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RECYCLING BEHAVIOR AS A GATEWAY TO ENVIRONMENTAL MOVEMENT PARTICIPATION: IDEATIONAL PARTICIPATION AND RECRUITMENT INTO ENVIRONMENTAL MOVEMENT ORGANIZATIONS

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ABSTRACT

Social movement scholars have argued that an individual's participation in social movement organizations (SMOs) sometimes occurs through a gateway of prior involvement in lower intensity types of participation, such as signing petitions and donating money to an SMO. Scholars who study recycling behavior have hypothesized the existence of a relationship between an individual's participation in environmental movement organizations (EMOs) and his or her participation in recycling programs, although they disagree about which causes which. In this analysis, I connect both of these literatures by arguing that recycling forms an initial step in the process of membership in an EMO, leading first to low-intensity participation and finally to high-intensity organizational membership, channeling participation through a funnel-shaped process. In this analysis, I develop a series of logistic regression models using data from the 2000 General Social Survey to evaluate the plausibility of the process I hypothesize. I find that recycling positively affects low-intensity participation, which in turn increases the likelihood of EMO membership, supporting the funnel hypothesis. I also find that environmental ideology has a significant effect on all of the participation variables, positively influencing participation at each stage of the process.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

Social movements scholars argue that one path toward membership in a social movement organization is through previous informal movement participation. Individuals may contribute resources to a movement through a series of activities, ranging from low-intensity participation, such as donating money or making a protest sign, to high-intensity participation, such as participating in a movement-sponsored protest or formally joining an organization (Klandermans 1997). To the extent that an individual becomes involved in a movement through low-intensity activities, the person is also more likely to become involved in its higher-intensity activities. In this way, prior participation forms a gateway into further movement participation (McAdam 1986).

In a parallel body of literature, scholars who study environmentally friendly behavior of citizens have argued that there is a relationship between membership in an environmental movement organization (EMO) and engaging in recycling, although they disagree about the causal direction. Some of these researchers find that recycling behavior may be a first step toward other forms of participation in a movement (Berger 1997), consistent with the dominant model of the process imagined by SMO researchers. Other researchers, in contrast, argue that organizational membership may contribute to an increase in recycling behavior (Guerin 2001). Still other researchers focus exclusively on recycling as an outcome of other contextual factors without situating recycling behavior as an act of participation within the environmental movement (Valle 2005; Vicente 2008; Chu 2003). In the following analysis, I seek to bridge these literatures by integrating an individual's involvement in recycling into the larger context of participation in the environmental movement.

Social movement organizations (SMOs) initially obtain support by affecting change in the public discourse. Organizations seek to reframe the public discourse related to an issue in a way that is more aligned with the goals and activities of the movement (Snow 1986). As the public discourse changes, more individuals are swayed to support the movement (Brulle 2000). This occurs through a process which Thomas Rochon calls "value conversion" (1998), in which an individual substitutes his or her values for those propagated by the movement. The individual then identifies him or herself with the group, leading to increased feelings of solidarity with the movement, which in turn forms the foundation for mobilization into the movement (Rochon 1998). Klandermans (1984) describes this process, in which a SMO attempts to gain support for its ideals rather than mobilizing people to directly participate in an organizational activity, as "consensus mobilization".

For environmental organizations, the consensus mobilization process involves encouraging potential constituents to adopt an "environmental frame" which supports the ideology of the movement. This may include environmentally-friendly activities such as conserving resources, choosing to drive less, or participating in recycling programs. These types of activities support the ideas and objectives of the movement in general, but are *not directly tied* to EMO mobilization efforts. In the following research, I define such activities as "ideational participation." My primary interest in this analysis is recycling behavior as a form of ideational participation. Ideational participation differs from low-intensity participation in that the former is only primarily linked to the efforts of the movement to change the discursive frame of the public while the latter relates more directly to efforts by EMOs to support the organizations recruitment or mobilization efforts. This analysis will focus on three types of movement participation: 1) ideational participation in the form of recycling behavior, 2) low-intensity participation in the

form of donating money and signing petitions, and 3) high-intensity participation as in EMO membership.

Movement organizations gain ideational support, in part, through their own education programs. Indeed, educating the public on environmental issues is one of the three main strategies available to EMOs (Mitchell 1992). Environmental organizations routinely expend a large amount of time and energy on education in order to encourage the adoption of an environmentally-friendly discursive frame. Of the largest (and traditionally most powerful) environmental organizations, all ten[1] have features on their internet websites which focus on educating viewers regarding environmental issues and encouraging the adoption of an environmentally supportive frame. The Nature Conservancy has an information section entitled "15 easy ways to be an everyday environmentalist," which includes personal conservation activities ranging from traveling less to composting and recycling. The organization Greenpeace has a "green guide" with information on environmentally responsible living at home, work and in the community. Similar guides are referenced on nearly all of the other organizations' websites.

While ideational support affects public opinion (and therefore organizational support) in the short term, this may not be enough for an EMO to translate issue support into long-term organizational membership (Dunlap 1993). By bridging the preceding literatures, I seek to develop a model of recycling behavior as a form of participation in the environmental movement and examine intermediate mechanisms which translate ideational support into formal organizational membership. I will argue that individuals who have adopted ideational support of the movement – in the form of participation in recycling programs – are more likely to

[1] This includes the following groups: Defenders of Wildlife, Environmental Defense, Greenpeace, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, The Nature Conservancy, Sierra Club, The Wilderness Society, and the World Wildlife Fund.

participate in low-intensity types of organizational activity, consequently increasing his or her likelihood of high-intensity, formal organizational membership.

One major limitation of this analysis is its reliance upon cross-sectional evidence rather than on panel data. Without having a measure of time in the analysis, it is not possible to unequivocally establish the direction of the relationships under study. In the next section, I will discuss how researchers have assumed both directions of the relationship between recycling and organizational membership and how previous research in this area has also depended upon cross-sectional data. In the following, I argue that recruitment into an EMO follows a funnel-shaped trajectory, beginning with adoption of the ideas of a movement and eventually leading to joining EMOs, as consensus mobilization translates into movement participation. Far more people participate in recycling programs than in other types of movement activity[2] which, coupled with the observation that individuals are more likely to engage in a movement if they are asked to do so (Klandermans 1997; Verba 1995), suggests that the causal direction flows in the direction presented in my analysis. In the conclusion, I will revisit the issue of causal direction as it pertains to my analyses.

In the following analysis, I will use data from the 2000 General Social Survey (GSS) to test my hypothesis that recycling affects organizational membership through intermediate low-intensity participation variables. I have previously argued that analyses of recycling behavior lack theoretical grounding as an activity performed by a social movement, and this action needs to be modeled as a mechanism of recruitment into an EMO. Next, I will examine the following in more detail: 1) the history of and current research on recycling behavior in the United States, 2) the concepts of ideational, low-intensity, and high-intensity participation as used in this research, and 3) the gateway hypothesis, which I use to connect the three types of participation.

[2] I return to this point in the results section when I present my findings in Figure 3.

THEORETICAL FRAMEWORK

I. Recycling in the United States

Recycling emerged in the United States as an early effort to reduce wasted resources and to maximize profit. This developed in sectors, such as the scrap metal industry, in which the scarcity of raw materials could severely impact profits. Economic utility provided the primary motivation for both individuals and industries to participate in recycling programs, and recycling centers originated to meet this demand (Zimring 2005). Recycling activity by individuals spread to other sectors, but participation was rooted in market values emphasizing efficiency and cost.

Contemporary recycling activities, which were partially rooted in the environmental activism of the 1960s, evolved from a different set of values as the motivation to participate (Strasser 1999). This new recycling motivation was derived not from desire for profit but instead from an interest in supporting environmental causes. Growth in the number of new recycling centers occurred due to this new motivation to fulfill a need for "personal transformation and environmental consciousness-raising," rather than an interest in developing a profitable business (Gottleib 2005). This change in attitudes toward recycling can also be seen in changes in legislation during the latter portion of the 20th century, which signaled a new emphasis on the environmental benefits rather than simply the economic benefits of recycling (Zimring 2005).

This change in recycling motivation was accompanied by, and at least partially precipitated by, the birth and growth of the contemporary environmental movement. During the late 1960s, the earlier conservation movement evolved into the modern environmental movement (Dunlap 1993), and nascent EMOs affected the public discourse on environmental issues in an effort to change individual values. The objective of this process of "value creation" was to foster

the connection of individuals to the environmental movement in order to develop feelings of solidarity and ultimately increase the likelihood of formally joining an organization (Rochon 1998). Since 1970, the United States has witnessed a tremendous growth in both EMOs (Dunlap 1993) and in participation in recycling programs (Ackerman 1997).

Modern recycling behavior occurs in a complex array of forms. Most citizens recycle through the three primary avenues of: 1) recycling centers, 2) curbside recycling services, and 3) commingled recycling services. The earliest (and still frequently utilized) form requires the individual to collect recyclable material and deposit it at an appropriate recycling center, termed a "bring system" (Gandy 1994) or "drop-off and buy-back" systems (Zimring 2005). The next type of system, curbside collection, involves the collection of recyclable materials at the consumer's home. The third type of system, commingled collection, is a hybrid of the previous two, involving the collection of an unsorted mix of recyclable materials and municipal waste at the consumer's home (Porter 2002). Although not nearly as prevalent, more contemporary recycling programs have begun to emphasis the recycling of other kinds of waste items as well, such as yard and food waste which can be composted and returned to the ecosystem (Ackerman 1997).

The prevalence of recycling has changed tremendously in the United States over the last thirty years. According to the Environmental Protection Agency (EPA), which collects information on recycling activities related to Material Solid Waste (MSW)[3], participation in recycling programs has increased from about six percent of the population in 1960, to over 30 percent in 2006. During this time the recycling rate kept pace with the generation of MSW up until the late 1990s, since which time the number of tons of MSW generated has begun to climb

[3] This includes such items as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries.

above the recycling rate. Paper is the largest component of MSW, contributing nearly 34 percent to the total waste, with all other contributors being less than 15 percent each[4].

Researchers who study recycling behavior generally contend that participation in a recycling program and participation in an EMO are related. Some researchers argue that EMO membership increases the likelihood of recycling (Guerin 2001). According to this assertion, the increased presence of environmental movement organizations facilitates an increase in recycling facilities, which increases the recycling activity in an area over time. In contrast, other researchers find that recycling activity may represent a "first step toward the adoption of other behaviors" (Berger 1997). Although organizational membership is included in the analysis, recycling behavior is not conceptualized as a pathway toward further environmental movement participation.

Research that includes the individual's membership in an EMO in the analysis, however, represents the smaller portion of the scholarship on this subject. The majority of researchers focus on the determinants of recycling behavior, neglecting the potential relationship of recycling activity to other types of movement participation. Some researchers contend that the likelihood of recycling increases primarily through an increase in psychological factors, such as a positive attitude toward recycling (Vicente 2008), an increase in feelings of moral obligation (Chu 2003), or in simply "individual motivation" to recycle (Scott 1999). Other researchers have found that while personal psychological features increase the propensity for an individual to recycle, general ecological attitudes do not (Valle 2005). The demographic characteristics of age and gender have been found to be significant predictors of recycling behavior (Ebreo 1999). Similarly, an increase in the level of education increase the likelihood of greater levels of

[4] Data on current recycling activities is taken from the EPA website. Available at: http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm

recycling behavior (Derksen 1993; (Samdahl 1989), and unsurprisingly, access to recycling facilities increases participation (Derksen 1993).

In the preceding section I have offered a brief history of recycling behavior in the United States, current recycling activities, and a review of the existing research on this subject. As I have stated, a major weakness in the recycling literature is a lack of integration of recycling behavior into a social movement framework. In the next section, I will situate recycling behavior within the process of EMO recruitment and mobilization and describe the three types of movement participation I utilize in this analysis.

II. Types of Participation

Social movement scholars argue that there are two components to the mobilization efforts of SMOs: consensus mobilization and action mobilization (Klandermans 1984). I identify three forms of participation: 1) ideational participation, 2) low-intensity participation, and 3) high-intensity participation, with the first type being the goal of consensus mobilization and the latter two being the result of action mobilization. Within the context of the environmental movement specifically, I argue recycling behavior is a form of ideational participation, low-intensity participation occurs as activities such as signing petitions and donating money to a movement, and high-intensity participation involves formally joining an organization. I now turn to describing each type in more detail.

A. Ideational Participation. SMOs use consensus mobilization in order to affect public attitudes and gain support for the goals of the movement. SMOs present individuals with an alternate set of values or a "frame" with which to understand his or her social reality. Adopting this alternate frame regarding a subject increases the likelihood that an individual will act toward

the subject in a way that is supportive of the values contained in the alternative frame (Snow 1986).

Thomas Rochon describes this process as beginning with the individual adopting the values of the movement. An individual will then identify him or herself more with the movement, which increases feelings of solidarity with other movement participants and, in turn, increases the likelihood that the person will become more deeply involved in the movement (Rochon 1998). I define support for the activities advocated by the alternate discursive frame of a movement as "ideational participation." This includes activities aligned with movement objectives but may not directly support the goals of particular SMOs.

Within the context of the environmental movement, EMOs gain ideational support by encouraging individuals to adopt an "environmental frame" promoting environmentally friendly values. EMOs seek to advance a particular set of values and practices in order to "gain acceptance of this alternative social reality" (Brulle 2000). One example of ideational support in this context is participation in a recycling program. As previously stated, the increase in recycling behavior in the United States since the 1960s is closely related to the growth in EMOs during the same time. EMOs promoted the adoption of values which attempt to correct the problems of environmental degradation. Recycling is a core act undertaken by individuals to address this issue and represents ideational support for the movement generally.

B. Low and High Intensity Participation. In contrast to ideational participation, the other two forms of movement participation examined in this research are the consequent of action mobilization.

Through the process of action mobilization, SMOs encourage individuals to participate in movement activities (Klandermans 1984). This can include a wide range of activities which are

more and less demanding of individual resources, such as contributing time or money to an organization, joining an organization, signing petitions or voting in support of environmental legislation. Some scholars limit their analysis by examining participation in SMOs without distinguishing between the resource intensity levels of types of participation in the analysis (Barkan 2004). Other researchers argue that there are important insights to be found by distinguishing between types of participation and that different intensity levels of participation should be considered separately according to the types and amounts of resources contributed (Verba et al 1995; Klandermans 1997).

In this analysis, I utilize a typology of participation proposed by Klandermans (1997), in which participation is defined as different types along the dimension of resources expended by the participant. Participation is organized from low to high levels of resources expenditures.

***** Figure 1 about here *****

This classification system combines the acts of donating money and signing a petition into the low resource intensity category and categorizes joining an organization into the high resource intensity category. Low-intensity participation includes the activities of signing a petition and donating money to a SMO. High-intensity participation requires the greatest amount of resources to be contributed by the individual, including the act of formally joining an organization. This typology is used to distinguish between low and high intensity participation.

In the following analysis I will use the preceding three participation types of ideational, low-intensity, and high intensity participation, to examine the following research question: how does recycling behavior relate to organizational membership? This research seeks to extend the existing theory regarding how low and high resource intensity participation relate to each other

to include ideational participation. Next I will examine the existing literature relating each of these types to the other.

III. Participation Gateway Framework

The dominant model of participation in social movements research argues that participation in one type of activity may increase the likelihood of participation in other types of activities (McAdam 1986). This suggests that an individual who has engaged in one form of activism will be more likely to become involved in other forms of activism. In this way, involvement in one activity can form a "gateway" into other types of involvement (Klandermans 1997). This is consistent with the finding by other researchers that it is far more common for an individual to access organizational membership through the less committed types of activism than it is to join a SMO directly (Snow et al. 1980; Lofland and Jamison 1984). For example, if a person becomes involved with an organization through donating money, he or she should consequently be more likely to also formally join the organization. In this analysis, I extend the gateway hypothesis to include ideational participation and apply this model to the environmental movement.

The specific mechanisms for this recruitment process are identified by Thomas Rochon (1998), who argues that the process of recruitment into an SMO begins with the acceptance of new cultural values which are aligned with those of the movement. Adopting the values of the movement fosters a sense of solidarity in the person through two mechanisms: the interaction with other people who hold similar values and the exposure to the ideology of the movement, which increases group identification by "offering a shared interpretation of the group experience" (p. 112). Feelings of solidarity play a critical role in the process of recruitment as

they increase the individual's expectation that others will participate as well, which has been argued to be an integral part of the mobilization process by other researchers (Klandermans 1984).

In the environmental movement, ideational participation in the form of recycling behavior may function as a first step toward further movement participation by increasing feelings of solidarity with other environmentalists. This ideational support can further connect individuals to movements through the previously described gateway framework. For example, by adopting recycling behavior and increasing his or her feelings of solidarity with a movement, a person subsequently begins to donate money to an EMO. This further increases the likelihood that the person will continue to participate in movement activities and formally join the EMO. This process is outlined in the following conceptual path diagram:

*****Figure 2 about here*****

The conceptual path diagram in Figure 2 outlines the theoretical model utilized in this research. The foundation of the model is the gateway hypothesis that structures the relationship between the low-intensity and high-intensity participation types. In this analysis, I measure low-intensity participation through either of the individual activities of signing petitions and donating money. I measure high-intensity participation as membership in an environmental organization. According to the gateway model, I expect low-intensity participation to have a positive effect on high-intensity participation according to the following hypotheses:

H_{1A}: Signing a petition will have a positive effect on the likelihood of organizational membership.

Congruent with the preceding hypothesis, the other low-intensity participation form will have a similar relationship with organizational membership:

H_{1B}: Donating money to an environmental organization will have a positive effect on the likelihood of organizational membership.

Just as low-intensity participation leads to an increased likelihood of organizational membership, ideational participation also plays an important role in movement recruitment. Movements affect public discourse frames in order to affect ideology and gain support for the movement. Initial low-intensity support becomes the gateway, leading to further high-intensity organizational membership. Rather than a simple gateway, I have argued that this process occurs along various pathways through multiple steps, functioning in a process similar to a "funnel" that channels potential participants toward further movement involvement. The first step in the process, gaining ideational support, reaches out to the largest amount of people through educational campaigns and instructional programs in an attempt to affect ideology and encourage movement-friendly actions. The acceptance of the ideas and actions proposed by the movement lead to increased identification with the movement, which increases the likelihood that a person will become involved with a low-intensity participation activity and then follow the process of the traditional gateway.

This process leads from one type of participation to other types by exposing potential participants to interpersonal networks. As other researchers have observed, people are more likely to participate in social movement activities if they are asked (Klandermans 1997; Verba 1995). Involvement in one type of movement activity increases the structural availability of a person, i.e. the "presence of interpersonal networks which facilitate recruitment to activism" (Schussman & Soule 2005). Recycling behavior is a ubiquitous activity, with the number of individuals participating in recycling programs far outnumbering numbers of participants in

other types of participation[5]. I argue that recycling is the first stage in the funnel process because support for recycling programs is more likely to be solicited through mass appeals, such as education programs and mass mailings, while organizational membership tends to be the consequent of being asked along social ties which occur most when structural availability is highest, toward the high-intensity side of the funnel. This funnel process connects consensus mobilization (supporting recycling programs) to action mobilization (supporting and joining EMOs).

The strategy of EMOs using consensus mobilization to gain support is utilized by the organization Keep America Beautiful (KAB). This organization has a membership of almost 500 local chapters which work to encourage recycling behavior and reduce litter production. Although KAB does attempt to gain support for its organization directly by accepting donations and membership to the organization, a primary vehicle used to achieve its goals is public education. KAB is very explicit in the steps it encourages local activists to take when attempting to change attitudes and beliefs. In a section of the KAB website directed at helping local activists encourage change in public perceptions, the organization has a plan which it calls the "five-step attitude change process"[6]. This and a similar plan entitled "pressure points for change" expound on the organization's support for educating and informing the public on relevant issues to increase recycling behavior and support for the organization. Ideational support for the organization, in the form of recycling, functions as an initial vehicle into further participation in the KAB organization.

I now propose hypotheses to test the extension of the gateway framework to include ideational participation into the model. I test the relationship between ideational participation,

[5] This information will be presented in Table 2 during the Results section of this analysis.
[6] Information available at the KAB website: http://www.kabtoolbox.org/toolbox.asp?id=343&rid=344#fivestep

measured as recycling behavior, and the two previously used low-intensity participation types. I have argued that ideational support increases the likelihood of low-intensity participation, which implies that increased recycling behavior should subsequently increase the likelihood of signing petitions and donating money. As described in the model, I expect recycling to have a positive relationship with each of the low-intensity participation types. I test this with the following set of hypotheses:

> **H_{2A}**: Higher levels of recycling behavior will have a positive effect on donating money to an EMO.

As well as they parallel hypothesis:

> **H_{2B}:** Higher levels of recycling behavior will have a positive effect on signing a petition.

The preceding hypotheses test the recruitment pathways from ideational support to organizational membership through the two low-intensity participation acts. In this analysis, I argue that participation along multiple pathways culminate in organizational membership for some. The preceding four hypotheses use two different low-intensity variables to test each stage in the funnel process. An argument among recycling scholars is that there is a direct relationship between organizational membership and recycling (Berger 1997; Guerin 2001). Although the focus in this research is on the intermediate low-intensity stages of the process, I will also test the effects of the low-intensity on the high intensity variable with the ideational variable included in the model. I expect the low-intensity variable to have a significant positive effect on EMO membership even with recycling included in the analysis. The following hypothesis will serve as an additional test of the low to high relationship and also add additional support to the overall funnel framework:

> **H_3**: Low-intensity participation will have a significant positive effect on the odds of EMO membership after recycling is included in the model.

To summarize, I have argued the following points. There is a gap between the recycling literature and the social movements literature which can be bridged by locating the act of recycling within a framework of participation in the environmental movement. Ideational support for a movement is a form of participation, functioning similarly to other forms of movement participation by acting as a gateway into further movement involvement. Recycling behavior is a form of ideational support for the environmental movement as it is aligned with the ideas and activities expounded by the movement. Therefore, recycling behavior increases the likelihood of further movement participation, first in low-intensity activities and eventually through organizational membership.

DATA AND METHODOLOGY

1. Data

The data used in the following analysis come from the 2000 General Social Survey (GSS), which is generally conducted every other year in the United States. Each GSS in recent years has additionally included an International Social Survey Program (ISSP) module, administered as a mail-in survey to a subset of respondents. The 2000 GSS was selected for this research because the corresponding ISSP module for that year includes a selection of questions related to environmental issues and participation in environmental movements.

Of the total number of respondents for the 2000 survey year, only 1288 were administered the ISSP module. The non-response rate for the mail-in surveys was ten percent, reducing the number of potential cases to approximately 1160. The largest number of missing cases occurred on the environmental participation and awareness variables rather than with the demographic variables[7]. The next largest number of missing cases was on the recycling variable, with 65 cases missing. Additionally, the recycling variable has 67 cases which report that recycling facilities were not available. As this analysis is focused on the effects of participation in recycling programs and not the availability of such programs, these cases are considered as missing and excluded from the analysis, leaving 1093 potential cases.

Although several of these environmental groups of variables had large amounts of missing cases, there were relatively few cases which were missing on all of the variables in a related block. For example, the group of variables regarding the awareness of environmental problems had 143 missing cases, but there were only five cases missing on all of the related

[7] The variable for family income was initially included in the analysis, resulting in nearly identical results as the current analysis without. As income had 147 missing cases, which was far larger than any other, it was removed from the analysis.

variables. Similarly, of the three individual participation questions (donating money, signing a petition, and joining an organization), only four cases were missing on all three. This suggests that although several of the environmentally oriented variables had missing cases, individuals were not necessarily omitting responses for all related questions, and the missing data on these variables are not likely to be systematically arranged. After list-wise deletion of the remaining missing cases, the total number of individuals in the analysis is 834. This number is approximately 76% of the available cases, which is comparable to the approximately 30% non-response rate reported for the overall GSS that year. A comparison of the means and standard deviations of all three of the dependent participation variables before and after listwise deletion is virtually identical[8], suggesting that omitted missing cases would not significantly alter the analysis.

2. Variables

Dependent Variables. This analysis utilizes a series of logistic regression models to test the intermediate effects of donating money and signing petitions on the endogenous variable of joining an organization. Signing a petition and donating money will be added as both exogenous and endogenous variables in the respective models. All three have been coded as dichotomous variables (1= took part in activity). Joining a group is moderately correlated with donating money ($r = 0.57$) and with signing petitions ($r = 0.55$). While the low-intensity variables of donating money and signing petitions are more highly correlated ($r = 0.73$)[9].

Independent Variables. This analysis will primarily focus on the effects of the participation variables (donating money, and signing petitions) and the environmental ideology

[8] The largest change in means occurred on the sign variable which changed 0.04. The largest change in standard deviations occurred on the join variable which was 0.05.
[9] Tetrachoric correlations were used to compute the r value of the dichotomous variables.

variable. Control variables will also be added to the model to account for the effects of gender, education and biographical availability.

A. Participation. The recycling question asks respondents about frequency of participation in a recycling program, with "always" coded as 4, and "never" coded as 1. Although the original variable included a category for "not available", this analysis is concerned only with those individuals who could potentially participate in a recycling program, and therefore these responses are excluded from the analysis. As stated in the previous section, signing a petition and donating money are each dichotomous variables, coded with 1 as positive participation.

B. Environmental Ideology. Researchers have observed that while resources play an important role in determining individual participation in social movements, grievances[10] and ideology are also important determinants of participation (Klandermans 1984). SMOs affect the action frame of individuals in order to foster solidarity and movement participation (Rochon 1998) and also to change focus public attention on potential grievances or problems (Hunt 1994). Ideology is included in the model as a scale (Cronbach's alpha = 0.82), constructed from three questions related to individual attitudes toward environmental values[11]. Each question ranges from one to five (five being the most environmentally-supportive), giving the scale a range from zero to fifteen.

[10] A variable for environmental grievances was included in the model in preliminary analyses. However, as this variable did not have a significant effect on most of the models, and did not appreciably alter the patterns of results presented in these analyses, it was not included in the final mode. See Appendix B for a more complete discussion of this variable, including an analysis of the role of grievances on signing a petition.

[11] Exploratory factor analysis was conducted on both environmental grievances (see Appendix B) and ideology to reduce the data. However, as the pattern of results was nearly identical to those of the analysis with ideology as a scale, the simpler model was chosen. This also aids in interpretation, as a single unit increase in the scale is related to an increase in level on an environmental ideology question. See Appendix C for a discussion of the factor analysis and a presentation of the results.

C. Controls. Researchers have long stressed the importance of resources on influencing individual participation. Resources such as time and money are important resources that individuals contribute to SMOs (Verba et al 1995; McCarthy and Zald 1977). As personal constraints limiting the amount of resources that a person can contribute to a movement are reduced, a person's biographical availability increases (McAdam 1986).

In this analysis, I include biographical availability in the analysis by following the work of researchers who include the following variables: respondent's age, education, number of children, and employment status (Schussman 2005). Education, which is consistently found to have a positive effect on participation (Verba et al 1995; Barkan 2004), is coded from zero to twenty years of education. Number of children is also coded from one to a maximum of 8 (which includes all greater values). Working status is recoded into five categories from high to low respectively: employed, partially employed, home employed, student, and unemployed (with unemployed as the reference category in the analysis). Age ranges from 18 years old to 89 years (and older). Age is transformed into the natural log of age to approximate a more normal distribution and to be consistent with existing research (Schussman & Soule 2005).

Gender will be included in the model as a control. While some researchers of political participation have found females to be less likely than males to participate (Dalton 2002; Verba 1995), others find no difference or ambiguous results between genders (Schussman 2005; Blocker & Eckberg 1997). Gender is included in the analysis as a dummy variable (female = 1).

3. Analytic Strategy

In this analysis, I will utilize five regression models to examine the relationship between recycling behavior and formal EMO participation. I have two variables representing low-

intensity participation and will model each separately so that the two patterns of results can be compared. Similar patterns of results between the sets of models would suggest support for the theoretical path offered in Figure 2 and for my classification scheme for the participation variables.

As each of the participation types are dichotomous, logistic regression models will be used for each model. First, I will examine the gateway framework by testing the relationship between each of the intermediate variables and EMO membership. Then, I extend this framework to include organizational participation by regressing each of the low-intensity variables on recycling behavior. Finally, I will test the direct relationship between recycling and organizational membership. Additionally, I will test each model in the reverse causal direction, and although I will not interpret the results of this alternate analysis, I will discuss my findings as they related to the causal direction of the overall model. I will also revisit causal direction in the conclusion section of this analysis. In each of the models, the primary participation variable will be added first with the control block next, followed by the ideology variable.

RESULTS

I now turn to presenting the results of the statistical analysis. After describing the variables used in the model, I will evaluate the viability of the funnel framework and then turn to reporting the results from the regression analyses. Table 1 displays the descriptive statistics for all of the variables included in the analyses.

*****Table 1 about here*****

The measures of spread and central tendency in Table 1 display a relevant trend among the participation types. Most of the cases in the recycle variable occur at the upper end of the range (mean of 2.8), and are fairly tightly clustered around the mean (SD 1.07). This suggests that almost all of the respondents reported at least some participation in a recycling program. Although the other three participation variables are dichotomous and their means cannot be interpreted similarly, it is worth noting that the majority of cases for the low-intensity variables are arranged on the lower end of the distribution, with the high-intensity variable being even more so.

****Table 2 about here*****

As the frequencies displayed in Table 2 indicate, 85% of the respondents (711 cases) report recycling at least some of the time. Of these, 34% of the individuals report recycling all of the time. This is a much larger frequency than the individuals who engage in the low-intensity participation activities. Approximately 25% of respondents participated in the low-intensity activities of signing petitions and donating money. Finally, individuals reported joining organizations least of all of the participation types at about 9% (74 cases). Figure 3 displays the data from Table 2 as a histogram.

*****Figure 3 about here*****

By far, the largest participation category is recycling. Low-intensity participation is the next largest group, followed by the smallest group of organizational membership. Recycling is an activity that far more people have access to and become involved in compared to the other types of participation. Nearly ten times more people recycle than join EMOs. Further, nearly three times more people engage in low-intensity participation activities than join EMOs. Even if we only examine people who report recycling all of the time, there are still considerably more people in this category than in the low or the high intensity participation categories. The findings in Table 2 and Figure 3 suggest support for my argument that ideational participation relates to organizational membership through a funnel of opportunities.

I now turn the logistic regression models. Odds ratios are reported in all of the following models. The first stage in this analysis is to test the traditional gateway framework: the regression of the low-intensity participation variable "signing a petition" on the high-intensity participation variable of joining a group. These models tests hypotheses H_{1A} and H_{1B}.

*****Table 3 about here*****

Hypothesis 1_A. As expected, I find support for the hypothesis that signing a petition to an organization has a positive effect on organizational membership. From Table 3, the odds of a person joining an organization are 4.2 higher for a person who has signed a petition than for a person who has not, controlling for other factors. Said another way, the odds of joining an organization are 4.2 times greater for those who have signed a petition than for those who have not. This effect remains even after control variables and environmental ideology variables are included in the model. This finding is consistent with those found in the literature and is the basic framework for the rest of this analysis.

As Table 3 shows, the environmental ideology variable is also significant in the analysis. As the ideology variable is constructed from an additive scale, an increase of 1 unit in the scale corresponds to an increase of one level in any one of the three questions comprising the scale. A one unit increase in the scale results in an increase of 1.25 of the odds ratio for participating in an EMO. Therefore, the odds of joining an organization increase by 1.25 for individuals who answer a question in the scale one level more favorably. Therefore, individuals who report a higher concern for the environment on the survey, not surprisingly, also are more likely to join an environmental organization. This is consistent with existing research on the role of ideology affecting support for social movements (Rochon 1998).

Hypothesis 1_B. As a second test of this theoretical model, I now test the other low-intensity variable: donating money. These two variables are highly correlated ($r = 0.73$), and both are grouped closely together in the typology offered in Figure 1.

*****Table 4 about here*****

Table 4 shows a similar pattern of results as the preceding model. As before, the low-intensity variable has a significant positive effect on EMO membership, however with a slightly larger odds ratio. The odds of joining an organization are 5.4 times higher for a person who has donated money than for a person who hasn't. These findings indicate support for H_{1B}, and the parallel patterns in the findings from Table 3 and 4 suggest support for the gateway hypothesis. The odds ratio for environmental ideology in Table 4 is nearly identical to that interpreted from Table 3 (1.225).

The other control variables are generally not significant in the analysis with the exception of gender. Although not significant in the intermediate models of each table, being female does have a significant effect on organizational membership once environmental ideology is included

in the model. From Table 4, the odds of joining an organization are 0.53 lower for females than for males, controlling for signing a petition and other factors[12]. Although the other control variables were not significant in either table, the odds ratio for signing a petition and donating money reduced by 1.4 and 2.0 respectively once the controls were included in the model.

The findings in each of the two preceding tables suggest support for the gateway framework and for hypotheses 1_A and 1_B. The next step in this analysis is to extend the framework to include ideational participation. As before, I first report the results for the low-intensity participation variable of "signing a petition" and then for "donating money".

*****Table 5 about here*****

Hypothesis 2_A. Table 5 presents the odds ratios for the logistic regression model of "signing a petition". The primary variable of recycling has a positive, significant effect on the odds ratio for signing a petition. The odds of signing a petition are 1.46 times higher for a person for every one unit increase in his or her score on the recycling variable. For example, a person who reports recycling always has nearly a 1.5 times higher odds of signing a petition than a person who only reports recycling sometimes. This coefficient is significant even after the ideology variable and all of the control variables are added in model 3 of Table 5. This suggests support for H_{2A}, which I will also evaluate in the findings in Table 6.

Again, in this extension of the gateway framework, environmental ideology has a significant positive effect on the participation outcome. An increase in one level of the scale increases the odds of a person signing a petition by 1.2, with the other factors controlled. For example, the odds of a person signing a petition is 1.2 times higher for a person who reports being very willing to accept a cut in his or her standard of living compared to a person who only

[12] From Table 3, the odds of joining an organization are 0.56 lower for females than for males, controlling for donating money and other factors.

reports being fairly willing to accept a cut, controlling for the other variables. I now test the parallel model of donating money.

*****Table 6 about here*****

Hypothesis 2_B. The pattern of results for donating money presented in Table 6 are nearly identical those previously described in Table 5, also suggesting support for Hypothesis 2_B. Again, the odds of a person donating money are 1.43 times higher for every one unit increase in his or her score on the recycling variable. To illustrate, a person who reports recycling sometimes has approximately a 1.4 times higher odds of donating money than a person who reports never recycling. The environmental ideology variable has a nearly identical odds ratio in Table 6 as in Table 5 with an increase of 1.25 in the odds of donating money for every increase in the level of the scale.

The control variables in each of the previous two tables show very similar patterns to each other. Consistent with the literature, the education variable in each has a significant effect on the low-intensity participation variables. In neither model do I find any of the biographical availability variables to have a significant effect. Being female, however, does have a significant effect on the odds of signing a petition, but not on donating money. The odds of a person signing a petition are 0.61 times lower for a female than for a male, accounting for the other variables in the model.

I have now reported the patterns of results for two sets of analyses. In the first set I tested the gateway hypothesis that low-intensity participation increases the odds of high-intensity participation and, in the second set, tested an extension of this framework with ideational participation increasing the odds of participation in low-intensity movement activities. In each set of analyses, I have tested both the low-intensity variables, and the patterns of findings in each

of the parallel analyses have been consistent with the other. As explained in the previous section, some scholars of recycling behavior argue that the ideational participation type of recycling has an effect on high-intensity movement participation. In Table 7, I report the logistic regression model testing this hypothesis.

*****Table 7 about here*****

Hypothesis 3. Table 7 displays the results of the regression model of recycling behavior on organizational membership. Environmental ideology and the control variables are added to the model, followed by recycling and then each of the low-intensity variables, individually and then jointly. Again I find each of the low-intensity variables to have a significant effect on EMO membership. The odds of a person joining an EMO increase by 4.12 if a person has signed a petition, by 5.3 if he or she has donated money, and by 2.4 and 3.7 respectively if he or she has done both things as compared to individuals who have done neither. While these findings do not support H_3, the significance of the low-intensity variables adds support for H_{1A} and H_{1B} as each low-intensity variable has an effect on EMO membership even with recycling included in the model, both individually and jointly.

The preceding analyses support my argument that recycling increases the odds of low-intensity participation which, in turn, increases the odds of the individual joining an organization. This framework is congruous with the existing argument of the participation gateway that is dominant in social movements research. However, as mentioned in the introduction, a serious limitation to this analysis is the necessary reliance on cross-section data. Without having access to panel data, it is not possible to conclusively establish the causal direction of the relationship. I now turn to addressing this issue.

An alternate explanation would be that this entire process operates in the opposite direction from that which I have analyzed. Although I do not present the results of an alternate analysis here, I did test the effects of organizational membership on low-intensity participation, of low-intensity participation on recycling, and finally of organizational membership directly on recycling[13]. I found similar patterns of results in the reverse model as in the one presented in this analysis[14]. However, considering the results presented in Table 2 and Figure 3, the frequencies of participation suggest that participation more logically flows in the direction which I propose. The sheer numbers of participants in the recycling category far outweigh the other types of participation, suggesting that it is most likely that smaller subsets of individuals continue on to the next level of participation, rather than the other way around.

To summarize the results I have just presented, I find support for the first two sets of hypotheses (H_{1A}, H_{1B}, H_{2A} and H_{2B}). Although I did not find the effect of recycling to be significant on organizational membership in the full model when testing the third hypothesis, the results for the low-intensity variables again suggest support for the funnel framework. Finally, although I am not able to conclude causality, the findings presented in this analysis are consistent with my argument that recycling increases the odds of individual low-intensity participation which increases the likelihood of EMO membership.

[13] Models with the recycling variable as an outcome were specified as an ordered logit model.
[14] One notable difference in this alternate analysis was the age variable. Age failed to have a significant effect in any of the models included in this analysis. However, in the reverse analysis, age did have a significant effect on the recycling variable. This is consistent with the research on recycling (Ebreo 1999).

DISCUSSION AND CONCLUSION

In this research I have sought to further examine the relationship between recycling behavior and EMO membership as well as to include low-intensity acts of participation in the analysis. To this end, I extended the gateway framework of movement participation, which is often used in social movements research, to include ideational participation that funnels movement support toward organizational membership. Specifically, I focused on recycling behavior as a gateway to EMO membership, acting through signing petitions and donating money.

The first hypotheses in my analysis tested the relationship between the low-intensity and high-intensity variables. Consistent with the literature on movement participation (McAdam 1986), I find support for the hypotheses that low-intensity participation increases the likelihood of further movement participation. The odds of joining EMOs were higher for individuals who donate money and sign petitions than for those who did not. Both types of low-intensity participation displayed very similar patterns of results in the analysis. This pattern holds even when the recycling variable is added to the model with each of the low-intensity variables having a significant effect on organizational membership, both independently and jointly. These findings provide the basic theoretical structure for the rest of my analysis.

Next, I extended the gateway framework to include ideational participation into the model. In this analysis I conceptualize recycling as a form of ideational support which leads to increased high-intensity participation in the form of EMO membership, addressing the central questions of this research. I find support for the hypothesis that participation in recycling programs leads to further involvement in low-intensity movement participation. Specifically, I

find that higher frequencies of recycling increase the likelihood that a person will sign a petition for an environmental cause. I also find support for the parallel hypothesis that higher levels of recycling increase the odds that a person will also donate money to an EMO. These findings suggest support for the extension of the preceding gateway framework. The similarity in both patterns of results also adds additional vitality to the model I propose. These findings suggest support for my hypothesis that recycling increases the likelihood of low-intensity participation and, through the preceding hypotheses, that low-intensity participation can lead to EMO membership.

Environmental ideology continually had a significant positive effect on all of the participation variables in the analysis. This is consistent with the logic used in this research to explain the process of framing and the adoption of movement ideology that encourages the individual in adopting movement-friendly activities (Rochon 1998). Ideology functions at all stages of the recruitment process to motivate further movement participation.

Unfortunately, the limitation of using cross-sectional data does not allow me to determine a conclusive causal relationship in these models. Research on social movements could generally benefit from the availability of panel data on movement participation. However, I find support in this research for the direction of the funnel framework due to consistency of the findings of the statistical analysis with my proposal and because of the theoretical grounding in the well-established gateway hypothesis, pointing the causal arrow toward organizational membership. The viability of this argument is further supported by the frequencies of participants in each type of activity. As far more people recycle than engage in low or high intensity participation, it is difficult to envision a process which generates participation from the least to the greatest number of people.

In this analysis, I have found overall support for the gateway hypothesis as well as my extension of this framework to include ideational support. I have proposed a model which connects all three stages of participation as a funnel, moving from the least demanding and most participated in activity toward the most intensive and least participated in activity. While future researchers with panel data could do more to establish causality, I have found support in this research for my funnel argument, and I have situated recycling behavior within the process of environmental movement recruitment. Participation in recycling programs exposes individuals to a first step in a path toward further movement participation and potential organizational membership.

REFERENCES

Ackerman, Frank. 1997. *Why Do We Recycle?: Markets, Values, and Public Policy*. Island Press. Washington, D.C.

Barkan, Steven.(2004) "Explaining Public Support for the Environmental Movement: A Civic Voluntarism Model". Social Science Quarterly 85: 4.

Berger, Ida E. 1997. "The Demographics of Recycling and the Structure of Environmental Behavior. *Environment and Behavior*. 29:4.

Blau, Judith R. and Peter M. Blau. 1982. The Cost of Inequality: Metropolitan Structure and Violent Crime". American Sociological Review. 47:1.

Blocker, Jean T., & Eckberg, Douglas Lee. 1997. "Gender and Environmentalism: Results form the 1993 General Social Survey". Social Science Quarterly. 78:4.

Brulle, Robert J. 2000. Agency, Democracy, and Nature: The U.S. Environmental Movement from a Critical Theory Perspective. MIT Press. Cambridge.

Chu, Pin-Yu & Ja-Fun Chiu. 2003. "Factors Influencing Household Waste Recycling Behavior: Test of an Integrated Model. *Journal of Applied Social Psychology.33:3*

Dalton, Russel. 2002. *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies*. 3rd Ed. Chatham House Publishers.

Dersken, Linda & John Gartrell. 1993. "The Social Context of Recycling". *American Sociological Review*. 58:3

Dunlap, Riley E.1993. "Trends in Public Opinion Toward Environmental Issues: 1965-1990". In *American Environmentalism: The U.S. Environmental Movement, 1970-1990*. Dunlap, Riley E. & Angela G. Mertig Ed. Taylor & Francis. New York.

Dunlap, Riley E., and Angela G. Mertig. 1993."The Evolution of the U.S. Environmental Movement from 1970 to 1990: An Overview". In *American Environmentalism: The U.S. Environmental Movement, 1970-1990*. Dunlap, Riley E. & Angela G. Mertig Ed. Taylor & Francis. New York.

Ebreo, Angela, James Hershey and Joanne Vining. 1999. "Reducing Solid Waste: Linking Recycling to Environmentally Responsible Consumerism". *Environment and Behavior*. 31.

Gandy, Matthew. 1994. *Recycling and the Politics of Urban Waste*. St. Martin's Press. New York.

Gottleib, Robert. 2005. Forcing the Spring: The Transformation of the American Environmental Movement. 2nd Ed. Island Press. Washington.

Guerin, Daniel. Jean Crete & Jean Mercier. 2001. "A Multilevel Analysis of the Determinants of Recycling Behavior in the European Countries". *Social Science Research*. 30

Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton University Press. Princeton.

Hunt, Scott A., Robert D. Benford and David A. Snow. 1994. " Identity Fields: Framing Processes and the Social Construction of Movement Identities". In *New Social Movements: From Ideology to Identity*. Larana, Enrique, Hank Johnston and Joseph R. Gusfield Ed. Temple University Press. Philadelphia.

Klandermans, Bert. 1984. "Mobilization and Participation: Social-Psychological Expansions of Resource Mobilization Theory". *American Sociological Review*. 49:4

Klandermans, Bert. 1997. *The Social Psychology of Protest*. Blackwell. Oxford.

Lofland, John and Michael Jamison. 1984. "Social Movement Locals: Modal Member Structures." *Sociological Analysis.* 45

McAdam, Doug. 1986. “Recruitment to High-Risk Activisim: The Case of Freedom Summer”. American Journal of Sociology. 92:1.

McCarthy, John D. and Zald, Mayer. (1977) “Resource Mobilization and Social Movements: A Partial Theory” *American Journal of Sociology*. 82.

Mitchell, Robert Cameron, Angela G. Mertig, & Riley E. Dunlap.1993. “Twenty Years of Environmental Mobilization: Trends Among National Environmental Organizations”. In *American Environmentalism: The U.S. Environmental Movement, 1970-1990*. Dunlap, Riley E. & Angela G. Mertig Ed. Taylor & Francis. New York.

Porter, Richard C. 2002. *The Economics of Waste*. Resources For the Future Press. Washington D.C.

Rochon, Thomas R. 1998. *Culture Moves: Ideas, Activism, and Changing Values*. Princeton University Press. Princeton.

Samdahl, Diane M., and Robert Robertson. 1989. “Social Determinants of Environmental Concern: Specification and Test of the Model”. *Environment and Behavior*. 21:1.

Schussman, Alan & Sarah A. Soule. 2005.”Process and Protest: Accounting for Individual Protest Participation”. Social Forces. 84:2.

Scott, Daniel. 1999. “Equal Opportunity, Unequal Results: Determinants of Household Recycling Intensity”. *Environment and Behavior*. 31.

Snow, David A. , Louis A. Zurcher, and Sheldon Ekland-Olson. 1980. “Social Networks and Social Movements: A Microstructural Approach to Differential Recruitment.” *American Sociological Review*. 45.

Snow, David A., E. Burke Rochford, Jr., Steven K. Worden, Robert D. Benford. 1986. “Frame Alginment Processes, Micromobilization, and Movement Participation”. *American Sociological Review*. 51:4.

Strasser, Susan. 1999. *Waste and Want: A Social History of Trash*. Metropolitan Books. New York.

Valle, Patricia Oom Do, Efigenio Rebelo, Elizabeth Reis & Joao Menezes. 2005. “Combining Behavioral Theories to Predict Recycling Involvement”. *Environment and Behavior*. 37

Verba, Sidney, Kay Lehman Schlozman & Henry E. Brady. 1995. “ Voice and Equality: Civic Voluntarism in American Politics”. Harvard University Press. Cambridge.

Vicente, Paula & Elizabeth Reis. 2008. “Factors Influencing Households’ Participation in Recycling”. *Waste Management & Research*. 26:140

Wright, Stephen C. and Linda R. Tropp. 2002. “Collective Action in Response to Disadvantage: Intergroup Perceptions, Social Identification, and Social Change” In *Relative Deprivation: Specification, Development, and Integration*. Walker, Ian and Heather J. Smith. Ed. Cambridge.

Zimring, Carl A. 2005. “Cash for Your Trash: Scrap Recyling in America”. Rutgers University Press. New Brunswick.

FIGURES AND TABLES

FIGURE 1. Typology of Participation by Resource Intensity

	Duration	
	limited	*unlimited*
low	**I.** giving money signing petition peaceful demonstration	**III.** membership
high	**II.** sit-in Unauthorized demonstration strike	**IV.** committee member voluntary worker

Source: Klandermans, Bert. “The Social Psychology of Protest”. Blackwell

FIGURE 2. Conceptual Diagram of the Process of Recruitment into SMO Membership.

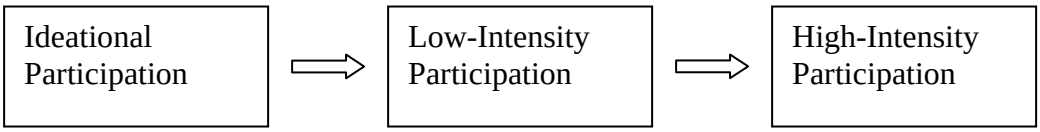

FIGURE 3. Frequencies of Participation in Environmental Activities

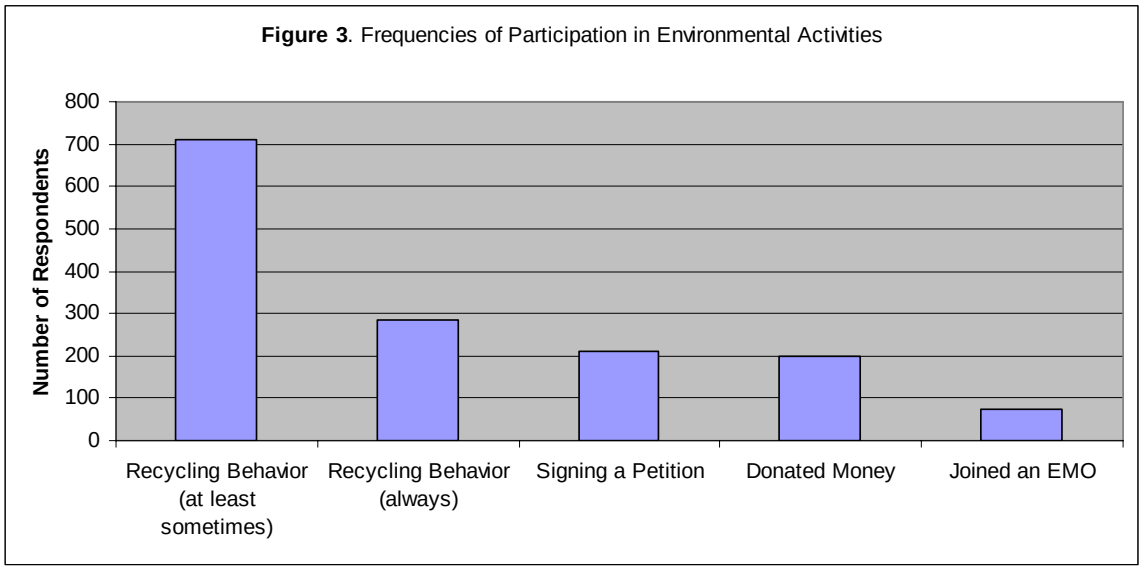

TABLE 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Recycle	834	2.801	1.066	1	4
Donate Money	834	0.240	0.427	0	1
Sign a Petition	834	0.252	0.434	0	1
Join an EMO	834	0.089	0.285	0	1
Environmental Ideology Scale	834	8.823	3.037	3	15
Green Standard of Living	834	2.747	1.203	1	5
Green Prices	834	3.237	1.120	1	5
Green Taxes	834	2.838	1.206	1	5
Age	834	44.338	16.165	18	89
Education	834	13.652	2.788	0	20
Children (number)	834	1.727	1.699	0	8
Working Status	834	2.572	2.262	1	8
Gender	834	0.470	0.499	0	1
Environmental Grievance *	834	-0.012	0.601	-2.092	1.204
Environmental Ideology *	834	0.052	0.697	-1.308	1.685

* Variables used only in appended analyses

TABLE 2. Frequencies of Participation

Participation Type	**Frequency**	**Percentage**
Recycling Behavior (at least sometimes)	711	85.3
Recycling Behavior (always)	284	34.0
Signing a Petition	210	25.2
Donated Money	200	24.0
Joined an EMO	74	8.9

TABLE 3. Logistic Regression of Joining an EMO on Signing a Petition

	Model 1	Model 2	Model 3
Signing a Petition	5.970**	5.612**	4.222**
	(1.525)	(1.492)	(1.168)
Environmental Ideology			1.249**
			(0.062)
Female		0.659	0.562*
		(0.180)	(0.158)
Education		1.042	1.022
		(0.051)	(0.051)
Age (log)		2.020	1.986
		(0.918)	(0.938)
Children (number)		0.963	1.006
		(0.087)	(0.092)
Working			
Full-time		1.453	1.460
		(0.588)	(0.601)
Part-Time		2.744*	2.598
		(1.367)	(1.315)
Student		1.381	1.240
		(1.271)	(1.168)
Home		0.750	0.646
		(0.445)	(0.391)
Pseudo-R2	0.10	0.12	0.17

Notes: *p<0.05, **p<0.01, ***p<0.001; n = 834
Standard errors in parentheses

TABLE 4. Logistic Regression of Joining an EMO on Donating Money

	Model 1	Model 2	Model 3
Donating Money	7.905**	7.415**	5.435**
	(2.072)	(2.015)	(1.535)
Environmental Ideology			1.225**
			(0.062)
Female		0.596	0.528*
		(0.164)	(0.149)
Education		1.037	1.022
		(0.052)	(0.052)
Age (log)		1.587	1.705
		(0.740)	(0.825)
Children (number)		0.996	1.027
		(0.090)	(0.094)
Working			
Full-time		1.313	1.393
		(0.537)	(0.582)
Part-Time		2.271	2.221
		(1.132)	(1.130)
Student		1.541	1.361
		(1.454)	(1.296)
Home		0.631	0.579
		(0.378)	(0.353)
Pseudo-R2	0.13	0.15	0.19

Notes: *p<0.05, **p<0.01, ***p<0.001; n = 834
Standard errors in parentheses

TABLE 5. Logistic Regression of Signing a Petition on Recycling

	Model 1	Model 2	Model 3
Recycling	1.637**	1.595**	1.464**
	(0.136)	(0.142)	(0.135)
Environmental Ideology			1.196**
			(0.037)
Female		0.678*	0.609**
		(0.120)	(0.111)
Education		1.165**	1.153**
		(0.038)	(0.039)
Age (log)		0.685	0.735
		(0.204)	(0.226)
Children (number)		0.978	1.007
		(0.057)	(0.060)
Working			
Full-time		0.864	0.879
		(0.221)	(0.231)
Part-Time		0.775	0.766
		(0.273)	(0.275)
Student		1.461	1.294
		(0.799)	(0.728)
Home		0.871	0.780
		(0.303)	(0.279)
Pseudo-R2	0.04	0.08	0.11

Notes: *p<0.05, **p<0.01, ***p<0.001; n = 834
Standard errors in parentheses

TABLE 6. Logistic Regression of Donate Money on Recycle

	Model 1	Model 2	Model 3
Recycling	1.683**	1.589**	1.435**
	(0.144)	(0.144)	(0.136)
Environmental Ideology			1.249**
			(0.041)
Female		0.874	0.778
		(0.157)	(0.146)
Education		1.158**	1.146**
		(0.038)	(0.039)
Age (log)		1.160	1.313
		(0.349)	(0.414)
Children (number)		0.929	0.961
		(0.055)	(0.059)
Working			
Full-time		1.143	1.188
		(0.302)	(0.325)
Part-Time		1.233	1.250
		(0.437)	(0.457)
Student		1.382	1.198
		(0.822)	(0.739)
Home		1.285	1.173
		(0.455)	(0.431)
Pseudo-R2	0.04	0.07	0.13

Notes: *p<0.05, **p<0.01, ***p<0.001; n = 834
Standard errors in parentheses

TABLE 7. Logistic Regression of EMO Membership on Participation Variables

	Model 1	Model 2	Model 3	Model 4	Model 5
Environmental Ideology	1.308***	1.304**	1.244**	1.221**	1.200**
	(0.061)	(0.063)	(0.062)	(0.062)	(0.062)
Recycling		1.205	1.104	1.068	1.026
		(0.168)	(0.159)	(0.157)	(0.153)
Signing a Petition			4.107**		2.444**
			(1.144)		(0.751)
Donating Money				5.332**	3.732**
				(1.522)	(1.164)
Female		0.515*	0.566*	0.533*	0.551*
		(0.140)	(0.159)	(0.151)	(0.158)
Education		1.072	1.017	1.018	0.998
		(0.051)	(0.051)	(0.052)	(0.052)
Age (log)		1.661	1.872	1.637	1.696
		(0.770)	(0.901)	(0.806)	(0.844)
Children (number)		1.004	1.007	1.027	1.018
		(0.088)	(0.092)	(0.094)	(0.095)
Working					
Full-time		1.368	1.457	1.391	1.453
		(0.555)	(0.600)	(0.581)	(0.610)
Part-Time		2.322	2.555	2.206	2.427
		(1.136)	(1.295)	(1.122)	(1.256)
Student		1.240	1.235	1.347	1.335
		(1.144)	(1.163)	(1.284)	(1.275)
Home		0.633	0.643	0.576	0.605
		(0.374)	(0.390)	(0.352)	(0.374)
Pseudo-R2	0.08	0.12	0.17	0.19	0.20

Notes: *p<0.05, **p<0.01, ***p<0.001; n = 834
Standard errors in parentheses

APPENDIX A

LIST OF VARIABLES

List of Variables

Participation Variables

RECYCLE: How often do you make a special effort to sort glass or cans or plastic or papers and so on for recycling? (4 = Always, 3 = Often, 2 = Sometimes, 1 = Never). The "Not Available" category was excluded from the analysis.

GRNSIGN: In the last five years, have you signed a petition about an environmental issue? (1 = yes, 0 = no).

GRNMONEY: In the last five years, have you given money to an environmental group? (1 = yes, 0 = no).

GRNGROUP: Are you a member of any group whose main aim is to preserve or protect the environment? (1 = yes, 0 = no).

Environmental Ideology

GRNSOL: And how willing would you be to accept cuts in your standard of living in order to protect the environment? (5= Very willing, 1 = Not at all willing)

GRNPRICE: How willing would you be to pay much higher prices in order to protect the environment? (5= Very willing, 1 = Not at all willing)

GRNTAXES: And how willing would you be to pay much higher taxes in order to protect the environment? (5= Very willing, 1 = Not at all willing)

Biographical Availability

CHILDS: Age of respondent (0 = none, 8 = 8 or more)

WRKSTAT: Labor force status. (1 = Working; 2 = Employed part time; 3 = Student; 4 = Keeping house; 5 = Unemployed, retired, and temporarily not working). Each category recoded as dichotomous in regression models, with unemployed as the reference category.

AGE: Respondents age (18 to 89).

Gender

FEMALE: Respondents sex. (1 = Female, 0 = Male)

Environmental Grievances [15]

CARSGEN: In general, do you think that air pollution caused by cars is... (5 = Extremely dangerous to the environment, 1 = Not dangerous at all to the environment)

TEMPGEN: In general, do you think that a rise in the world's temperature caused by the `greenhouse effect', is... (5 = Extremely dangerous to the environment, 1 = Not dangerous at all to the environment)

WATERGEN: In general, do you think that pollution of America's rivers, lakes, and streams is... (5 = Extremely dangerous to the environment, 1 = Not dangerous at all to the environment).

CHEMGEN: In general, do you think that pesticides and chemicals used in farming are... (5 = Extremely dangerous to the environment, 1 = Not dangerous at all to the environment).

INDUSGEN: In general, do you think that air pollution caused by industry is... (5 = Extremely dangerous to the environment, 1 = Not dangerous at all to the environment).

[15] This group of variables was used to construct the "Environmental Grievance" variable discussed in Appendix B.

APPENDIX B

ADDITIONAL VARIABLE

Environmental Grievances

I conducted this analysis initially with environmental grievances included as an additional social psychological variable. Social-psychological motivations are often explained through the lens of Relative Deprivation Theory (Gurr 1970; Blau and Blau 1982). This perspective, which has been generically termed the "psychofunctional" approach (Snow et al. 1986), locates individual motivation to participate in personal perception of social conditions. A person is motivated to act in response to a sense of deprivation or disadvantage, when his or her situation is compared against other individuals. The effect of grievances on participation is more pronounced among individuals who recognize that he or she also belongs to a disadvantaged group in relation to other groups in society (Wright and Tropp 2002).

As this variable was rarely significant in any of the models, and inclusion of this variable added unnecessary complexity to the analysis, I chose to remove it from the final statistical analyses. However, there were several interesting findings that are worth reporting even though they do not immediately relate to argument offered in the preceding research. In the first two models, which tested the gateway hypothesis, environmental grievances did not have a significant effect on organizational membership. This suggests that awareness of specific environmental problems may not be as important in EMO support as the adoption of ideology and environmentally-friendly practices.

A slightly different pattern emerged however in the extension of the gateway hypothesis. In these models, grievances did have a significant effect on an individual signing a petition (although still not on donating money). This suggests that although grievances and awareness of

problems generally do not translate into increased movement participation, they do matter for signing environmental petitions. This seems strangely incongruous to the finding that grievances do not have a significant effect on donating money. Individuals seem to support issues with their pocketbooks based without regard for an awareness of the problems, while this plays a much more important role in adding their name to a petition. Being aware of an environmental problem or having a grievance only affects the probability that a person will sign a petition, not on donating money or on the likelihood of joining an organization.

APPENDIX C

FACTOR ANALYSIS

Factor Analyses

Although in the final model I chose to utilize a simple scale to capture the latent concept of environmental ideology (and also environmental grievances), I initially attempted to reduce the data through exploratory factor analysis of eight GSS variables related to the environment to determine any underlining empirical structure. All variables were coded with the values indicating greater environmental awareness higher on the scale. Principal components factor analysis was conducted in STATA, with the subsequent factor loadings rotated using varimax rotation. Two factors were determined to exist, with relatively high factor loadings on each.

The first group of variables includes questions asking the respondent if he or she is willing to make individual sacrifices to help the environment. These include paying higher prices, paying higher taxes, and willingness to accept cuts in personal standard of living. Each variable loaded highly on a single factor (all of the factor loadings were above 0.8), with the being "willingness to pay higher taxes" being the highest (0.88). Ideological orientation toward environmental causes is reflected in these three variables, so this factor is labeled Environmental Ideology. In the analysis, I constructed a scale for these three variables, which gives equal weight to each factor. As paying taxes contributes more to the factor than the other two, this is not wholly accurate. However, as each of the three variables have very similar factor loadings, and for the sake of simplicity of interpretation, I use the simpler method in the final analysis.

The second factor, reflecting perception of grievances, is derived from a series of five questions asking the respondent about his or her impressions regarding how dangerous particular elements are to the environment, including: industrial pollutants, car pollution, pesticides, water

pollution, and the greenhouse effect[16]. These five elements represent the individual's interpretation of social-environmental phenomena as a problem. Each variable had high factor loadings (each greater than 0.7), with the industrial pollution variable[17] having the highest factor loading (0.81). This suggests that although all of the factors are highly similar in how each affects the latent construct, industrial pollution weighs more highly in how much a person perceives a grievance. Again, for the sake of interpretability in the analysis, I chose to dismiss the small differences in factor loadings and treat each variable as being equally weighted in the scale.

[16] A list of specific variables used is included in Appendix A.
[17] How dangerous is industrial air pollution to the environment? A full list of variables is appended.