion in both the scholarly and practioner worlds (Sosnik, Dowd, and Fournier 2006; Hillygus and Shields 2008).

they are diverse in terms of region, age, education and religion. Study 1 is designed to test the persuasiveness of multiple moral arguments and self-interest arguments for two issues, climate change and HIV/AIDS. For space concerns, we are only reporting results for climate change. Within each substantive area, participants were asked to evaluate moral arguments and material self-interest arguments. The morality-based arguments include some that are based on Christian morality and others based on secular morality. Likewise, we included an economic self-interest frame and a security frame in the material interest survey. For example, on climate change, they were given some information about the economic effects of climate change on their country and another on the potential effect on their country's national security.

The results from Study 1 were used to pick moral and self-interest arguments that were rated as similarly strong arguments for use in Study 2. Study 2 has a 2x4 between subjects research design, with roughly 30 subjects per condition. Subjects were assigned to a political issue and one of four frames (a moral argument, a material interest argument, a mixed motive argument, and no argument). The first study is important so that our comparison of moral and self-interest based arguments is not confounded by differences in argument strength. A weak moral argument pitted against a strong self interest argument might fare poorly and make moral arguments appear weak, when the effect was really driven by argument quality. Of course, it is impossible to create two different persuasive messages perfectly matched in terms of argument strength, but the two study design allows us to choose comparable arguments.

*Study 1: Identifying Persuasive Messages*

In the first study, we asked 100 respondents to evaluate actual arguments made by campaigners about climate change and HIV/AIDS. The sample was diverse in terms of educational background: 33% has less than a college degree (high school only or some college), 43% has a college degree and 24% has an advanced degree. 57% of the sample is female and the average age is 39 (40% is under 36, 60% is over). In terms of where they live, 33% of these respondents self report living in an urban area, 55% suburban and 12% rural. In terms of partisanship, 47% identify as Republican and 39% identify as Democrat. Eighty eight percent of respondents self identify as white or Caucasian.

These participants evaluated a series of 9 persuasive messages about climate change (see Appendix B for full text), which were all taken from a variety of real advocates on climate change. These arguments were divided between moral arguments (both secular and religious) and material interest arguments (both economic and national security) and were randomly ordered. Respondents were asked to rate the strength of each (randomly ordered) argument on a 5-point scale, ranging from very weak to very strong. They were also given the response option "I prefer not to answer."

Among the moral arguments, we found that 3 of the 4 arguments were similarly rated: the two secular arguments and one of the religious arguments were rated as either somewhat or very strong by a little over half of the population. One of the religious messages was a clear outlier, with only 38% rating it as strong, and 41% rating it as weak. This argument, which has an explicit appeal to Christians, was weaker than the other religious appeal which invoked God, but did not make a specific religious reference ($chi^2$=4.48, p<.05). Among the appeals to self-interest, we found that national security

arguments were weaker than economic arguments. For example, the strongest economic argument was rated as somewhat or very strong by 69% of the respondents while the strongest security argument was rated as somewhat or very strong by just 49% ($chi^2$=7.63, p<.01). The strongest self-interest arguments were rated as stronger than the strongest moral arguments, and this difference is marginally significant ($chi^2$=3.08, p<.10).

*Study 2:Experimental Manipulation of Messages*

330 subjects were randomly assigned to one of 4 conditions: subjects either received the moral obligation message, the economic message (self-interest), the mixed message or they did not receive a persuasive message. The three persuasive messages were created based on results from Study 1, with two persuasive messages contributing to each message which were embedded in flyers from a fictional interest group (see Appendix B for study materials). The economic arguments were slightly stronger according to Study 1.[18]

After looking at the flyer, subjects were asked if they agreed with the message. There were also asked how worried they were about climate change, whether they thought it was important, how knowledgeable they felt about climate change and whether they would be likely to participate in a series of behaviors relevant to climate change. The arguments (chosen based on Study 1) are as follows:

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[18] Subjects were randomly assigned to receive the climate change or HIV/AIDS ad first. Again, we only report on the climate change results here.

Economic Argument:

*The need to transform the world's energy systems to deal with climate change is a daunting challenge, but it is also an enormous business opportunity.*

*With American ingenuity and resolve we can turn the crisis of global warming into an opportunity—by creating a new energy economy that embraces innovation, brings rural communities back to life and creates new, good-paying jobs.*

Moral Argument:

*This is a moral moment of great magnitude. This is not ultimately about any scientific discussion or political dialogue. It is about who we are as human beings and our capacity to transcend our limitations and rise to meet this challenge.*

*When I think about the climate crisis I can imagine a time when our children and grandchildren ask us: What were you thinking, didn't you care about our future? Or they will ask: How did you find the moral courage to solve this crisis?*

Mixed Argument (arguments are randomly ordered):

*The need to transform the world's energy systems to deal with climate change is a daunting challenge, but it is also an enormous business opportunity.*

*This is a moral moment of great magnitude. This is not ultimately about any scientific discussion or political dialogue. It is about who we are as human beings and our capacity to transcend our limitations and rise to meet this challenge.*

Knowledge about Climate Change:

We expect that knowledge moderates the effect of persuasive messages on climate change. We measure knowledge about climate change with three questions:

1. Every time we use coal or gas, we contribute to the greenhouse effect. How true is this? (Probably true and definitely true count as correct):

   *81% answered this correctly.*

2. The greenhouse effect is caused by a hole in the earth's atmosphere. How

   true is this? (Probably not true and definitely not true count as correct):

   *39% answered this correctly*

3. To the best of your knowledge, what was the Bush Administration's position

   on the Kyoto Protocol? (Opposed it count as a correct answer):

   *22% answered this correctly*

Eleven percent of the sample answered all three questions correctly, while 4% didn't get

a single correct answer. Knowledge about climate change was related to several

demographic variables. People with more education were more likely to answer the

knowledge questions correctly, as were older people. Women were less likely to give

correct answers than men, and religiosity[19] is negatively related to knowledge about

climate change (see *Table 1*).

**Table 1**: Demographic correlates of knowledge about climate change

|  | Coef | Std Err. |
| --- | --- | --- |
| Education | 0.102** | .044 |
| Female | -0.225** | .084 |
| Religiosity | -0.077** | .039 |
| Age | 0.005* | .002 |
| Democrat | -0.055 | .095 |
| Republican | -0.016 | .100 |
| Constant | 5.340 | .000 |
|  |  |  |
| n | 330 |  |
| $R^2$ | .08 |  |

We create a dummy variable based on this scale, splitting the sample between high

knowledge (2 or 3 questions correct, 36% of the sample) and low knowledge (0 or 1

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[19] Religiosity is measured with the following question: Would you say that currently, you are (very religious, somewhat religious, slightly religious or not at all religious.

questions correct, 64% of the sample).[20]  Also, high knowledge respondents differ in terms of their beliefs about climate change (chi$^2$=15.08, p<.05).  They are much less likely to say that they don't know what causes climate change and they are more likely to believe climate change is occurring (90% vs. 78%), though it's worth noting that the increase in people who believe that climate change is happening among those high in knowledge is due to those who think it is caused by natural cycles, not human activity.

**Table 2**: Beliefs about climate change

|  | It is happening, caused by human activity | It is happening, caused by natural cycles | It is not happening | Don't know |
|---|---|---|---|---|
| Low Knowledge (n=210) | 52% | 25% | 4% | 19% |
| High Knowledge (n=120) | 49% | 41% | 4% | 6% |

People who have higher levels of knowledge about climate change also feel more informed (2.82 vs. 2.50, p<.01).

After reading the persuasive message, subjects in the treatment conditions were asked if they agreed.  Answers ranges from 1 (Strongly disagree) to 5 (Strongly agree) and we found that different arguments were persuasive, depending on one's level of knowledge.  We analyze the effect of the between subjects manipulation using ANOVAS and find that among the entire sample, there were no differences in agreement based on experimental condition (F= 0.02, p=0.88). However, using knowledge as a moderator we find that less knowledgeable participants were more likely to agree with the moral

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[20] We did not expect the experiment to affect knowledge and it did not (chi$^2$=.82. p=.84).  We note the lack of a relationship because we use knowledge as a moderator.

message (compared with the self interest or mixed message), while more knowledgeable

participants found the moral message least persuasive (see figure 1, full models are

reported in the appendix).

**Figure 4**: Level of agreement with message, by experimental condition.
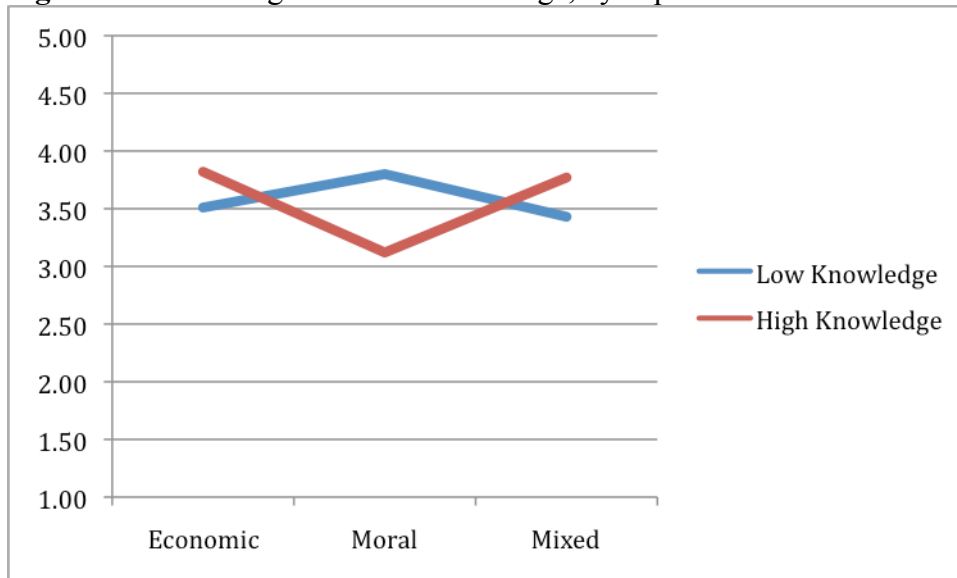


Agreement with the message was only asked to subjects in the three treatment conditions,

so this analysis cannot tell us if these messages are persuading subjects beyond their pre-

existing attitudes on climate change. We can only use agreement with the message to

evaluate among the varied messages, which provoked the most agreement. We find that

knowledge about climate change conditioned which message people agreed with, and

therefore we use knowledge about climate change in our subsequent analysis.

Are subjects worried about climate change? We use an interaction term to test the

effect of the experimental manipulation, contingent on knowledge and find that the

persuasive messages did affect level of concern ($F=2.63$, $p<.05$).

**Figure 5**: Worry over climate change, by experimental condition
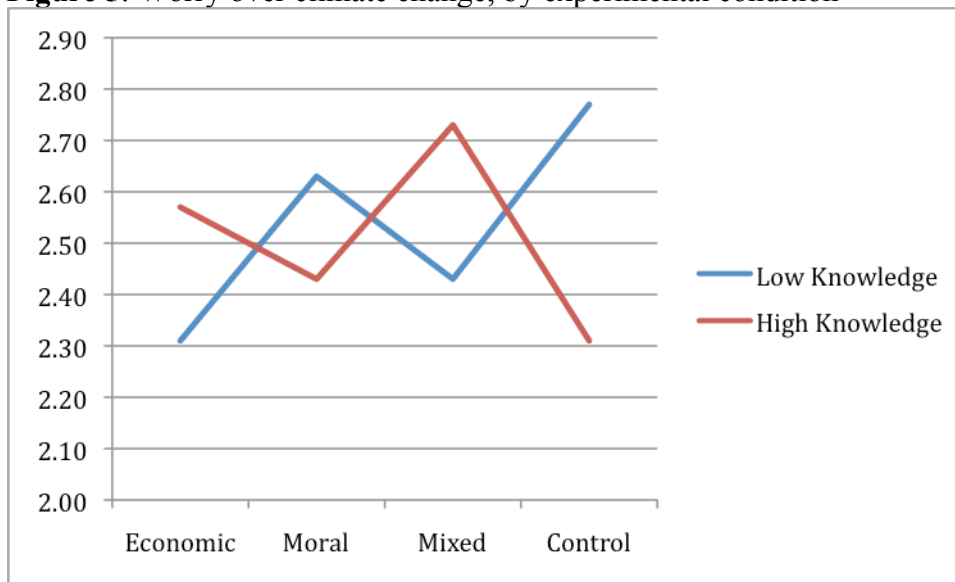


For the high knowledge group, the economic and mixed message was more likely to provoke worry over climate change when compared to the moral message, while the moral message was the most likely to worry the less knowledgeable group. This difference is consistent with the agreement results, but here we also have a baseline condition provided by those who did not see any persuasive message. The control condition reveals that the economic and mixed messages provoke worry among high knowledge group, while the low knowledge group is most worried about climate change when they have not heard any persuasive message; a moral message is more likely to provoke concern than an economic or mixed message, but they're most concerned when they haven't read a persuasive message. The control condition allows us to see that the effect of persuasive messages on climate change is limited; these appeals can be effective among people who know something about climate change already. People who do not know much about climate change might counter-argue or simply reject the message altogether.

Thirty-five percent of the sample thinks that climate change is very important, 50% feels that it's somewhat important and 15% finds it not important at all. Though their attitudes on issue importance vary, the persuasive messages had no effect on peoples' perception of the importance of climate change, either through a main effect of the treatment or an interaction between knowledge and the treatment. It is worth noting that among people who know something about climate change, the ads were able to heighten worry, but not affect issue importance.

Advocacy groups put out flyers such as the ones in this study because they want people to act. The final aspect of our study is to test whether these persuasive messages were able to change peoples' willingness to engage in a series of behaviors, answered on a 4-point scale ranging from not at all likely to very likely (see *Table 3* for a summary of respondents' willingness to support these actions across all conditions).

**Table 3:** Behaviors related to climate change

| Behavior | Very or somewhat likely to participate | Not at all or Not very likely to participate |
|---|---|---|
| Talk to friends and family | 70% | 30% |
| Sign a petition | 65% | 35% |
| Contact your member of Congress | 41% | 59% |
| Join a group | 38% | 62% |
| Donate money | 35% | 65% |
| Letter to local paper | 32% | 68% |

Respondents were more likely to talk to friends and family about the issue or sign a petition, and less likely to participate in any of the other behaviors: contacting a member of Congress, joining a group, donating money or writing a letter. Petition

signing and talking are in many ways low cost behaviors compared to the other behaviors mention. They are also the only behaviors that were significantly affected by the persuasive messages. There was no main effect for the experimental manipulation on any of the behaviors, but the interaction between knowledge and experimental condition yielded significant effects for willingness to talk about climate change (F=3.51, p<.05) and willingness to sign a petition (F=2.43, p<.10).

**Figure 6**: Willingness to talk about issue, by experimental condition
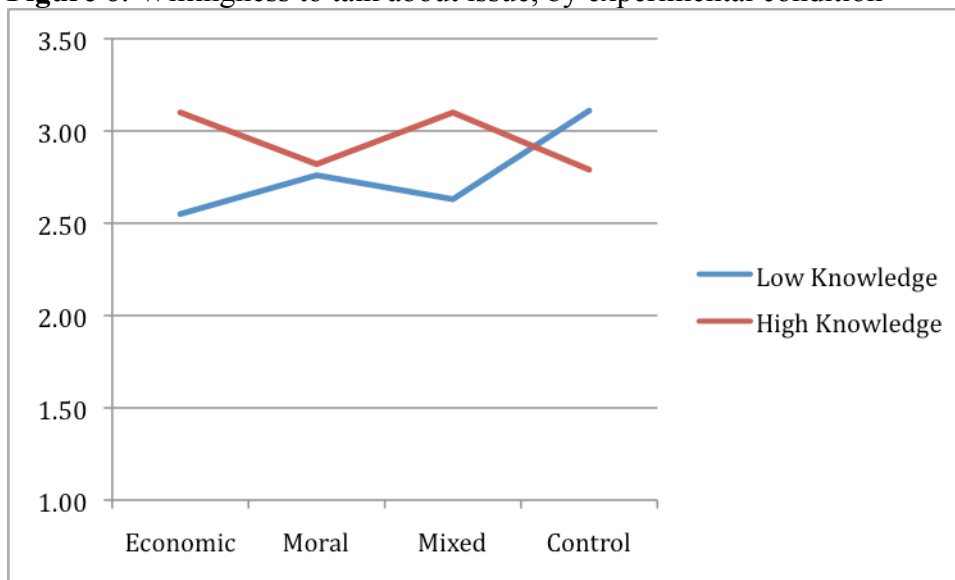


**Figure 7**: Willingness to sign a petition, by experimental condition
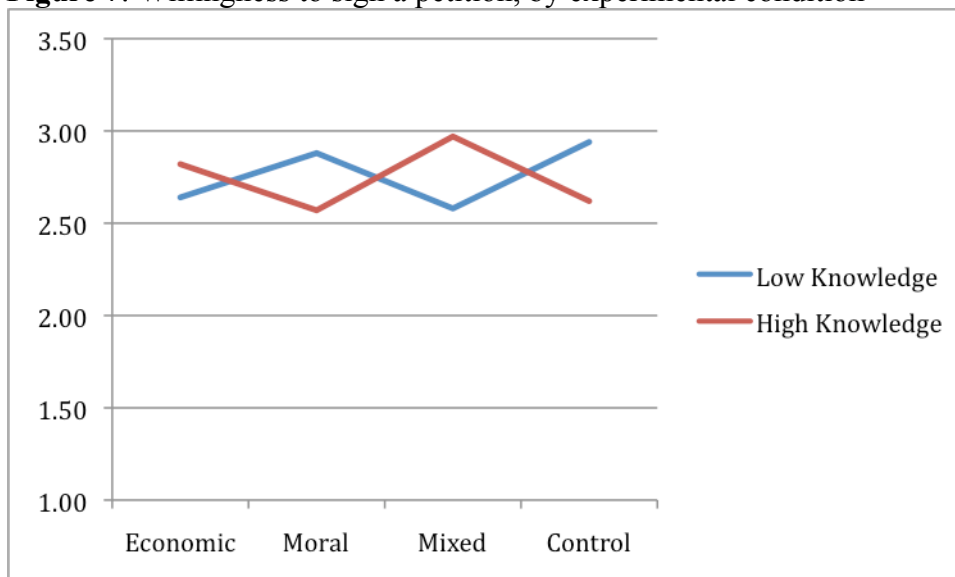
For low knowledge participants, we see that persuasive messages were either ineffective or demobilizing. However, for high knowledge participants, both the econonomic self-interest message and the mixed message were effective in promoting helpful behaviors. While these messages were not effective in promoting costlier behavior, such as donating money or writing a letter, an advocacy group could use an economic message to encourage knowledgable people to participate in low cost behaviors.

**Partisanship**

Given the prominence of partisanship in previous public opinion work on climate change, it is worthwhile to note the effects of partisanship in this sample. As previously discussed, partisanship was not related to the objective knowledge scale about climate change,[21] and partisanship (Democrats vs. Republicans) was unrelated to how informed people felt about climate change (t=.82, p=.41). Democrats expressed a higher level of worry over climate change (Democrats: 2.89 vs. Republicans: 2.21, t=5.48, p<.01) and were more likely to think that the issue is important (Democrats: 2.46 vs. Republicans 1.97, t=5.75, p<.01). Sixty four percent of Democrats believe that climate change is caused by human activity, while only 37 percent of Republicans share this belief (chi$^2$=19.15, p<.01). Democrats were also more likely to participate in every behavior relevant to climate change they were asked about. Given the strong partisan effects in the previous literature and in this study, we might expect partisanship to condition the effect

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[21] We tried multiple model specifications, including Democratic and Republican identification as dummy variables (reported in table 1) and a partisanship scale (not shown), and did not find a relationship between knowledge about climate change and partisanship.

of the persuasive appeals.  However, interactions between the experimental manipulation and partisanship demonstrate no significant interactions (analysis avaliable upon request). While partisanship is significantly related to attitudes and behaviors related to climate change, political knowledge is the relevant variable for isolating those who find climate change messages persuasive.

**Conclusion**

In our first study, we provided respondents with statements from actual advocates using a variety of "frames" to describe climate change–as a national security problem, as a business opportunity, as a secular moral issue, as a Christian moral issue, and in terms of the environmental impact. What we found is that the "climate change as business opportunity" message was perceived to be stronger than any of the other arguments. Arguments based on Christian morality and national security were perceived to be the weakest. While this was a diverse group (with some balance on gender, partisanship, education, urban vs. rural), it was not a nationally representative sample.

We used this as a first phase test to set up experimental conditions, where different groups got different messages. In our second study, we assigned individuals to one of four conditions: a control group with no message or one of three experimental conditions (a moral message, an economic self-interest message, and a mixed message). We found that knowledge about climate change moderated the effectiveness of these appeals.  People who knew little about climate change were not persuaded by these messages; they were most worried and most likely to act when they weren't shown an ad. Among the three messages, this group finds a moral argument most appealing, but the

dominant finding for this group is that the persuasive messages failed to persuade. This is a troublesome finding for climate change advocates. The most hopeful interpretation for advocates is that persuasion can only happen after education about climate change. A more cynical take is that some people are uninterested in the topic and are likely to stay that way. Attempts to persuade this group will lead to intransigence, counter-arguments and demobilization.

These studies did provide some hope for climate change activists. Arguments based on economic self interest (either on its own or mixed with a moral message) can help persuade people who know something about climate change to care more about the problem and participate in some low cost behaviors to help. Though the finding is restricted to the most knowledgeable (and it was the self-interest argument rather than the moral argument which changed attitudes), in terms of the framing of this article, it appears that persuasion on climate change is a matter of appealing towards desired ends rather than appealing to our sense of right and wrong. One small caveat to the hearts vs. minds theme present in this research is that the self-interest message heightened worry, an emotional response, but did not shift assessments of issue importance.

Our broader argument suggested that some issues, like climate change, given their potential consequences for the American people and their costliness, would depend upon consequentialist messaging, like the economic frame employed in our experiment, for persuasive appeal. We also suggested that moral arguments would likely be more persuasive for other issues such as HIV/AIDS in the developing world, where the transnational impact on Americans is limited and the costs, though significant, pale in comparison to the resources required to address climate change. However, in a cursory

review of the accompanying experiment on HIV/AIDS, we found no statistically significant effects across the various messages or the control condition. In addition to more robust analysis of the findings of that data, we also intend to explore the theoretical implications of the finding from our climate study on the moderating effects of knowledge on the persuasive appeals of self-interest economic arguments versus secular moral arguments.

Beyond efforts to manipulate the content of different messages, we also aim to conduct studies that examine the persuasive power of individual messengers. While the substantive content of messages may be important, the literature in social psychology suggests that "source effects" of messengers may be equally important. Actors that are more similar on some dimensions to their targets in terms of certain attributes, like race, religion, gender, partisanship, ideology, may find their appeals more successful than actors possessing fewer of these attributes. Similarity is but one potential messenger attribute we aim to explore in subsequent expansions of this research with manipulations of expertise, faith, and celebrity among the options we are exploring.[22]

Finally, the field of international relations has a long tradition of posing its various theoretical traditions as competitors, embodied by the title's theme of hearts vs. minds. As experimental research has long shown and as our results suggest, the reality of persuasive appeals is much more nuanced. The question is no longer about which kind of appeal is more persuasive in the aggregate but under what circumstances will different appeals, even within the same issue area, ultimately lead to a greater willingness by individuals to support a cause and act.

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[22] For a non-experimental argument of this kind, see chapter 5 in (Busby 2010, forthcoming).

**Appendix A: Study 1 Argument Evaluations**

*Moral Arguments (Secular and Religious):*

**55% Strong, 23% Weak**
"This is a moral moment of great magnitude. This is not ultimately about any scientific discussion or political dialogue. It is about who we are as human beings and our capacity to transcend our limitations and rise to meet this challenge."

**52% Strong, 32% Weak**
"When I think about the climate crisis I can imagine a time when our children and grandchildren ask us: What were you thinking, didn't you care about our future? Or they will ask: How did you find the moral courage to solve this crisis?"

**53% Strong, 29% Weak:**
"Pollution from vehicles has a major impact on human health and the rest of God's creation. It contributes significantly to the threat of global warming"

**38% Strong, 41% Weak**
"Christians are reminded that when God made humanity he commissioned us to exercise stewardship over the earth and its creatures. Climate change is the latest evidence of our failure to exercise proper stewardship."

*Self Interest Arguments (Economic and Security):*

**69% Strong, 15% Weak**
"With American ingenuity and resolve we can turn the crisis of global warming into an opportunity—by creating a new energy economy that embraces innovation, brings rural communities back to life and creates new, good-paying jobs."

**66% Strong, 16% Weak**
"The need to transform the world's energy systems to deal with climate change is a daunting challenge, but it is also an enormous business opportunity."

**49% Strong, 29% Weak**
"Global warming will become a "threat multiplier for instability" and push failing states over the edge. That is why delay, indifference, and inaction are no longer options."
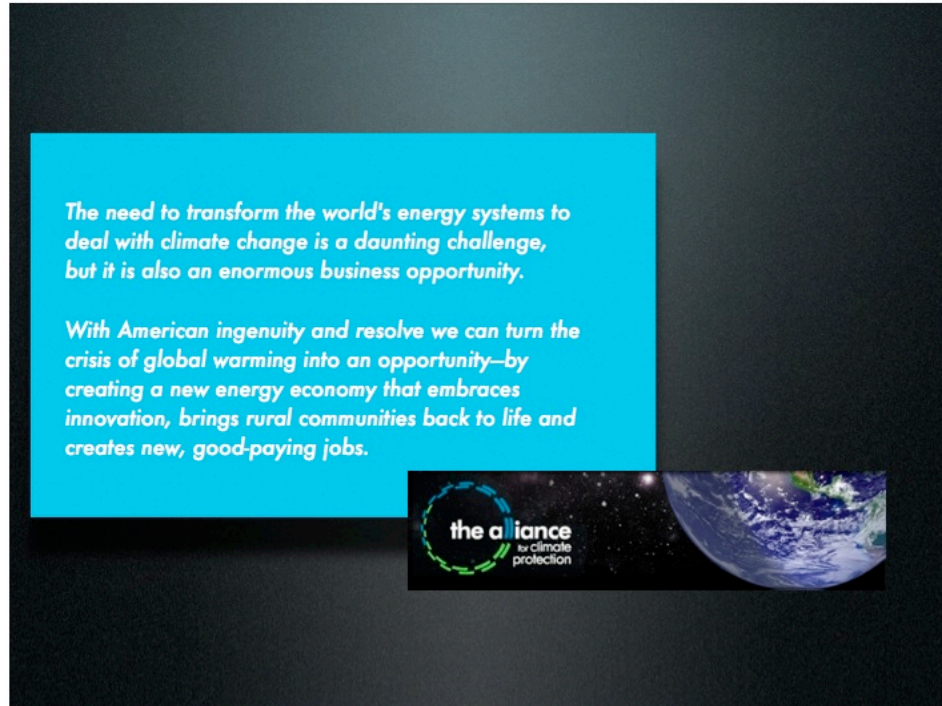
**46% Strong, 30% Weak**
"Global warming is a planetary emergency—a crisis is threatening the habitability of the Earth today. Human activity is the main cause. The consequences are mainly negative and headed toward catastrophic, unless we act."

**38% Strong, 37% Weak:**
"Global climate change presents a serious national security threat which could impact Americans at home, impact US military operations, and heighten global tensions."
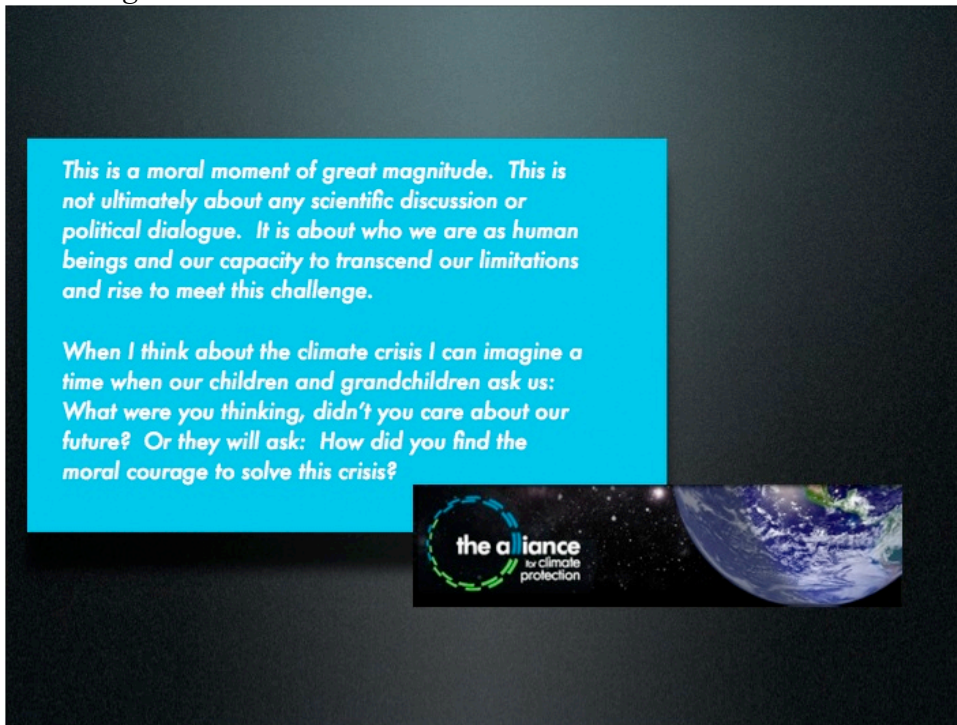
**Appendix B: Study 2 Materials**

*Economic Argument Condition:*



*Moral Argument Condition:*

**Appendix B, continued**

*Mixed Argument Condition (Argument order was randomized):*

## Appendix C: Full ANOVA Results

ANOVA Tables (n=330, unless otherwise noted):

|  | F | P>F |
|---|---|---|
| ***Message Agreement (n=248)*** |  |  |
| Treatment | 0.61 | .54 |
| Knowledge | 0.00 | .95 |
| Treatment x Knowledge | 4.59** | .01 |
|  |  |  |
| ***Worry over Climate Change*** |  |  |
| Treatment | 0.28 | .84 |
| Knowledge | 0.06 | .81 |
| Treatment x Knowledge | 2.63** | .05 |
|  |  |  |
| ***Importance of Climate Change*** |  |  |
| Treatment | 0.44 | .73 |
| Knowledge | 0.68 | .41 |
| Treatment x Knowledge | 1.24 | .29 |
|  |  |  |
| ***Behavior: Sign a Petition*** |  |  |
| Treatment | 0.07 | .98 |
| Knowledge | 0.02 | .90 |
| Treatment x Knowledge | 2.43* | .07 |
|  |  |  |
| ***Behavior: Talk to friends and family*** |  |  |
| Treatment | 0.43 | .73 |
| Knowledge | 3.28* | .07 |
| Treatment x Knowledge | 3.51** | .02 |

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