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Citizens, Nonprofits and Climate Change Policy

Abstract: The issue of climate change and its potential effects on natural and human systems is becoming more prevalent on citizen and policymaker agendas. Studies of the factors framing citizen levels of concern about climate change and potential policy reactions to it are mainly framed around traditional causal explanations like socioeconomic status, political ideology, personal vulnerability, and knowledge. The present study, building on Stern et al.'s (1999) Value-Belief-Norm theory, expands this analysis by looking at the impact of nonprofit organization influences on citizen orientations to climate change as a problem. Controlling for traditional variables, this study seeks to isolate the effects of nonprofit organizations as potential attitude and policy framers in this policy realm. Using a national public opinion survey of American citizens, the role of nonprofit organizations in framing levels of concern about, and policy reactions to, climate change are found to be more complex than once thought. It appears that environmental organization membership per se is less important than is citizen trust in environmental organizations.

Keywords: environmental interest groups, trust, climate change, nonprofit organizations

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Separate from government and private in nature, nonprofit organizations are often thought of in terms of their charitable roles, advocacy, and social actions. Comprising a sector which is diverse in its range, nonprofit organizations provide a venue for health and social service provision, environmental activism,

artistic expression and cultural advancement, and advocacy activities for education, research, religious, and philanthropic causes (Salamon, 1999). Nonprofit organizations are often referred to in the context of the three sector framework of "state-market-civil society" (Andrews and Edwards 2004, 484), in which nonprofits exist to address social and economic goods that the state and market fail to address (Hansmann 1987; Weisbrod 1975; Young 1999, 2000).

Nonprofit organizations are also considered in terms of their "important role in mobilizing public attention to social problems and needs, serving as conduits for free expression and social change" (Eikenberry and Kluver 2004, 136). Scholars of nonprofit organizations have placed much emphasis on understanding both the distinctive and overlapping characteristics of the political and charitable roles played by nonprofits. These overlapping characteristics are particularly important for understanding how and to what extent charitable, political, and increasingly hybrid-purpose nonprofits influence the knowledge and behaviors of citizens and engage them in policy change and implementation (Alexander, Nank, and Stivers 1999; Child and Gronbjerg 2007; Lohmann 1992).

Despite the robust scholarly attention dedicated to nonprofit organizations, there is still much we do not understand about the role these institutions play when influencing this knowledge and behavior at the individual level. While certainly playing an important role in this "state-market-civil society" in the aggregate, it is still unclear just how influential nonprofits might be within this society. Important questions remain about how successful nonprofit interest groups are in framing issues and mobilizing individual citizens. Do these nonprofits have an impact on their members', and non-members', attitudes and policy choices? Additionally, the literature is empirically void of explanations of the role that nonprofit environmental organizations may play in providing attitudinal and behavioral cues to their members, and to those who trust them. We empirically test these questions within the policy domain of climate change.

Nonprofits and policy change

Salamon (1999) conceptualized nonprofit activity in two principal ways: primarily member-driven activities, and activities that serve the public more broadly. Member-serving organizations arguably produce some public benefits, and primarily public-serving organizations can and do engage in activities that serve their members or that are political in nature. Of late, scholars have become increasingly interested in the overlapping service and political roles of nonprofits (Berry 2005; Berry and Arons 2003; Verba, Schlozman, and Brady 1995). This in turn has contributed to a more complex conceptualization of the

intermediary roles played by nonprofits vis-à-vis citizens and policymakers (Boris and Mosher-Williams 1998; Edwards and Foley 2003).

Conceptualizations of the political roles that nonprofits play are numerous and varied. These roles include advocacy, representation, and mobilization. In general, advocacy "describes the influence of groups in shaping social and political terms" (Reid 2000, 7). Through lobbying and public relations campaigns, nonprofit groups help frame issues, provide information and pressure officials about issues of importance to their group's members and the larger public.

LeRoux (2007) notes that the desire to represent client interests also shapes conceptions of appropriate nonprofit advocacy behavior. Overall, the literature confirms Schattschneider's (1960) concept of mobilization of bias in interest group composition, where advocacy behaviors are driven by the stance and needs of particular stakeholder groups and mission motives (Andrews and Edwards 2004). Not surprisingly, commercial or private industry interests are better represented in policy arenas than those issue areas related to the interests of less affluent constituencies or those rooted in ideological appeals (Andrews and Edwards 2004). Nonprofits providing social services, in particular, are critical in representing the interests of less affluent constituencies and government (Berry 2001; Berry and Arons 2003).

Mobilization of citizens and resources is also an important function nonprofits perform. LeRoux (2007) discusses nonprofit organizations as civic intermediaries, particularly as their roles pertain to voting and contacting public officials. Community-based social service organizations, both directly and through political action committees, have a powerful potential for influence and serve as a resource for their members to receive cues and form attitudes and behaviors. In effect, LeRoux (2007) found that community-based social service organizations are significantly more likely to engage individuals in the political process. This interaction between citizens and nonprofits creates an avenue for civic participation that is perhaps more accessible and more effective than traditional means of participation, e.g., individually contacting legislators (see, for example, Child and Gronbjerg 2007; Nicholson-Crotty 2007; Saidel 2002).

Citizens want and need cues to help reduce the costs of making political decisions. Political parties provide some of these cues, but so do the special interest groups that people belong to or identify with and trust. Current nonprofit literature tends to assume that individual involvement and citizen behavior in the policy process are largely an organizationally embedded process, in which nonprofits serve as resource brokers between citizen interests and the policy process (i.e., brokers of information, points of access to the policy process, access to like-minded people, etc). Lowry (1995) describes this brokering role as occurring through four types of nonprofit and public sector intersections: (1) service

provision and program implementation, (2) public policies toward nonprofits, (3) public–private partnerships, and (4) policy advocacy. Lowry notes that although interactions between nonprofit and public sector actors are rising, it is the fourth type of interaction, policy advocacy, which presents nonprofits with perhaps the best opportunity to both increase individual and civic participation in the policy process and to advance organizational interests.

Nearly three out of four nonprofits say that they have practiced direct and/or indirect advocacy (OMB Watch 2006). Based on the results from *SNAP: Strengthening Nonprofit Advocacy Project* (2002), significant majorities of nonprofits report that they have encouraged their members to write, call, fax, or email policymakers; that they have lobbied on behalf of or against a proposed bill or other policy pronouncement; and that they have testified at legislative or administrative hearings. Nonprofit organizations can thus play a critical role in filling educational and information voids – strategically moving an issue from one of distant worry to immediate concern (Eden 1996).

Nonprofit organizations can clearly influence the policy process in a variety of manners. The literature on nonprofits has thus far focused primarily on the aggregate impact that these groups have had on this process. Accordingly, there is a dearth of understanding how these aggregated activities influence behavior and attitudes at the individual level; an oversight this project seeks to rectify.

Nonprofit citizen environmental orientations

The important position of environmental issues on the public agenda today cannot be explained by any single movement, event, or technological development. Some might say that the scientific advances of today explain why we pay more attention to issues like the environment than ever before. However, this assertion would neglect the role individual citizens, opinion leaders, and interest groups – mobilized to action and organized for change – have played in propelling environmental issues to the status it enjoys today (Fischer 2000).

Once thought to be a problem for future generations, climate change is receiving an increasing amount of attention from scientists, decision makers, and the general public as more is learned about it.[1] In a commons dilemma, like global warming, where there are collective action problems resulting in conflict between individual interests and what may be best for society as a

1 See, for example, Oreskes (2004); Intergovernmental Panel on Climate Change (2007); and Rosenberg et al. (2010).

whole, there are three conditions that must be met for the public to be induced to change their behavior: (1) knowledge of the problem, (2) a perception of risk, and (3) the availability of feasible behavior alternatives (Vlek 2000; see also Lubell, Zahran, and Vedlitz 2007).

Knowledge includes awareness of the problem, a definition of the problem, belief that it is happening, recognition of its cause, belief in negative consequences, and appropriate behavior alternatives to those actions that are causing the problem (O'Connor, Bord, and Fisher 1999). Many people are aware of the problem of global warming and climate change, but get the facts wrong when it comes to its nature, causes, and consequences (Bord, Fisher, and O'Connor 1998; Lorenzoni, Pidgeon, and O'Connor 2005).[2]

An individual's knowledge, regardless of its accuracy or breadth, interacts with psychological, social, moral, institutional, and cultural processes to amplify or attenuate risk perceptions (Dessai et al. 2004; Kasperson and Kasperson 1996). Amplification and attenuation of the perception of danger and immediacy of climate change occurs through the filtering of information through its source. Risk perceptions, together with knowledge, affect environmental behavior choices (Bord, Fisher, and O'Connor 1998; O'Connor, Bord, and Fisher 1999; Vlek 2000), including voluntary actions and support for public policy.

Finally, the availability of policies to address problems observed and recognized needs to be communicated and understood. It is important to have acceptable and feasible options available to individuals and governments that fit in with existing cultural, economic, and political habits and patterns.

Theoretical framework

There is a strong literature examining the variables found to affect politically relevant attitudes and behaviors. The roles of socioeconomic status (Verba and Nie 1972), ideology (Hinich and Munger 1994), party identification (Campbell et al. 1960; Lewis-Beck et al. 2008), and religiosity (Stokes and Ellison 2010) have all been shown to affect attitudes towards various public issues ranging

2 Bord, Fisher, and O'Connor (1998) find that many people confuse ozone depletion with global warming. Their survey shows that many people link insecticide and aerosol use to global warming and most do not make the connection between energy use and global warming. More respondents were concerned about the generation of nuclear power leading to global warming than the heating and cooling of homes.

from immigration policy, to school desegregation, to divorce law. And these same factors are known to influence voting choices, contacting behavior and campaign contributions, and other forms of political participation.

In the environmental policy literature, these factors have been expanded to include more core belief and social movement concepts by Stern and his colleagues as they develop a more comprehensive approach they call the "value-belief-norm" theory (VBN) (see, for example, Stern et al. 1999; Dietz, Dan, and Shwom 2007). This approach opens up the important role that interest groups and advocacy organizations may play in building trust in environmental movements, and how these organizations may provide significant cues to the electorate as they face environmental policy choices.

This VBN approach provides a way to examine the role that nonprofit organizations play in framing attitudes and behavioral/policy choices for group members and others. In the modern world where instant communications, the internet, and an almost infinite array of communicating options are available, advocacy nonprofit institutions may be poised to be a significant cue giver to their members and others who trust them or their message. Furthermore, group membership research finds that non-members are typically more influenced by organizational communications than members (see, for example, van Heerde and Bijmolt 2005). This extra-member influence is particularly difficult to measure, which is generally reflected in its absence within the literature. In this study, we look at a particularly current, complex public policy problem, climate change, and examine empirically the role that nonprofit organizations are playing, or not playing, in this heightened policy domain with both members and non-members.

In the present analysis, we look specifically for indicators of attitudinal position, beliefs, values, knowledge, and information sharing between environmental nonprofit groups and members of the public in the context of the VBN model. By using these core VBN variables as key analytic constructs, we can more carefully and accurately assess the role of nonprofit groups in influencing individual climate change attitudes and policy choices. The key point to examine here is to test whether the role of nonprofit environmental organizations is direct, through membership, or indirect, through establishing broad levels of trust with non-members. The VBN approach is very instructive here, for its belief-centered values focus leads us to look at both potential avenues of influence.

Hypotheses

Focusing on the attitude, beliefs, and values, conceptual elements in the VBN and previous research into nonprofit organizations leads us to three core

hypotheses. Key dependent variables representing these attitudes, beliefs, and values will be each respondent's level of concern about global warming and climate change, environmental efficacy (their belief that they are able to effect global warming and climate change), and their support of public policy options that may help to mitigate the impact of climate change. The literature clearly indicates two separate and distinct models to explain the effect of groups on political attitudes and beliefs, one, based on membership itself as the key cue giver, and the other based on more complicated psychological orientations led by organizational trust. Accordingly, we examine the following hypotheses.

Group-Membership Based Hypotheses:

H1: Members of an environmentally focused nonprofit organization are more likely to be concerned about global warming and climate change than are non-members.

H2: Members of an environmentally focused nonprofit organization are more likely to feel able to effect global warming and climate change than are non-members. (environmental efficacy)

H3: Members of an environmentally focused nonprofit organization are more likely to support public policy options that may help mitigate global warming and climate change than are non-members.

Individual-Trust Based Hypotheses:

H4: Those who evidence more trust in environmentally focused nonprofit organizations are more likely to be concerned about global warming and climate change than those that have less trust, irrespective of group membership.

H5: Those who evidence more trust in environmentally focused nonprofit organizations are more likely to feel able to effect global warming and climate change than those that have less trust, irrespective of group membership. (environmental efficacy)

H6: Those who evidence more trust in environmentally focused nonprofit organizations are more likely to support public policy options that may help mitigate global warming and climate change than those that have less trust, irrespective of group membership.

Data

Data for this study are from a national telephone survey of adults in the United States conducted from April 3, 2007 to July 18, 2007. Interviews were conducted

in English, with the average interview taking about 37 minutes. A total of 833 completed interviews were obtained through the random sample of the general United States population.[3]

Key variable descriptions and operational definitions

Dependent variables

The survey measured respondents' level of concern about global warming and climate change using a 0–10 point scale, where 0 indicates No Concern and 10 indicates Extremely Concerned. While an eleven-point ordered variable would provide an interesting analysis, the skewed nature of the variable toward higher levels of concern creates significant estimation concerns due to a lack of variation within responses with few observations (see McCullagh and Nelder 1989).[4] To correct for this, the concern variable has been collapsed into a five-point ordered scale that preserves the intent of the respondents while eliminating the concerns associated with values with too few observations. The concern variable was recoded such that original observations from 0 to 3 were recoded 0, 4, and 5 were recoded 1, 6 ,and 7 recoded 2, 8, and 9 recoded 3, and 10 was coded 4.

3 Following American Association for Public Opinion Research conventions and algorithms, the computed response rate was 7%, the cooperation rate was 14%, and the completion rate was 69%. Recent studies suggest there are typically few statistical differences between survey results with high response rates and those with low response rates. A comprehensive study using data drawn from exit polls, found no relationship between response rate and survey accuracy (Merkle and Edelman 2002). Keeter et al. (2006) found that results from surveys with lower response rates were generally statistically indistinguishable from those with much higher response rates. A study comparing 81 national surveys with response rates varying from 5% to 54%, found that RDD telephone surveys with low response rates "do not notably reduce the quality of survey demographic estimates" (Holbrook, Krosnick, and Pfent 2007). AAPOR itself has recently acknowledged this reality (See www.aapor.org/response_rates_an_overview1.htm).

4 When there are relatively few observations at any level of an ordered dependent variable, there is an opportunity for a number of individual bins to be unpopulated. This phenomenon is further complicated when cases with missing values in one of the variables are removed from the analysis, thus decreasing the overall number of cases, and further enhancing the likelihood of having unpopulated bins. For instance, prior to the removal of cases due to missing values, there were eleven empty bins when comparing concern to income, five when comparing concern to education, and ten when comparing concern to political ideology.

In addition to the concern for global warming and climate change variable, the other two dependent variables are constructed indexes, one measuring environmental efficacy and a second measuring environmental policy support.

Environmental Efficacy was measured by asking the respondent whether his/her actions have an influence on global warming and climate change. The answers ranged from Strongly Agree, Agree, Disagree, to Strongly Disagree. The environmental efficacy index was calculated by averaging the respondent's assessment and rescaling it to reflect the original four-point scale, which was coded from 0 to 3, where 0 represented Strongly Disagree.

The Environmental Policy Support Scale was constructed from eight questions that measured support or opposition to various government policy options ranging from support of the Kyoto Protocol to increasing the price of fossil fuels.[5] Each question had four options: Strongly Support, Support, Oppose, or Strongly Oppose. These eight policy question responses were averaged and rescaled to reflect the original four-point ordered scale. However, similar to the concern variable, there were few instances of Strongly Oppose responses, thus creating similar estimation concerns. Accordingly, the Strongly Oppose and Oppose responses were collapsed into a single category, creating a three-point scale.

Analytical strategy

The non-continuous, ordinal nature of the dependent variables indicates that an ordered logit is the most appropriate statistical approach to test the aforementioned hypotheses (McKelvey and Zavoina 1975). However, all three ordered logit models presented violations of the parallel regression assumption, which is a fundamental assumption of ordered logit (Long 1997). The parallel regression assumption holds that the influence of a variable is constant across the entire range of the dependent variable. If a variable's influence is not consistent across this range, it will lead to misestimating relationships in the analysis (see Robinson et al. Forthcoming). This assumption was tested using a Brant Test (Williams 2006). In each of the models, at least one of the independent variables violated the parallel lines assumption, with five violations found in the model of concern. To correct for these violations, a generalized ordered logit (GOLOGIT) was estimated for all three models. The GOLOGIT relaxes the assumption for the variables identified via the Brant Test, allowing only these variables the opportunity to vary across the range of the dependent variable. For the sake of parsimony, the GOLOGIT analyses will be the only analyses presented.

5 Information concerning question wording and coding can be found in Table B.2.

In addition to providing a more precise analytical tool, the GOLOGIT offers the additional benefit of allowing for a more nuanced understanding of the relationship between independent variables and the dependent variable (Robinson et al., Forthcoming). As will be presented below, this will allow for the possibility of discussing the influence of a variable differently at different levels of the dependent variable. Traditionally, the interpretation of these influences precludes this as a possibility, as the estimated influence is assumed to be the same. However, the GOLOGIT allows a variable to become statistically significant, or to lose their significance, as it moves up the range of the dependent variable. As presented below, there are no coefficient estimates for the overall impact of the variables that violate the assumption. Instead, we present the relative impact of that variable on each level of the dependent variable, which allows for these more nuanced interpretations.

Independent and control variables

Our major organizing variable, as suggested by the VBN theory's focus on social movements, is membership in an environmental group and was obtained by asking respondents "Do you currently belong to, or have you belonged to, any environmental groups or organizations?" About 22% of respondents reported an affiliation with an environmental group. It is coded as a 0/1 variable.

An additional independent variable, which captures both the information and trust dimensions between respondents and environmental interest groups so important to the VBN construct, is an Environmental Organization Trust Scale computed from three 0–10 scale items: how often they use environmental interest groups for information on global warming and climate change (0 = Never to 10 = Often); respondents' rating of the trustworthiness of information provided on global warming and climate change by environmental interest groups (0 = Not Trustworthy to 10 = Extremely Trustworthy); and respondents' view of the competency of environmental groups on global warming and climate change (0 = Not at all Competent to 10 = Completely Competent). The scale was created additively from these three indicators by using the summative rating scale method (Likert 1932) and evaluating the scale with Cronbach's Alpha (Cronbach 1951; Knoke, Bohrnstedt, and Mee 2002).[6] Higher values on the scale correspond with higher levels of trust and lower scale values correspond

6 We find a satisfactory alpha of 0.82. The scaling method we used and its method of evaluation is explained in Cronbach (1951), Likert (1932), and Knoke, Bohrnstedt, and Mee (2002).

to lower levels of trust. We choose to use standardized variables in the scale (centered to have mean 0 and scaled to have standard deviation of 1), which ensures that the importance of items in the scale is not affected by their differing variances.[7]

As the literature has largely ignored the extra-member influence of environmental organizations, a bit of an explanation is required for why the Environmental Organization Trust Scale captures this influence. Hetherington (1998) suggests that humans are more likely to trust something with which they already agree, and the literature on framing effects finds that humans are more likely to be influenced by sources they trust than sources they don't (Eagly and Chaiken 1993; Miller and Krosnick 2000). Accordingly, a measure of environmental organization trust ought to capture the level of influence that these groups have on each individual.

Does our measure of organizational trust actually capture trust? The psychological literature on trust finds that it is composed of two characteristics – social value similarity and competence (Cvetkovich and Nakayachi 2007). Both these components comprise the Environmental Organization Trust Scale. The competence component is measured using a question directly assessing competence. Because we tend to trust something we already agree with (Hetherington 1998), the use of information from environmental interest groups and the perceived trustworthiness of that information capture the social value similarity component. Accordingly, the Environmental Organization Trust Scale ought to capture an individual's level of trust in environmental groups, which should represent the relative influence of these groups on the public. In short, those that exhibit greater levels of trust in environmental organizations ought to be more likely to be influenced by these groups, even if they are not members of those groups.

Additional independent (control) variables include other VBN indicators of Political Party Identification, Political Ideology, Gender, Income, Age, Education, and Religious Attendance. These demographic characteristics are typically found to have an influence on attitudes, beliefs, and behaviors in the VBN, global warming and climate change, and general public opinion literature.

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7 Unlike the environmental efficacy and the Environmental Policy Support Scale, the Environmental Organization Trust Scale is composed of survey questions using different metrics. The Environmental Organization Trust Scale is composed of three questions that all rely upon an eleven-point scale, but the meaning of the scales are different for each question – level of information use, level of trust in that information, and level of competence. A standardized scale utilizing Cronbach's Alpha helps to ensure that different variances from the different metrics are not biasing the measure.

Finally, there is a robust body of literature that examines the influence of knowledge on attitudes, beliefs, and behaviors. Particularly relevant is the literature on the knowledge deficit model, which holds that those that better understand issues are more likely to view that issue in a manner similar to experts (Bord, Fisher, and O'Connor 1998; Kellstedt, Zahran, and Vedlitz 2008). Climate scientists are more likely to believe that global warming and climate change is a serious concern (Oreskes 2004; Rosenberg et al. 2010), and they are more likely to support policies that would mitigate the impact of the United States on this process (Stoutenborough and Vedlitz 2012). While we are unaware of any studies on the environmental efficacy of climate scientists, it is reasonable to assume that if they are more likely to support policies and more likely to have concern, they are probably more likely to have higher efficacy scores. Accordingly, a control for the influence of knowledge is added to the analyses, which is measured using a self-reported assessment on an eleven-point scale where 0 represents Not at all Informed, and 10 represents Very Well Informed. It is expected that those with greater knowledge will be more likely to express concern, have higher levels of efficacy, and are more likely to support the policy options.[8]

Empirical findings

Beginning with the public's level of concern about global warming and climate change, the results of the GOLOGIT model are presented in Table 1.[9] This analysis was the largest violator of the parallel regression assumption with five variables failing the Brant Test. The analysis failed to find much support for H1. The GOLOGIT results suggest that being a member of an environmental interest group was not an influence on perceptions of concern at almost all levels of concern. However, the analysis did find a marginal influence at the second level of the dependent variable, which suggests that members were more likely to express a moderate level of concern than little concern. Conversely, the analysis found strong support for H4. Those that scored higher on the Environmental Organization Trust Scale were more likely to express concern. The GOLOGIT reveals that this influence is strongest at the

8 Descriptive statistics can be found in Table A.1.

9 While the initial sample included 833 completed surveys, there were a number of surveys that were missing individual responses for one or more of the questions included in these analyses. Cases with missing values were dropped from their respective analyses. We were unable to identify any pattern to the missing values. Therefore, they appear to be missing at random.

lowest level of the dependent variable than at the highest, though both are statistically significant.

The results also indicate that those with greater knowledge are more likely to express concern about global warming and climate change. However, the GOLOGIT reveals that this influence is insignificant at the lowest two levels of the dependent variable. The analysis also suggests that Democrats, those older

Table 1: Nonprofit influence on levels of concern about clobal warming and climate change.

	Coefficient	Prob.
Nonprofit associations		
Organization trust scale		
Level 1	2.163 (0.274)	0.000
Level 2**	1.374 (0.196)	0.000
Level 3*	1.525 (0.166)	0.000
Level 4***	0.995 (0.157)	0.000
Group membership		
Level 1	−0.249 (0.443)	0.573
Level 2*	0.609 (0.348)	0.080
Level 3	−0.050 (0.281)	0.858
Level 4	−0.411 (0.268)	0.126
Knowledge		
Level 1	0.029 (0.144)	0.840
Level 2	0.199 (0.129)	0.123
Level 3***	0.599 (0.123)	0.000
Level 4*	0.434 (0.123)	0.000
Demographics		
Party identification	−0.240 (0.075)	0.002
Male	−0.272 (0.167)	0.105
Income	−0.028 (0.027)	0.308
Political ideology		
Level 1	−0.464 (0.107)	0.000
Level 2	−0.447 (0.085)	0.000
Level 3*	−0.218 (0.071)	0.002
Level 4**	−0.084 (0.069)	0.226
Age	0.024 (0.005)	0.000
Education		
Level 1	0.199 (0.114)	0.082
Level 2*	−0.066 (0.088)	0.454
Level 3**	−0.203 (0.079)	0.010
Level 4***	−0.253 (0.079)	0.001
Church attendance	−0.469 (0.167)	0.005

(*Continued*)

Table 1: (Continued)

	Coefficient	Prob.
Cut point 1	4.072 (0.802)	0.000
Cut point 2	2.906 (0.654)	0.000
Cut point 3	0.390 (0.599)	0.515
Cut point 4	−0.960 (0.646)	0.138
Number of cases	606	
Wald Chi^2	302.43	0.0000
McFadden's R^2	0.2500	
Log Likelihood	−704.545	

Notes: Cell entries are Generalized Ordered Logit regression coefficients. Standard errors are in parentheses. Two-tailed test. Violations of the parallel regression assumption vary across the dependent variable. Level 1 corresponds to the contrast between 0 against all of the other categories; Level 3 examines the contrast between 0, 1, and 2 against 3 and 4, while Level 4 contrasts 4 against all of the previous categories; Gamma test if coefficient estimates at Levels 2, 3, or 4 are significantly different than at Level 1: $*p < 0.05$; $**p < 0.01$; $***p < 0.001$.

in age, and those that do not attend church regularly were more likely to express concern. The GOLOGIT also finds that those who are more liberal were more likely to express concern, but this influence is negated at the highest level of concern, where the analysis found that there was no difference between liberals and conservatives. The education variable moves from a statistically significant positive influence to a statistically significant negative influence as it moves up the dependent variable. This suggests that those with more education are not willing to outright dismiss the possibility that global warming and climate change is an issue that deserves some amount of concern, but they are also unwilling to express high levels of concern. This illustrates the added nuance that the GOLOGIT is able to capture, and thus provide a richer understanding of the influence of these measures.

The second analysis examines the influence of environmental organizations on environmental efficacy. The results of this model are presented in Table 2. We fail to find support for H2. The analysis indicates that being a member of an environmental interest group did not increase or decrease the likelihood of a respondent expressing a higher level of environmental efficacy. However, the results again find that those that score higher on the Environmental Organization Trust Scale were more likely to express a higher level of environmental efficacy, supporting H5. The analysis also suggests that those who are more liberal are more likely to have a higher level of efficacy. Finally, the GOLOGIT reveals that those with more knowledge were more likely to evidence

Table 2: Nonprofit influence on environmental efficacy.

	Coefficient	Prob.
Nonprofit associations		
Organization trust scale	1.399 (0.140)	0.000
Group membership	−0.137 (0.232)	0.555
Knowledge		
Level 1	−0.847 (0.324)	0.009
Level 2*	−0.118 (0.113)	0.295
Level 3*	−0.017 (0.139)	0.901
Demographics		
Party identification	−0.009 (0.083)	0.912
Male	−0.248 (0.184)	0.178
Income	0.035 (0.029)	0.235
Political ideology	−0.131 (0.065)	0.046
Age	−0.007 (0.006)	0.238
Education	−0.070 (0.069)	0.307
Church attendance	0.145 (0.184)	0.428
Cut point 1	7.944 (1.240)	0.000
Cut point 2	2.913 (0.596)	0.000
Cut point 3	−0.948 (0.637)	0.137
Number of cases	575	
Wald Chi^2	169.32	0.0000
McFadden's R^2	0.1728	
Log likelihood	−500.731	

Notes: Cell entries are Generalized Ordered Logit regression coefficients. Standard errors are in parentheses. Two-tailed test. Violations of the parallel regression assumption vary across the dependent variable. Level 1 corresponds to the contrast between 0 against all of the other categories; Level 3 examines the contrast between 0 and 1 against 2 and 3, while Level 3 contrasts 3 against all of the previous categories; Gamma test if coefficient estimates at Levels 2 or 3 are significantly different than at Level 1: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

zero efficacy. However, there is no difference between those that self-report that they are knowledgeable and those that report that they are not knowledgeable at the higher levels of environmental efficacy.

The final analysis examines the influence of environmental organizations on the support of policy options that will mitigate the countries continued influence on global warming and climate change. The results of this analysis are presented in Table 3. The analysis reveals that those who are a member of an environmental interest group were no more or less likely to support these policy options, failing to support the hypothesized relationship, H3. On the other hand, the results again indicate that those with higher scores on the Environmental Organization Trust Scale were more likely to support these policies, confirming H6. However, the

Table 3: Nonprofit influence on levels of environmental policy support.

	Coefficient	Prob.
Nonprofit associations		
Organization trust scale		
Level 1	1.442 (0.219)	0.000
Level 2†	0.970 (0.174)	0.000
Group membership	−0.087 (0.244)	0.721
Knowledge	−0.159 (0.099)	0.110
Demographics		
Party identification	−0.034 (0.088)	0.697
Male	−0.155 (0.196)	0.430
Income	0.050 (0.032)	0.116
Political ideology	−0.285 (0.072)	0.000
Age	0.018 (0.006)	0.006
Education	−0.003 (0.075)	0.960
Church attendance	−0.229 (0.194)	0.240
Cut point 1	3.389 (0.631)	0.000
Cut point 2	−0.707 (0.595)	0.235
Number of cases	538	
Wald Chi^2	142.12	0.0000
McFadden's R^2	0.1873	
Log likelihood	−399.358	

Notes: Cell entries are Generalized Ordered Logit regression coefficients. Standard errors are in parentheses. Two-tailed test. Violations of the parallel regression assumption vary across the dependent variable. Level 1 corresponds to the contrast between 0 against 1 and 2. Level 2 contrasts 2 against all 0 and 1; Gamma test if coefficient estimates at Level 2 is significantly different than at Level 1: $^{\dagger}p < 0.100$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

GOLOGIT reveals that this influence, though still statistically significant, is lower at the highest level of support than it is between opposition and support.

The analysis also indicates that those that self-report greater knowledge on global warming and climate change were less likely to support policies that may mitigate the country's influence. Additionally, the results suggest that those who are more liberal and older in age were more likely to support these policy options.

Discussion

The empirical results of this study provide a great deal of useful information for those seeking to identify and explain the role of nonprofit environmental organizations as a force for framing and influencing attitudes and policy options on climate change and global warming. What is most interesting is

that it is not environmental organization membership per se that seems important; rather, it appears that it is the sense of legitimacy and trust that citizens have for environmental organizations and the information they provide that is exerting the greatest influence. This is a very important finding that should further encourage environmental organizations as they produce and disseminate relevant information, and, when doing so, seek to maintain their respected positions of legitimacy and trust.

Unfortunately, this is also an indication of the ever-present struggle that plagues all nonprofit organizations. The results from each of the three analyses actually provide empirical evidence of the free rider problem. In theory, those that hold values and beliefs that align with a nonprofit organization should probably be a member of that organization in order to help them achieve shared goals. However, we know that this is not what happens in reality, where nonprofit organizations are constantly trying to overcome the collective action problem. In the present examination, the Environmental Organization Trust Scale should provide insight into the extent to which individuals share values and beliefs that align with environmental organizations. Subsequently, we would expect those with higher levels of trust ought to be more likely to join an environmental organization. These results suggest that those that probably ought to have values and beliefs that are aligned with environmental organizations (those with high trust) are not joining, and are thus free riding.[10]

Previous studies, including some very recent ones, have focused on the role of actual membership in influencing behaviors (see, for example, Charness, Rigotti, and Rustichini 2007), but have not paid much attention to the collateral effects of group association or trust short of actual membership. This notion has been suggested in the literature, however. Bearden and Etzel (1982) demonstrated that many individuals did not behave like most others in their group. These individuals were focusing on cues from other sources, perhaps other groups, of which they were not actually members. Michele Williams (2001) suggested this in asserting that individuals could have a sense of interdependence with other groups, largely focusing on trust, which had little to do with actual membership.

10 This also introduces the possibility that we may have an omitted variable bias in our analysis. The Environmental Organization Trust Scale is designed to capture general assessments of trust, through components that capture competence and social value similarities – the two components of trust (Cvetkovich and Nakayachi 2007). While we are confident that our measure of trust captures trust within this framework, we are unable to determine the extent to which this measure may be capturing non-trust related values that could potentially influence the dependent variables. It is our hope that the consistent finding of the theoretical relationship across the three divergent dependent variables suggests that this concern is not particularly strong.

These works are suggestive of a fertile line of research. But our findings make it clear that nonprofit group influence may extend far beyond formal memberships. This could be an important realization for nonprofit organizations and their future fundraising and action strategies.

Appendix A

Table A.1: Descriptive statistics.

Variable	Mean	Std. dev.	Minimum	Maximum	# Missing
Concern	2.385	1.460	0	4	2
Environmental efficacy	1.877	0.686	0	3	50
Policy support	1.114	0.609	0	2	128
Group member	0.218	0.413	0	1	0
Organization trust scale	0	1	−1.612	1.689	4
Knowledge	2.841	0.981	0	4	2
Party identification	2.884	1.313	1	5	51
Male	0.469	0.499	0	1	7
Income	6.921	3.185	1	11	172
Political ideology	4.232	1.750	1	7	40
Age	52.763	15.095	18	99	25
Education	4.299	1.391	1	6	7
Church attendance	0.444	0.497	0	1	11

Appendix B

Table B.1: Question wording and coding.

Variable	Question	Coding
Concern	On a scale from 0 to 10, with 0 indicating completely unconcerned and 10 indicating extremely concerned, rate these issues on how concerned you are personally about each. Global Warming and Climate Change	0–3 = 0, 4–5 = 1, 6–7 = 2, 8–9 = 3, 10=4
Environmental efficacy	(Index of 3 questions) The following statements are about Climate Change and Global Warming. Please tell me if you strongly agree, agree, disagree, or strongly disagree with each of them. 1) I believe my actions have little or no influence on Global Warming and Climate Change [Reverse Coded]; 2) I have an obligation to future generations to reduce	Average approval based on the following: Strongly Disapprove = 0, Disapprove = 1, Approve = 2, Strongly Approve = 3.

(*Continued*)

Table B.1: (Continued)

Variable	Question	Coding
	my impact on Global Warming and Climate Change; 3) My actions to reduce the effects of Global Warming and Climate Change in my community will encourage others to reduce the effects of global warming through their own actions.	Recoded into four ordered options: 0–0.5 = 0, 0.51–1.5 = 1, 1.51–2.5 = 2, 2.51–3 = 3.
Policy support	(Index of 8 questions) A number of policy options have been proposed to deal with the problem of Global Warming and Climate Change. I am going to read a number of policy options to you. For each policy option, please indicate whether you: strongly support, support, oppose, or strongly oppose that policy. 1) Reduce our dependence on foreign oil; 2) Use market incentives to encourage industries to reduce emissions; 3) Impose a tax on industry to discourage industry practices that contribute to Global Warming and Climate Change; 4) Offer government subsidies for types of energy and other consumer goods that are environmentally friendly; 5) Ratify the Kyoto Protocol, committing the US to reducing carbon dioxide emissions; 6) Develop renewable energy sources, like hydro power, solar power, and windmills that emit no carbon dioxide; 7) Require automobile companies to build more fuel-efficient vehicles; 8) Increase the price of fossil fuels (like gasoline) to encourage people to save energy, and encourage the development of energy efficient devices.	Average approval based on the following: Strongly Oppose = 0, Oppose = 1, Support = 2, Strongly Support= 3. Recoded into four ordered options: 0–1.5 = 0, 1.51–2.5 = 1, 2.51–3 = 2.
Group member	Do you currently belong to or have you belonged to any environmental groups or organizations?	Yes = 1, No = 0
Organization trust scale	(Index of 3 questions) 1) I am interested in what other sources of information might have provided you with information about Global Warming and Climate Change. Please indicate how often you use each of the following sources for information on Global Warming and Climate Change, using a 0 to 10 scale where 0 is never and 10 is very often: Environmental Interest Groups; 2) Place the following information sources on a scale from 0 to 10 in terms of the trustworthiness of information provided on Global Warming and Climate Change, with 0 indicating the source is not trustworthy at all	Cronbach's Alpha, standardized to be centered with a mean 0 and scaled to have standard deviation of 1

(*Continued*)

Table B.1: (Continued)

Variable	Question	Coding
	and 10 indicating the source is extremely trustworthy: Environmental Interest Groups; 3) I am going to read a list of public and private groups that make decisions that have an impact on Global Warming and Climate Change. Using a scale of 0 to 10, where 0 means not at all competent, and 10 means completely competent, how would you rate the competence of each group to make decisions about global warming and climate change: Environmental Interest Groups	
Knowledge	How informed do you consider yourself to be on the following issues? Place yourself on a scale from 0 to 10, with 0 indicating not at all informed and 10 indicating very well informed: Global Warming and Climate Change	0–1 = 0, 2–3 = 1, 4–6 = 2, 7–8 = 3, 9–10 = 4
Party identification	(Index of 2 questions) 1) Generally speaking, do you think of yourself as a Democrat, Republican, or Independent? 2) Do you consider yourself a strong or weak (Democrat/Republican)?	Scaled as Strong Democrat = 1 to Strong Republican = 5
Male	As part of the survey, I am required to ask: are you male or female?	Male = 1, Female = 0
Income	What was the estimated annual income for your household for 2006? Less than $10,000,10 to $20,000, 21 to $30,000, 31 to $40,000, 41 to $50,000, 51 to $60,000, 61 to $70,000, 71 to $80,000, 81 to $90,000, 91 to $100,000, More than $100,000	Scaled from 1 to 11, with 1 = Less than $10,000, and 11 = More than $100,000
Political ideology	Which of the following categories best describes your political views? Would you say that you are: Strongly liberal, liberal, slightly liberal, middle of the road, slightly conservative, conservative, or strongly conservative.	Scaled from 1 to 7, with 1 = Strongly Liberal, and 7 = Strongly Conservative
Age	How old are you?	Self-reported age
Education	What is the highest level of education you have completed? Elementary or some high school, high school graduate/GED, trade or vocational certification, some college/associates degree, college graduate, post-grad degree	Scaled from 1 to 6, with 1 = Elementary or some high school, and 6 = Post-grad degree
Church attendance	Did you attend church, synagogue, mosque, or any other type of religious service in the last 7 days?	Yes = 1, No = 0

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