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## Reduce, Reuse, and Organize: Recycling and Participation in the Environmental Movement

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# Reduce, Reuse, and Organize: Recycling and Participation in the Environmental Movement

## **Cover Page Footnote**

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## Reduce, Reuse, and Organize

***INTRODUCTION***

In the United States, the practice of recycling has existed for many decades, at least since the early 1900's. Scholars have identified a wide range of factors that increase the likelihood of engaging in recycling behavior. However, the majority of this research has focused either on the effects of environmental attitudes and values, or on demographic factors that are related to recycling. While this emphasis has resulted in important contributions to the existing research on recycling behavior, less has been done to examine the connection between environmentally supportive activities, such as recycling behavior, and participation in the environmental movement, and specifically in Environmental Movement Organizations (EMOs). As the practice of recycling has grown to be increasingly ubiquitous, it is important to understand the role this may have in facilitating other "green" behaviors.

Developing a better understanding of the relationship between environmentally related behaviors and EMOs has important policy implications for both environmental organizations as well as for governments interested in promoting these behaviors. Participation in recycling programs has grown dramatically over the last several decades in the United States. While only 10.1% of the Municipal Solid Waste (MSW) waste stream was recycled in 1985, by 2013 this number had increased to over 34% (Environmental Protection Agency, 2015). However, while common in many regions of the United States, recycling participation is still far from widely adopted across all of the U.S.

Since the 1960's in most western democratic societies, the environmental movement has also grown tremendously (Dunlap & Mertig, 1991; Diani & Donati, 1999; Rootes, 2003; Rootes, 2007) and although environmental political activity in general may be decreasing in recent years, conservation behavior has become more common (Dalton, 2015). Most Environmental Movement Organizations (EMOs) routinely encourage people to recycle right alongside their efforts to gain resources and membership. For example, the organization Greenpeace provides information on how to make environmentally-friendly individual choices (including recycling) on their website alongside links to donating money and joining direct action campaigns. Similarly, the Sierra Club provides detailed information on recycling practices and programs as well. The Nature Conservancy even provides information on its website entitled "15 easy ways to be an everyday environmentalist," which includes natural resource conservation activities ranging from traveling less to recycling, in addition to links to pages to donate money.

## Reduce, Reuse, and Organize

Indeed, the web pages of all ten<sup>1</sup> of the largest and historically most influential environmental organizations have both avenues for individuals to join and support the organization as well as a range of options for the visitor to become informed about environmental issues, suggesting that there should be a connection between recycling and the environmental movement. However, few social scientists have tested this assumption empirically.

In this research, I examine the relationship between participating in a recycling program and participating in the environmental movement. To test this statistically, I utilize data from the 2010 General Social Survey (GSS) and the International Social Survey Programme (ISSP), which include a collection of variables related to environmental behaviors. Since *participation* in Environmental Movement Organizations can be defined in several different ways, in this research I look at several different common forms of participation, including donating money to EMOs, signing environmentally-friendly petitions, joining an EMO, and protesting for an environmental cause. After discussing the relevant literature, I derive empirical expectations for the analysis, describe the dataset and analytic strategy I employ to test my hypotheses, present the results of the analysis, and conclude with a discussion of the implications of the findings.

### ***THE HISTORICAL DEVELOPMENT OF RECYCLING BEHAVIOR IN THE U.S.***

Recycling emerged in the United States as an early effort to reduce resource waste and to maximize profit. This effort first developed in areas, such as the scrap metal industry, in which the scarcity of raw materials could be converted into profit. Economic gain 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 initially rooted in market interests which emphasized efficiency and cost.

Contemporary recycling activities, which evolved in part from the environmental activism of the 1960s, originated from a different set of individual values (Strasser, 1999). This new motivation to recycling was derived not from a desire for profit but instead from an interest in supporting environmental causes

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<sup>1</sup> The “Big Ten” organizations include: 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.

## Reduce, Reuse, and Organize

and conserving natural resources. 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 simply an interest in developing a profitable business (Gottlieb, 2005). This change in attitudes toward recycling can also be seen in advances in legislation during the latter portion of the 20th century, which signaled a new emphasis on the environmental benefits rather than simply the economic advantages of recycling (Zimring, 2005).

Modern recycling behavior rapidly expanded to include recycling centers, curbside recycling services, and commingled recycling services. The first 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, involving the collection of an unsorted mix of recyclable materials at the consumer’s home (Porter, 2002).

As the types of ways that people can recycle has increased and recycling has become increasingly commonplace throughout the U.S., it is arguably both more and less connected to the environmental movement. Dalton (2015) finds evidence of this bifurcation, contending that the contemporary environmental movement has decreased in environmental political activity worldwide but that conservation behavior overall has increased. It is the purpose of this study to analyze the connection between these factors in contemporary U.S. society.

### ***THE RELATIONSHIP BETWEEN RECYCLING AND THE ENVIRONMENTAL MOVEMENT PARTICIPATION***

Although this research is about the environmental movement, I draw on research from scholars studying social movements more broadly to understand this relationship. The association between participating in a recycling program and participating in a social movement is likely to be reciprocal, in part because of changes in attitudes toward recycling over time and in part because of different motivations to recycle in the first place. However, little research exists directly examining the connection between recycling behavior and different types of environmental movement participation.

In general, researchers who study recycling behavior do frequently contend that participation in a recycling program and participation in an EMO are related. Guerin (2001) argues that EMO membership increases the likelihood of recycling. According to this assertion, the increased presence of environmental movement organizations facilitates an increase in recycling facilities, which then increases recycling activity in an area over time. In contrast, Berger (1997) finds that recycling activity may represent a “first step toward the adoption of other

## Reduce, Reuse, and Organize

behaviors”. Either perspective suggests that likelihood of a connection between these factors.

A leading perspective regarding participation in social movements is that involvement 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. This is consistent with the finding of 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 social movement organization directly (Snow et al., 1980; Lofland & Jamison, 1984). For example, if a person becomes involved with an organization by donating money, he or she would consequently also be more likely to join the organization formally. Berger’s (1997) finding that environmentally-friendly behaviors, such as recycling, may be a first step toward other forms of participation in the movement parallels the argument made by Mitchell and Dunlap (1992) that environmental education is one of the main strategies available to EMOs for recruitment.

During the 1960’s and 1970’s, the environmental movement played a major role in the development of recycling programs, generally emphasizing environmental consciousness-raising and personal growth by the participants (Pellow, Schnaiberg & Weinberg, 2000). In fact, many communities have begun to focus on developing recycling programs as a way to save money and avoid materials winding up in landfills. Additionally, in the U.S. Recycling Economic Information Study, the E.P.A. finds that participation in recycling programs not only positively affects the recycling industry, but the overall U.S. economy as well (Environmental Protection Agency [EPA], 2015). However, some scholars have observed that at different historical times corporations have also played a major role in the recycling industry as costs of recycling have changed over time. Additionally, the contemporary environmental movement has had less of an effect and advancing economic interests from the recycling industry currently play a much larger role in maintaining recycling habits (Gottleib, 2005; Pellow et al., 2000).

This suggests that recycling may be related to at least two main personal motivations - economic and ideological. These two factors tend to be very different and from each other and at times have been in oppositional. However, this tension has waxed and waned at different points in U.S. history as the issues have changed in saliency. This change in recycling motivation paralleled, and was at least partially precipitated by, the birth and growth of the contemporary environmental movement. As environmental ideology has emerged as a factor affecting recycling, this may be an important dimension to account for in an analysis of the relationship between recycling and environmental movement participation.

## Reduce, Reuse, and Organize

***EMPIRICAL EXPECTATIONS***

Participation in social movements can take many forms. To examine this, Klandermans (1997) proposes a scheme that divides participation along the dimensions of time contributed and intensity of participation. A person 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 a movement organization.

Based on the existing research, I expect to find in my analysis that recycling will have a positive, significant relationship with all of the forms of EMO participation, and specifically propose the following hypotheses:

*H<sub>1</sub>: Higher levels of recycling behavior will be associated with an increase in the likelihood of signing a petition for an environmental cause. (Petition Hypothesis).*

*H<sub>2</sub>: Higher levels of recycling behavior will be associated with an increase in the likelihood that a person will have donated money to an environmental organization (Donation Hypothesis).*

*H<sub>3</sub>: Higher levels of recycling behavior will be associated with an increase in the likelihood that a person will have joined an EMO (EMO Membership Hypothesis).*

*H<sub>4</sub>: Higher levels of recycling behavior will be associated with an increase in the likelihood of the person having participated in an environmental protest (Protest Hypothesis).*

***DATA AND METHODS***

In the following statistical analysis I utilize data from the General Social Survey (GSS) and the International Social Survey Program (ISSP). The GSS is a nationally representative probability sample, generally conducted every two years in the United States, which is administered in conjunction with the ISSP. In addition to a wide range of demographic and attitudinal variables, the 2010 survey year of the ISSP was selected for analysis since it contains a special topic module related to the environment. These two surveys were administered as both face-to-face interviews as well as mail-in surveys to a subset of respondents.

Of the total of respondents to the GSS in 2010, only a portion were administered the ISSP module. The sample was further decreased due to the non-response rate of ten percent for the mail-in surveys, and the exclusion from this analysis of respondents reporting that he or she did not have recycling facilities

## Reduce, Reuse, and Organize

available in his or her area. After listwise deletion<sup>2</sup>, the total number of individuals in the analysis is 1,013.

### ***DEPENDENT VARIABLES***

In the following analysis, my primary dependent variables are the following four forms of participation in the environmental movement: donating money, signing petitions, joining an organization, and protesting for an environmental cause. All four are coded so that a value of 1 represents the respondent's participation in the activity while 0 represents non-participation. Since much existing social movements research finds that forms of participation may be very different from each other I analyze each separately rather than combining all four into a single scale in order to examine differential effects of recycling participation on each type of participation.

### ***INDEPENDENT VARIABLES***

#### *Recycling*

The primary dependent variable in this analysis is participation in a recycling activity. The recycling question asks respondents about frequency of participation in a recycling program, ranging from zero (never recycle) to 3 (always recycle). The availability of recycling facilities may have an effect on the likelihood that a person can participate in a recycling program. In order to account for areas where no facilities (and therefore no opportunity to recycle) exist, individuals who reported not having access to a recycling facility were excluded from the analysis. This is necessary, because the structure of the question did not allow the respondent to answer the recycling frequency question if he or she first reported not having access to a recycling facility.

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<sup>2</sup> To examine the robustness of the findings of this paper, the results presented here were compared with results from an additional analysis in which I used the Stata statistical analysis software to impute the missing values in the data 50 times and to then analyze the combined results. Coefficients in the imputed models were very similar or nearly identical values as those computed in the listwise model discussed in this paper, resulting in the same substantive conclusions. Although the more parsimonious model using listwise deletion is presented here, tables for the imputed model are available upon request.



## Reduce, Reuse, and Organize

### *Motivations to Recycle*

There were several important factors related to individual motivations that emerged from the theoretical discussion of recycling behavior. First, there are at least two primary motivations for recycling (Scott, 1999; Vicente & Reis, 2008). Some individuals recycled for economic reasons, while others recycled out of concern for the environment. In order to account for these differences in the analyses, I include a measure of environmental ideology. This variable is constructed as the mean of an additive index of questions asking the respondent about his or her attitude toward the environment and environmental protection<sup>3</sup>.

### *Resources*

Another group of variables that are commonly considered relevant to social movements participation are those related to the resources of the person. Researchers have long emphasized the importance of resources on influencing individual participation. Resources such as time and money are important resources that individuals contribute to SMOs (McCarthy & Zald, 1977; Verba, Schlozman, & Brady, 1995). Family income is used in order to more comprehensively capture personal access to financial support and is coded in thousands of dollars of income. Education, which is consistently found to have a positive effect on participation (Barkan, 2004; Verba et al., 1995), is coded from zero to twenty years of education.

### *Demographic Factors*

To control for other factors, I include a block of demographic characteristics variables. Gender is included in the model (female=1) as being female is often found to be associated with higher levels of environmental participation (Blocker & Eckberg, 1997). Additionally I include race in the model with the dummy variables of “black” and “other race” with “white” excluded as the reference category.

An additional demographic factor likely to be related to the likelihood that a person will recycle is his or her age. Gamba and Oskamp (1994) found that increased age had a negative effect on the likelihood that a person would be a

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<sup>3</sup> The specific questions are: “Would you pay higher prices to help the environment?”, “Would you pay higher taxes to help the environment?”, and “Would you accept a cut in your standard of living to help the environment?” Responses were recorded on a five-point scale ranging from “not at all willing” (coded 1) to “very willing” (coded 5). Cronbach’s alpha for this index was 0.98

## Reduce, Reuse, and Organize

frequent recycler. Age is included in the analysis as the person's actual reported age from 18 to 89 years old or greater.

### *Region*

As the availability and ease of recycling varies by region in the U.S., this is likely to affect the probability of a person participating in a recycling program. This is the case even when areas without recycling facilities are not included in the analysis. I include this factor in the statistical models by including a question in the GSS that asks the respondent about the region of the country in which he or she lives. I include the following eight regions in the model as dummy variables: New England, Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, and Mountain, with Pacific excluded as the reference category.

## ***ANALYTIC STRATEGY***

The purpose of this paper is to examine the relationship between recycling and several forms of participation in the environmental movement (donating money, signing petitions, joining an organization, and protesting for an environmental cause). To examine this association in the following section of this paper, I specify a series of logistic regression models, with recycling as the primary independent variable, and the four EMO participation variables as the dependent variables in four different models. Although the limited availability of longitudinal data which includes all of these variables affects my ability to analyze causality, this approach will never the less enable me to examine the relationship between recycling and each of the forms of participation.

Since each of the dependent variables is a dichotomous nominal variable, I utilize four logistic regression models<sup>4</sup>, as an Ordinary Least Squares regression model could lead to biased estimates (Liao, 1994; Long, 1997). With this approach, I examine the relationship between recycling behavior on each form of environmental movement participation.

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<sup>4</sup> As the proportion of people engaging in some of the social movement activities is small for some of the dependent variables (such as protesting), I use the *relogit* command in the Stata statistical analysis program to adjust for bias with rare events outcomes.

## Reduce, Reuse, and Organize

**RESULTS**

In this next section I present the results of my analyses. First, I discuss the descriptive statistics of the variables used in the models and then I briefly examine changes in recycling behavior across time in order to assess if any changes may have biased my analyses. Next, I turn to presenting the logistic regression models as well as a graph of the predicted probabilities of the regression models to assist in the interpretation of the results.

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

Table 1 displays the descriptive statistics for the variables used in the analysis. The analytic sample of 1,013 people is comprised of 77.0% whites, 14% blacks, 9% reporting “other race”, and is 46% female. About a fifth of the sample reported signing environmental petitions and donating money to an environmental cause, while only about 6% reported joining an organization and about 3% reported engaging in a protest. Additionally, on average people in the sample reported recycling “often” (mean=1.97, median=2). On average, individuals in the sample have nearly 14 years of education, have a family income of approximately \$30,000 per year, and are about 47 years old. On the environmental ideology scale, which ranges between 1 and 5, the average score for people in the sample is in the middle of range (about 2.9). About 4% of the sample reported living in the New England area, 14% in the Middle Atlantic area, 20% in the East North Central Area, 7% in the West North Central, 23% in the South Atlantic, about 7% in the East South Central, 8% in the Mountain area, and 17% in the Pacific region.

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

The International Social Survey Programme, which is administered with the GSS in the U.S., has included a question about recycling behavior three different times, first in 1993/1994, then again in 2000, and most recently in 2010. Each time (shown in Figure 1), most people responded that he or she recycled most of the time, but the direction of the change across time in each category is inconsistent. Although this study is not focused on change in recycling behavior over time, it is useful to note that the people reporting that they did not have recycling facilities available in their area is considerably lower in 2010 compared to 1994. This is important to this study because people who did not have access to a recycling facility are not included in the following analysis, and the first column of Figure 1 suggests that this is a much smaller group of people than in previous years.

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

## Reduce, Reuse, and Organize

Table 2 presents the odds ratios of the logistic regression model of the independent variables on each of the dependent variables<sup>5</sup>. While recycling has a significant relationship with signing a petition, donating money, and joining an EMO, it does not have a significant relationship with protesting. An increase in one level of the recycling scale will increase the predicted probability of both signing an environmental petition and donating money to an environmental cause by nearly 40% and of joining an EMO by slightly more than 50%, accounting for all other factors including differences in environmental ideology. Despite the relatively large magnitude of the effect, the lack of statistical significance for protesting for an environmental cause may be a consequence of the small number of people reporting that he or she engaged in this act, however because it is not significant I do not interpret the effect of this variable in this analysis.

Although not a primary hypotheses in this analysis, the extant research on this topic indicates that environmental ideology should also have a strong relationship with participation in the environmental movement. I find that it does have a significant relationship with signing a petition, donating money, and protesting, nearly doubling the odds of participation in the first two, and increasing the odds of participation by over 60% for protesting. The effects of recycling on each of the environmental movement participation variables occurs even with this environmental ideology controlled for in the models.

Of the demographic variables, a person's sex had a statistically significant relationship with signing a petition, but did not have a significant relationship with the other forms of environmental movement participation. This indicates that, being female, compared to being male, increases the odds that a person will sign a petition by about 60%. Race only had a significant relationship with for "other race" compared to being white on donating money, and age did not have a significant relationship with any of the models<sup>6</sup>. Region was significant for the East North Central, South Atlantic, and East South Central regions for signing a petition. The Mountain region was significant for donating money.

Overall, in this analysis, I found support for the Petition, Donate, and Join hypotheses, but not for the Protest hypothesis. Increased levels of recycling participation also increases the probability of a person signing an environmental petition, donating money, and joining an EMO, but not of protesting for environmental causes. However, it is also important to provide context for the

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<sup>5</sup> A table displaying the coefficients of the regression models is available upon request.

<sup>6</sup> Since these are different models I do not compare the magnitude of the effects, only the presence or absence of statistical significance in the population.

## Reduce, Reuse, and Organize

interpretation of these results by examining what the changes in the predicted probabilities from the model mean to relevant groups of people.

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

The graph in Figure 2 presents the predicted probabilities of Signing a Petition, Donating Money, and Joining an EMO, for each level of the recycling variable. While the odds ratios for both signing a petition and donating money are nearly identical, the predicted probability of donating money at each level of recycling is greater than either of the other two categories at each comparable level. For example, the predicted probability of donating money for a person who reports never recycling is 0.22, while the predicted probability of joining an EMO for someone who reports that he or she always recycles is only 0.15. While recycling increases the probability of joining an EMO as the frequency of recycling activity increases, it never achieves the level at which the probability of donating money starts. However, this implies that the impact of increasing recycling behavior will have a large impact on increasing the probability that someone will donate money to an environmental cause, doubling the probability from 0.22 to 0.45 from a person who reports never recycling to a person who reports always recycling.

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

Similarly, education and income have an important relationship with participation in the environmental movement as well. Figure 3 displays the predicted probabilities of donating money to an EMO (the other dependent variables are not included in this figure since the income variable is not significant in those models). To illustrate the important relationship between both income and education on donating money to an EMO have on these probabilities, the solid line represents the predicted probability for people at the 90<sup>th</sup> percentile of both the education and income variables, and the dashed line represents the predicted probabilities of those in the 10<sup>th</sup> percentile of the education and income variables. Figure 3 shows that, while recycling affects people in both percentile groups, the overall probability is much greater at all levels for those with the most resources. This suggests that increasing a person's recycling activity also increases the probability that he or she will donate money to an EMO, but much more for people who have higher levels of income and education.

## ***DISCUSSION AND CONCLUSION***

In this research, I examine the connection between participation in a recycling program and participation in the environmental movement. I found support for my hypotheses that increasing levels of recycling participation have a positive

## Reduce, Reuse, and Organize

relationship with the likelihood of signing a petition, donating money, and joining and environmental movement organization, but not on the likelihood of protesting for environmental reasons. Additionally, while the relationship between recycling and signing a petition and donating money are nearly the same, the relationship is larger for the likelihood that a person will join an EMO.

While recycling has become a ubiquitous activity in most of the U.S., it is still an environmentally-friendly activity, with a clear connection to many aspects of participation in the environmental movement. This is an increasingly important relationship to establish in light of the findings of Dalton (2015) that the environmental movement is evolving, with the political dimension to environmental activity decreasing but simultaneously the conservation dimension becoming increasingly prevalent in many countries. Additionally, this research highlights the importance of examining the differences in forms of participation in the movement. These findings align with the argument made by Klandermans (1997) regarding movement participation being a multi-faceted activity that occurs along many dimension. The findings in this research support this argument, since only three of the four types of participation in an environmental organization are related to recycling behavior, and the effects of recycling are much greater on some than others. This highlights the importance of disaggregating participation types in future analyses.

In this paper, my focus is on testing the relationship between the now commonplace activity of recycling and EMO participation, rather than on examining the specific mechanisms of recruitment in detail. However, some potential mechanisms for this recruitment process are identified by Rochon (1998), who argues that the process of recruitment into an SMO begins with the acceptance of new cultural values that 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 Klandermans (1984). In the environmental movement, related activities such as recycling behavior may function as a first step toward further movement participation by increasing feelings of solidarity with other environmentalists, or alternately the solidarity formed between members of an environmental organization may encourage members to adopt similar environmentally-friendly activities such as recycling. For example, by adopting recycling behavior and increasing his or her feelings of solidarity with a movement, a person may subsequently begin to donate money to an EMO. This

## Reduce, Reuse, and Organize

further increases the likelihood that the person will continue to participate in movement activities and formally join the EMO.

There are several directions that future research could take to build from this project. One limitation of this research is that, because only available data is cross-sectional, I am unable to determine the causality of the relationship. This is a general limitation of research in this area, since few datasets exist that have information on both recycling behavior and social movements. Future research could be conducted that collects longitudinal data on these topics to correct these issues. Additionally, as discussed earlier in this paper, there are many ways in which a person can now recycle in the United States. Future work could do more to collect data that would allow the disaggregation of the types of recycling activity in which a person engages (e.g. commingled recycling, bring-back recycling, etc.). Additionally, as recycling has become an increasingly socially desirable activity, it is likely that self-reports of recycling may become increasingly exaggerated, and a study that was able to address this issue by using more unobtrusive measures may give a more accurate estimate of the relationship between recycling program participation and social movement participation.

Although recycling participation has become increasingly common in the U.S. in the last few decades, in this research I find that it still has an important connection to the environmental movement. People who recycle more are also more likely to sign environmental petitions, donate money to environmental causes, and join Environmental Movement Organizations. This relationship holds accounting for different demographic factors, differences in education and income, and even for different levels of environmental ideology. These findings that income and education have a positive relationship with participation in the environmental movement are consistent with existing research. This finding also hold when comparing people not particularly supportive of environmental issues, there is still an increase in the likelihood that someone will participate in the environmental movement as the frequency that he or she recycles increases. While it is not possible to determine causality due to the lack of panel data, the findings in this research demonstrate a clear link between recycling behavior and environmental movement participation.

Reduce, Reuse, and Organize

**REFERENCES**

- Barkan, S. (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).
- Blocker, J., & Eckberg, D. (1997) Gender and Environmentalism: Results from the 1993 General Social Survey. *Social Science Quarterly*. 78(4).
- Dalton, R. J. (2015) Waxing or waning? The changing patterns of environmental activism. *Environmental Politics*, 24(4), 530-552.
- Diani, M., & Donati, P. R. (1999) Organisational change in Western European Environmental Groups: A framework for analysis. *Environmental Politics*, 8(1), 13-34.
- Dunlap, R., & Mertig, M. (1991) The Evolution of the U.S. Environmental Movement from 1970 to 1990: An Overview. *Society and Natural Resources: An International Journal*. 4(3). 209-218.
- Environmental Protection Agency. (2015) *Advancing Sustainable Materials Management: 2013 Fact Sheet*. Washington, DC.
- Gamba, R. & Oskamp, S. (1994) Factors Influencing Community Residents' Participation in Commingled Curbside Recycling Programs. *Environment and Behavior*. 26.
- Gandy, M. (1994) *Recycling and the Politics of Urban Waste*. St. Martin's Press. New York.
- Gottlieb, R. (2005) *Forcing the Spring: The Transformation of the American Environmental Movement*. 2nd Ed. Island Press. Washington.
- Guerin, D., Crete, J., & Mercier, J. (2001) A Multilevel Analysis of the Determinants of Recycling Behavior in the European Countries. *Social Science Research*. 30
- Klandermans, B. (1984) Mobilization and Participation: Social-Psychological Expansions of Resource Mobilization Theory. *American Sociological Review*. 49(4)
- Klandermans, B. (1997) *The Social Psychology of Protest*. Blackwell. Oxford.
- Liao, T. F. (1994) *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models*. Sage. Thousand Oaks.



## Reduce, Reuse, and Organize

- Lofland, J., & Jamison, M. (1984) Social Movement Locals: Modal Member Structures. *Sociological Analysis*. 45
- Long, J. S. (1997) *Regression Models for Categorical and Limited Dependent Variables*. Sage. Thousand Oaks.
- McAdam, D. (1986) Recruitment to High-Risk Activism: The Case of Freedom Summer. *American Journal of Sociology*. 92:1.
- McCarthy, J. D. & Zald, M (1977) Resource Mobilization and Social Movements: A Partial Theory. *American Journal of Sociology*. 82.
- Mitchell, R., Mertig, A., & Dunlap, R. (1992) 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.
- Pellow, D., Schnaiberg, A., & Weinberg, A. (2000) Putting the ecological modernisation thesis to the test: The promises and performances of urban recycling. *Environmental Politics*. 9(1). 109-137.
- Porter, R. (2002) *The Economics of Waste*. Resources For the Future Press. Washington D.C.
- Rochon, T. (1998) *Culture Moves: Ideas, Activism, and Changing Values*. Princeton University Press. Princeton.
- Rootes, C., ed., (2003) *Environmental protest in Western Europe*. New York, NY: Oxford University Press.
- Rootes, C. (2007) Acting locally: The character, contexts and significance of local environmental mobilisations. *Environmental Politics*, 16(5), 722-741.
- Scott, D. (1999) Equal Opportunity, Unequal Results: Determinants of Household Recycling Intensity. *Environmental Studies*. 31. 267-290.
- Snow, D., Zurcher, L., & Eklund-Olson, S. (1980) Social Networks and Social Movements: a Microstructural Approach to Differential Recruitment. *American Sociological Review*. 45.
- Strasser, S. (1999) *Waste and Want: A Social History of Trash*. Metropolitan Books. New York.
- Verba, S, Schlozman, K., & Brady, H. (1995) *Voice and Equality: Civic Voluntarism in American Politics*. Harvard University Press. Cambridge.

Reduce, Reuse, and Organize

Vicente, P. & Reis, E. (2008) *Factors Influencing Households' Participation in Recycling*. Waste Management & Research. 2. 140-146

Zimring, C. (2005) *Cash for Your Trash: Scrap Recycling in America*. Rutgers University Press. New Brunswick.

## Reduce, Reuse, and Organize

**FIGURES AND TABLES**

Table 1: Descriptive Statistics

VARIABLE	N	Mean	S.D.	Min	Max	
Joined an Environmental Organization (Yes=1)	1013	0.0621915	0.2416223	0	1	
Signed an Environmental Petition (Yes=1)	1013	0.1984205	0.3990075	0	1	
Donated Money to an Environmental Organization (Yes=1)	1013	0.2053307	0.4041426	0	1	
Protested for an Environmental Cause (Yes=1)	1013	0.0266535	0.1611482	0	1	
Recycling (0-3)	1013	1.976308	1.052679	0	3	
Environmental Ideology Scale	1013	2.879895	1.068754	1	5	
Education	1013	13.75123	3.05731	0	20	
Income (thousands of dollars)	1013	32.76919	30.01805	0	119.6	
Sex (Female=1)	1013	0.4570582	0.4983987	0	1	
Age	1013	47.05331	17.02739	18	89	
Race						
	<i>White</i>	1013	0.7670286	0.422933	0	1
	<i>Black</i>	1013	0.1441264	0.3513913	0	1
	<i>Other</i>	1013	0.088845	0.2846604	0	1
Region						
	<i>New England</i>	1013	0.0454097	0.2083038	0	1
	<i>Middle Atlantic</i>	1013	0.136229	0.343201	0	1
	<i>East North Central</i>	1013	0.1974334	0.3982587	0	1
	<i>West North Central</i>	1013	0.071076	0.2570787	0	1
	<i>South Atlantic</i>	1013	0.2300099	0.4210467	0	1
	<i>East South Central</i>	1013	0.0661402	0.2486497	0	1
	<i>Mountain</i>	1013	0.082922	0.2759005	0	1
	<i>Pacific</i>	1013	0.1707799	0.3765024	0	1

## Reduce, Reuse, and Organize

Table 2: Regression Model of Recycling on EMO Participation (Odds Ratios)

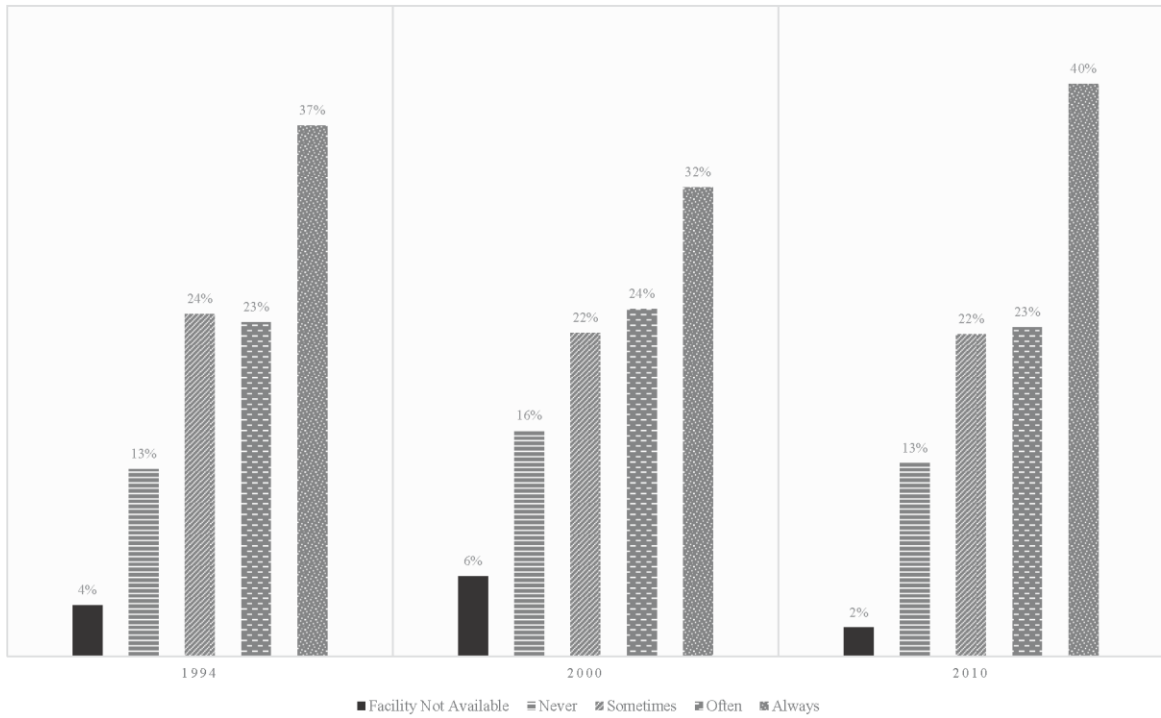
VARIABLES	Signed an Environmental Petition	Donated Money to an EMO	Joined an Environmental Group	Protested for Environmental Cause	
Recycling (0-3)	1.397*** (0.137)	1.387*** (0.136)	1.512* (0.263)	1.518 (0.378)	
Environmental Ideology Scale	1.946*** (0.207)	2.011*** (0.215)	1.345 (0.217)	1.638* (0.401)	
Education (years)	1.171*** (0.0382)	1.133*** (0.0371)	1.150** (0.0599)	1.053 (0.0780)	
Income (dollars)	1.001 (0.00289)	1.008** (0.00285)	1.004 (0.00414)	0.982 (0.00961)	
Sex (Female=1)	1.612** (0.282)	1.265 (0.220)	1.229 (0.334)	0.799 (0.331)	
Age	0.997 (0.00529)	0.995 (0.00533)	1.006 (0.00856)	0.978 (0.0129)	
Race					
	<i>Black</i>	0.850 (0.242)	0.667 (0.196)	0.427 (0.263)	0.873 (0.518)
	<i>Other Race</i>	0.548 (0.178)	0.428* (0.149)	0.395 (0.249)	0.348 (0.277)
Region (compared to Pacific)					
	<i>Middle Atlantic</i>	0.742 (0.303)	1.863 (0.725)	1.419 (0.729)	0.472 (0.515)
	<i>East North Central</i>	0.696 (0.201)	0.982 (0.288)	0.811 (0.358)	0.576 (0.363)
	<i>East North Central</i>	0.511* (0.142)	0.712 (0.199)	0.658 (0.278)	0.273 (0.192)
	<i>West North Central</i>	0.758 (0.271)	0.821 (0.302)	0.519 (0.315)	0.244 (0.267)
	<i>South Atlantic</i>	0.425** (0.119)	0.611 (0.172)	0.487 (0.222)	0.390 (0.235)
	<i>East South Central</i>	0.290* (0.144)	0.638 (0.279)	1.072 (0.666)	0.998 (0.740)
	<i>Mountain</i>	0.652 (0.229)	0.452* (0.181)	0.275 (0.216)	0.212 (0.230)
Constant	0.0183*** (0.0104)	0.0229*** (0.0131)	0.00313*** (0.00298)	0.0539* (0.0706)	
Observations	1,013	1,013	1,013	1,013	

Notes: Odds Ratios shown in tables; Standard Errors in parentheses; \*\*\*\* p&lt;0.001, \*\*\* p&lt;0.01, \* p&lt;0.05

Reduce, Reuse, and Organize

**Figure 1: Changes in Recycling Frequency over Time from 1994-2010 by Levels of Recycling**

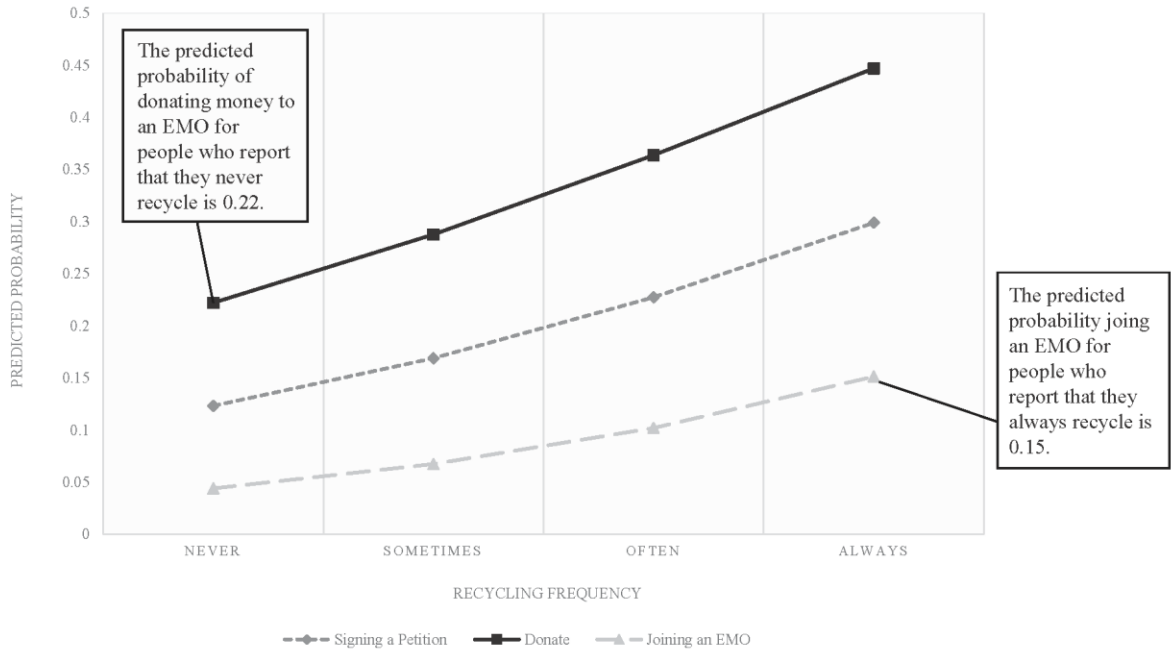
Each panel displays the percentages of recycling frequencies for respondents at each wave of the General Social Survey. The solid bar represents those reporting that a recycling facility was not available. This percentage decreases by half from the 1994 wave to the 2010 wave (used in this analysis) and only 2% of the people in the sample report being in this group.



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**Figure 2: Predicted Probability of Types of EMO Participation by Level of Recycling Activity**

Predicted Probabilities of each type of EMO participation are shown in the three lines in the body of the graph. While each type increases as the frequency of recycling activity increases, the effect is the greatest for Donating Money to an EMO (shown as a solid line), compared to Signing an Environmental Petition (shown as a dotted line), or Joining an EMO (shown as a dashed line).



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**Figure 3: Predicted Probabilities of Donating Money to an EMO by High and Low Levels of Education and Income**

The predicted probability for a person having education and income levels at the 90th percentile is displayed as a solid line and as a dashed line for the 10th percentile. The predicted probability of donating money is greater at all comparable levels of recycling frequency for those with a higher level of education.

