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ENVIRONMENTAL ATTITUDES AND BEHAVIORS:
THE ISSUE AND ITS DIMENSIONS

by

BRENNA CATHLEEN KELLY
B.S. University of Central Florida, 2003

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of Sociology
in the College of Sciences
at the University of Central Florida
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ABSTRACT

The purpose of this study is to examine the effects of a variety of factors on environmental attitudes and behaviors. Studies have addressed a number of issues that are related to environmental matters. This examination extends the research in this area by incorporating educational attainment, political ideology, gender, marriage and family formation, religiosity and subjective spirituality, race and ethnicity, as well as several sociodemographic influences. The 2010 General Social Survey is selected for the analysis because it is the most recent data available and contains items pertaining to environmental concern and behavior, and the independent and control variables. Directions for future research in the area will be discussed.

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CHAPTER 1

INTRODUCTION

Societal development has historically plagued the natural environment and the resources it offers. While concern for these resources and environmental health is evident throughout time, the nineteen seventies undoubtedly offered an enlightenment of such issues within the United States (Neuzil and Kovarik 1996). A motivated public sought to reduce its contribution to the degradation of the planet while awareness of the impact caused by industry and large corporations continued to escalate. In fact, in 1970 Americans witnessed the nation's first "Earth Day" in response to an abysmal oil spill occurring in the year prior (Freundenburg 2008; Earth Day Network 2011). In spite of this heightened sense of insight and interest in activism experienced by the general population, the sentiment did not yet extend to the academic arena. While the field of environmental sociology was recognized by the American Sociology Association in 1976, it was in its infant stages and often met with opposition by its orthodox forefather of mainstream sociology (Dunlap 1997: 21; Freundenburg 2008). However, innovative scholars such as Riley Dunalp and William Catton, among many others, challenged conventional sociological topics and forged forward in their attempts to evaluate human subjects and the natural environment (Freundenburg 2008; Jermier 2008). It is worth noting that during this time these scholars introduced the "New Ecological Paradigm," in which they emphasized that humans are not dominant over other species but rather interconnected with them, and that the planet's resources are indeed finite (Dunlap, Van Liere, Mertig, and Jones 2000; Humphrey and Lewis 2002; Jermier 2008).

Dunlap (1997) gives credit to the environmental interest during the 1970s for the emergence of environmental sociology. While he admits that a period of disinterest dominated during the 1980s, he more recently has stated that the field enjoys recognition and legitimacy among academics as well as the American culture at large (Dunlap 2010). Politicians cannot avoid addressing environmental policies or strategies and are often obligated to take an economic versus an environmental position in their campaigns (Dunlap and McCright 2008). Given the democratic nature of this country, citizens are able to voice their beliefs concerning such matters through their votes and election of officials. Though this points environmentalism and environmental policy in recent decades toward a seemingly politically driven direction, the public appears to have generally acknowledge that a proactive position must be adopted in order to salvage the dwindling wellbeing of the planet (Stern 2000). In order to understand this phenomenon of societal awareness further, individual perceptions of environmental consciousness should be taken into consideration. It proves interesting to examine features that may or may not affect the attitudes or behaviors of individuals concerning the environment or pro-environmental attitudes and behaviors. The purpose of this study is to analyze such features.

Various elements may be credited with affecting personal attitudes and behaviors toward the environment, which understandably fluctuate within societies. The literature addressing the topic often begins by contemplating multiple broad theories that lead to differing environmental outlooks. These range from external or societal norms (Liska 1984; Nigbur, Lyons, and Uzzell 2010; Stern 2000) to planned behavior (Nigbur, Lyons, and Uzzell 2010), to altruistic and egoistic motivations (Berenguer 2007; Dutcher, Finley, Luloff, and Johnson 2007; Kollmuss and Agyeman 2002) to name a few. Researchers then customarily follow theoretical development

with more direct analysis of individuals' characteristics in effort to clarify specific correlates of (in this case) attitudes and behaviors. For example, educational attainment remains a prominent point of interest when predicting differences in outcomes of environmental attitudes and behaviors (Diamantopoulos et al. 2003; Dietz, Guagnano, and Stern 1998; Stern 2000).

Following a review of existing literature, Diamantopoulos et al. (2003) concluded that while results of analyses concerning education may differ, the general consensus is that the higher the educational attainment, the more elevated the level of environmental concern and commitment to environmentally friendly activities. Also, given the political nature of policy development and enforcement, political party identification and political views have also been considered as correlates of environmental attitudes and behaviors. Liberals have been shown to support pro-environmental developments while more conservative individuals are renowned for being less supportive of pro environmental habits (Colarelli 2002; Dietz, Guagnano, and Stern 1998; Dunlap and McCright 2008; Johnson et al. 2004; McCright 2010).

Gender is also associated with attitudes and behaviors toward the environment. Women are often thought to possess more concern and sometimes superior awareness about environmental issues. However, men are generally recognized for greater contributions to activism (McCright 2010; O'Shaughnessy and Huddart-Kennedy 2010). Marital and parental statuses are additional important variables associated with environmental attitudes and behaviors. Societal norms suggest that married couples and parents have a greater inclination towards pro-environmental knowledge, attitudes, and behaviors (Saphores, Ogunseitan, and Shapiro 2012). The argument has been made that married couples' lifestyles may play a role in increasing environmentalism through patterns such as home ownership and joint efforts. However,

empirical results often differ (Diamantopoulos et al. 2003; Saphores et al. 2012). For instance, Diamantopolous et al. (2003) did not find married couples to exhibit higher or lower positive attitudes or behaviors towards environmentalism while Saphores et al. (2012) did discover a slight difference, with married couples being more willing to display pro-environmental actions in the form of recycling.

Less frequently analyzed but still noteworthy variables are individuals' spirituality or religious status. In their analysis of the 1993 General Social Survey, Dietz, Guagnano, and Stern (1998) found that similar to political views, more liberal religions are more supportive of pro-environmental plans of action in comparison to the more conservative organizations. This relationship could exist partly because politically conservative individuals are more likely to be affiliated with stricter religions, which sometimes emphasize biblical literalism (Greeley 2001). Greeley (2001) noted that stringent belief in the bible correlates with less pro-environmental views. However, he also stated that these individuals may be personally predisposed to a conservative "style," and religion may very well have nothing to do with environmental opinions. Therefore, the analysis of religious views proves worthwhile. Different from the formal definition of religion, spirituality is often considered a more personal relationship with one's own beliefs and perceptions of a higher power (Schlehofer, Omoto, and Adelman 2008). Given that one may consider themselves spiritual but not religious and vice versa, a question pertaining to each concept was included in the analysis.

Lastly, general demographics (age, income, race, urban/ rural residence, and regional residence) are often considered when analyzing environmental attitudes and behaviors (Diamantopoulos, Schlegelmilch, Sinkovics, and Bohlen 2003; Dietz, Guagnano, and Stern

1998; Huddart-Kennedy, Beckley, and Mcfarlane and Nadeau 2009a). Age, income, race, community residence (urban or rural) and region of residence have all been examined in an attempt to explain motivations and opinions regarding their natural surroundings. Ethnicity is referenced in research far less often, with the few analyses cited finding a lack of concern among ethnic residents (Johnson 2004; Saphores et al. 2012). Due to the limited amount of available research on ethnicity, the variable is included in this study. Analyses of other demographics often vary depending on research designs and samples chosen indicating the complexity of relationships (Diamantopoulos et al. 2003; Stern 2000 Dietz, Guagnano, and Stern 1998).

The purpose of this paper, then, is to examine the effects of multiple factors on environmental attitudes and behaviors. To accomplish this, data from the General Social Survey (GSS) will be analyzed. The GSS is a national data set that aims to obtain structural patterns relating to American society and is the most referenced survey in the United States aside from the U.S. Census (General Social Survey 2011). As previously discussed, the elements of concern include educational attainment, political views, gender, familial characteristics (marital status and children in the residence), religious and spiritualistic beliefs, and demographics. The 2010 GSS is selected for the analysis because it is the most recent data available and contains items pertaining to environmental concern and behavior. The analysis addresses the correlates of these environmental issues. Specifically, examination of the questions pertaining to respondents' opinions on their personal concern for the environment and their behavioral actions toward recycling will be conducted.

CHAPTER 2

LITERATURE REVIEW

Attitudes and Behaviors

Historically, psychologists and sociologists have evaluated the relationship between attitudes and behaviors and whether the former acts as an antecedent to the latter (Fazio and Zanna 1977; Liska 1984; Rabinovich, Morton, and Postimes 2010). Researchers have demonstrated that attitudes and behaviors have been connected by mediators such as intention (Liska 1984), while common assumptions often presume a causal connection between attitudes and behaviors (Rabinovich et al. 2010). By definition, attitudes are understood to pertain to an intrinsic or emotional level of human cognition. They are described as positive or negative opinions or feelings towards another person, subject, or object (Ajzen and Fishbein 1977; Kollmuss and Agyeman 2002: 252; Attitude 2011). Alternatively, behaviors are linked to an individual's actions or reactions to a situation (Behavior 2011). A linear relationship has often been anticipated between the attitude and the behavior while, in reality, multiple influences must be considered before reaching this allegation (Kollmuss and Agyeman 2002).

Realistically, the process that precedes acting on a belief, or attitude, remains complex and indeterminate (Liska 1984). Undoubtedly, an aggregate amount of cognitive reasoning and situational factors are applied somewhere between recognizing an attitude and producing a behavior. For example, many people might like to practice vegetarianism yet still eat meat, while others who consider themselves politically driven do not vote. Similarly, a proportion of citizens in the United States express profound concern for global warming, climate change, and

environmental health. However, these same individuals often continue to ignore environmentally friendly behaviors such as using public transit, recycling, or conserving energy (Berenguer 2007; Blake 1999; Ewing 2001; Huddart-Kennedy et al. 2009; Kollmuss and Agyeman 2002). This contradictor has not escaped academia and researchers have revealed numerous theoretical and experiential explanations for this phenomenon. For instance, an attitude is thought to retain merit and produce behaviors if the individual has obtained this belief through pragmatic and direct experience (Fazio and Zanna 1977). Additionally, a supported (Snyder and Swann 1976), stable (Norman 1975), well defined attitude that an individual feels certainty about (Fazio and Zanna 1977) is also more likely to be acted upon. In reference to pro-environmental behaviors, Huddart-Kennedy et al. (2009b) established that in order for the environmentally conscious persons to act upon their concerns, pro environmental behaviors must be convenient, cost effective, and require a minimal amount of time.

Documenting the conclusion of the relationship between attitudes and behaviors far surpasses the scope of this paper. However, it remains important to recognize that the analysis of the attitude-behavior assumption has revealed an “action gap,” in which pro-environmental attitudes do not always predict pro-environmental behaviors (Blake 1999; Ewing 2001; Kollmuss and Agyeman 2002), but instead unveil complexities regarding the causal direction. It is due to the multifaceted nature of attitudes and behaviors that these variables will be considered separately.

Correlates of Environmental Attitudes and Behaviors

On a multinational level, environmentalism exists largely through political modifications, laws, and policies. Given this, efforts put forth by society commonly arise not out of

environmental concern, but simply out of acquiescence with the cultural structure or law. While public compliance due to these influences remains a topic of importance, this analysis will focus on more individual or familial characteristics that emphasize pro-environmental attitudes and behaviors. These attributes are generally recognized as falling into one of two categories: the public or private sphere. Researchers consider outward and more readily recognized (and therefore documented) behaviors such as petition signing and protesting to exist in the public sphere (Hubert-Kennedy et al. 2009; O'Shaughnessy and Kennedy 2010; Stern 2000).

Environmental concern or environmentally friendly behaviors in the private sphere consist of less obvious instances, such as sharing environmental views or household recycling (Hubert-Kennedy et al. 2009; O'Shaughnessy and Kennedy 2010; Stern 2000). When considering these candid and deliberate attitudes or behaviors among different people, an ostensibly limitless amount of personal qualities could be credited. While examining an extensive list of personal characteristics in effort to discover effects on environmentalism would be unreasonable, analyzing a small selection at a time may prove fruitful. Hence, this study addresses several correlates or determinants of environmental attitudes and behaviors within both spheres.

Education

Educational attainment remains a relevant factor to consider. Individuals who possess higher educational accomplishments are often thought to hold a better understanding of environmental issues and therefore may have an elevated sense of concern or motivation to act in a pro-environmental manner. While a few studies produce conflicting results, a positive relationship between higher education and pro environmental behavior and knowledge is generally accepted (Diamantopoulos et al. 2003; Dietz, Guagnano, and Stern 1998; McCright

2010). For example, in their analysis of the 1993 General Social Survey, Dietz et al. (1998) found that education is positively related to environmentalism. In another case, Diamantopolous et al. (2003) discovered that university educated individuals in Britain were overall more likely to recycle and engage in political activities regarding environmentalism. Dietz, Guagnano, and Stern (1998) also discovered a negative relationship between higher education and the view that the planet or nature is fragile, and therefore would not need protecting. While these findings somewhat contradict, it is predicted that higher education will continue to positively relate to pro environmental attitudes and behaviors.

Political Ideology

Historically, political ideology in the United States has existed on a scale of conservatives and liberals. While individuals commonly hold multiple values that do not pertain solely to one political group, true Republicans and Democrats differ in environmental views (Colarelli 2002). The very definition of conservative explains this party's values of upholding tradition, preserving historical values, and apprehension to change (Colarelli 2002; Conservative 2011). In contrast, liberals interrogate tradition, support reform, and favor personal liberties rather than governmental control (Colarelli 2002; Liberal 2011). Environmental issues fall victim to the same political perspectives except, ironically, the parties largely trade viewpoints regarding the issue (Colarelli 2002). Republicans are documented as supportive to environmental exploitation for economic gain rather than ecological preservation. Liberals are credited for opposing activities that increase pollution and often take the vigilant approach of pressing for the cessation of events that are considered potentially dangerous to the planet (Colarelli 2002). Liberals in an environmental sense, then, would be more likely to accept the concepts described in the New

Ecological Paradigm. According to Dunlap and McCright (2008) in their study of ten Gallup polls between the years of 2001 and 2010, liberals are not only more likely to demonstrate pro environmental qualities, but environmental conservatives have made practice of publicly disputing evidence of climate change and global warming (p. 28). This emphasizes the political dichotomy that often exists when analyzing environmental views. Given the overwhelming consistency in the literature (Colarelli 2002; Dietz et al. 1998; Dunlap and McCright 2008; Johnson et al. 2004; McCright 2010), one would expect the analysis of political views and environmental attitudes and behaviors to follow this trend.

Gender

Gender differences have also been researched thoroughly and have been construed as an important, albeit complex, variable when considering pro environmental attitudes and behaviors. It is noted that women generally retain a higher level of concern for the environment, while men contribute more frequently to environmental activism (Dietz Guagnano, and Stern 1998; McCright 2010; Olli and Wollenbaek 2001; O'Shaughessy and Kennedy 2010). In an analysis of eight years of Gallup data, McCright (2010) found that women not only held a higher level of concern for the issue, but also possessed more knowledge about the current problems than did men. However, this research also found that women were more likely to underestimate their awareness and abilities (McCright 2010). In terms of notable pro-environmental actions, activism usually refers to 'conventional' activism, which recognizes only public actions and activities that demonstrate environmentally friendly attitudes and behaviors (for example, petition signing) (O'Shaughessy and Kennedy 2010 p. 554). Unfortunately, recognition of this definition eliminates documentation of many day to day environmentally supportive deeds such

as the simple act of recycling, or the more complex notion of fostering the environmentally friendly qualities of other household members. These household, or private sphere activities, are actions that may not be analyzed as frequently by researchers. The lack of inclusion of these behaviors may provide an explanation for the gender discrepancies concerning activism in the existing data (O'Shaughnessy and Kennedy 2010). Due to the inconsistency throughout the results of research concerning gender differences, scholars seem to agree that the use of gender as a variable, while important to consider and easy to include, also projects a depth of complexity that is not easily explained.

Marriage and Family

Variables less often researched concerning attitudes and behaviors towards the environment are familial characteristics and religious affiliation. In regard to familial characteristics, it is sometimes expected that married couples hold more environmentally conscious attitudes and behaviors than their single counterparts due to a potentially more stable lifestyle in terms of habits and patterns. However, it is often found that married couples and single people do not differ in environmental concern or behavior (Diamantopoulos et al. 2003). In Diamantopoulos et al.'s (2003) study of environmental habits in Britain, insignificant results, or those not specifying a difference between married and single persons, were all that was established. One might also surmise that the presence of children living within a residence may alter attitudes and behaviors towards the environment, but minimal research is available referencing this subject. Diamantopoulos et al. (2003) did explore whether families with more children have a greater concern and a higher inclination to act in pro environmental manners but did not find a significant relationship. Instead of exploring whether the number of children has an

impact on these issues, this study analyzes whether the presence of any children makes a contribution to pro-environmental attitudes and behaviors.

Religion and Spirituality

Religious beliefs and affiliation are thought to affect multiple aspects of an individual's beliefs and actions. A common hypothesis exists that more religious persons are less likely to think or act in pro-environmental manners (Dietz, Guagnano, and Stern 1998; Greeley 1993). Using the 1993 GSS data set, Dietz, Guagnano, and Stern (1998) did find that Fundamentalists sometimes exhibit less concern. This may be due to the notion that some religions place mankind before nature or the environment in the hierarchy of living organisms and feel that humans are entitled to the earth's resources (Ridgeway 2008). Despite this finding, a general conclusion has not been demonstrated which indicates a reason to revisit the topic (Dietz, Guagnano, and Stern 1998).

While definitions of religion and spirituality tend to overlap, the concepts are becoming more frequently distinguished as separate entities. According to Schlehofer, Allen, and Adelman (2008), religion is often associated with more organized or formal rules and institutions (such as churches). Spirituality is considered more abstract and individual, encompassing life on a day to day level. Spirituality is also credited for a more functional approach to "nature and being" and has been found to associate more with pro-environmental beliefs (Schlehofer, Allen, and Adelman 2008: 412). It is expected then, that persons claiming a higher level of spirituality would exhibit more pro-environmental concerns and behaviors.

Sociodemographics

Personal demographics are some of the most recognized variables when investigating correlates on environmental attitudes and behaviors (Diamantopoulos et al. 2003; Dietz, Guagnano, and Stern 1998; Stern 2000). Age, income, race (and less often) ethnicity, residence (urban/ rural), or geographical region (southern or elsewhere in the U.S.) have all been considered as potential components that may result in different outlooks towards the environment. In spite of the regularity of the inclusion of these elements, an overall consistency in results has not been revealed which again brings attention to the complexity of the analysis of these variables (Diamantopoulos, Schlegelmilch, Sinkovics, and Bohlen 2003; Dietz, Guagnano, and Stern 1998; O'Shaughnessy and Huddart-Kennedy 2010). For example, in Dietz et al.'s (1998) study of the GSS, the authors hypothesized that age would be the most effective demographic predictor concerning environmentalism, with the younger generations having a greater depth of concern for the environment than their older counterparts. They found that younger generations did express higher concern and activism than older generations, but did not score higher in concern than the baby boomer generation (Dietz et al. 1998). In reference to recycling behavior, Diamantopoulos et al.'s (2003) study of a British sample and Johnson, Bowker, and Cordell's (2004) analysis of a national data survey within the U.S. (National Survey on Recreation and the Environment) also generated conflicting research by establishing that the older adults were the cohort with the higher level of recycling behavior. This exemplifies the intricacy of general blanket statements attempting to summarize environmental concerns and behaviors.

The demographic variable of income is also often hypothesized to have a positive effect on pro-environmentalism. It may be perceived that those with more financial resources would be more willing to promote environmental behaviors. However, income is not regularly found to predict pro-environmental attitudes or behaviors (Mertig and Dunlap 2001; Saphores et al. 2012). The analysis of race, on the other hand, produces conflicting results (Diamantopolous et al. 2003; Dietz et al. 1998; Johnson et al. 2004). Unfortunately, the dominant amount of research concerning race has focused only on whites and blacks and mostly within the United States. Dietz et al. (1998) found in their analysis of the 1993 GSS that Blacks exhibit more pro-environmental behaviors with regard to consumer behavior but were less likely to sign a petition. Johnson et al. (2004) discovered that Blacks expressed a lower level of concern than Whites. Johnson et al. (2004) also indicated that Latinos' concern for the environment differed depending on the nationality of the respondent, with U.S. born Latinos showing more concern. The subject of ethnicity as a whole is often ignored however, and is why a Hispanic variable will be included in this analysis.

Geographic location of residence is also a factor acknowledged in environmental research. Huddart-Kennedy et al. (2009a) found urban residents to historically score higher on tests designed to indicate levels of pro-environmental behaviors, while rural residents often exhibit greater concern. In reality, the authors explain that rural residents may be promoting pro-environmental attitudes and behaviors that aren't recognized by dominant measurement methods (for example, growing their own food). Huddart-Kennedy et al. (2009a) remind readers to ponder potential measurement error in conjunction with other explanations (namely socialization, rural to urban migration, and proximity to environmental opportunities such as recycling) as potential

reasons the urban residents historically displayed higher pro-environmental behaviors. Urban residents may recycle more frequently due to the minimal amount of effort needed in comparison to rural residents.

Due to the variations of results regarding environmental attitudes and behaviors, the purpose of this paper is to further examine variables known to affect these elements. Distinct to this analysis is the inclusion of the ethnic variable representing Hispanics. Also, the analysis of the effect of children living in the home has on environmental concern and behavior is executed, which is rarely seen in the literature. Data from the most recent General Social Survey (2010) will be utilized to understand the outcome of comparing education, political ideology, gender, familial characteristics (marital status or children residing in the residence), subjective religiosity and spirituality on respondents' perception on what they do to aid the environment, their personal concern for the environment, and their behavioral actions toward recycling. This analysis will also include controls for the demographic variables of age, income, race or ethnicity, and region (urban/ rural and Southern residence).

CHAPTER 3

METHODS

Many of these environmental variables have been used in similar studies with smaller samples and previous national data sets (see Diamantopoulos et al 2003; Dietz et al. 1998; Huddart-Kennedy et al. 2009a; Saphores et al. 2012). This analysis utilizes data from the 2010 General Social Survey (GSS). The GSS is a national data set constructed from survey research done by the National Opinion Research Center (NORC) based at the University of Chicago. The data gathered gives its users the ability to compare and analyze social trends nationally as well as internationally. In order to accurately study trends within the United States, the GSS asks a consistent central set of demographic questions followed by special interest inquiries. The 2010 GSS is selected for the current study and is a probability sampling of English and Spanish speaking adults (18 years or older) residing in non-institutional arrangements.

Dependent Variables

Three dependent variables pertaining to environmental issues are selected for the analysis. The first dependent variable references the respondent's belief toward their effort in aiding the environment. The respondent was asked to answer the statement "I do what I can to help the environment, even when it costs more money and takes up more time." The answer choices were (1) strongly agree, (2) agree, (3) neither agree or disagree, (4) disagree, and (5) strongly disagree. Respondent's answering "don't know," "not applicable," or those failing to answer all together were eliminated from this analysis. For the purpose of this analysis, the

responses are reverse coded such that higher scores correspond to more pro-environmental attitudes.

The second question states, “Generally speaking, how concerned are you about environmental issues? Please tell me what you think, where 1 means you are not at all concerned and 5 means you are very concerned.” Again “don’t know” or unanswered replies are eliminated from the analysis. Given the similarities between these two dependent variables pertaining to environmental attitudes, they are combined to create one attitudinal dependent variable with a ten point scale varying from not at all concerned (1) to very concerned (10).

Lastly, the dependent variable of recycling was included in this analysis in order to reference a behavioral pattern. The question asked to respondents reads, “How often do you make a special effort to sort glass or cans or plastic or papers and so on for recycling?” The responses include (1) always, (2) often, (3) sometimes, and (4) never. All other answer options were excluded. For the analysis, this variable is recoded such that higher scores reflect more pro-environmental attitudes.

Independent Variables

Education

Educational attainment is utilized in this analysis to determine if educational achievement affected environmental attitudes or behaviors. The GSS measures educational attainment on a scale of 0 (no formal education) to 20 years (most amount of years of formal education). Year 12 would be considered a high school diploma. Each year beyond high school is assumed to be a subsequent year in college, graduate school, or post graduate school.

Political Views

Given the assumed influence of political ideology on environmental attitudes and behaviors, a question regarding political views is included in the analysis. The question is worded as follows, “We hear a lot of talk about liberals and conservatives. I’m going to show you a seven point scale on which the political views that people might hold are arranged from extremely liberal- point 1- to extremely conservative- point 7. Where would you place yourself on this scale?” The answer options are described as (1) extremely liberal, (2) liberal, (3) slightly liberal, (4) moderate or middle of the road, (5) slightly conservative, (6) conservative, and (7) extremely conservative. Refusals to answer or answers of “don’t know” are eliminated from the analysis. Consistent with the coding strategy for the dependent variable, the values for the political ideology variable are reverse coded. Hence, extremely conservative is coded (1) and extremely liberal is coded (7).

Gender

A dummy variable representing female respondents is created and male respondents will be the reference category. Therefore, females are coded (1) and males are coded (0).

Familial Status

The questions referencing familial status included inquiries about marital status and whether the respondents had kids still living at home. The question pertaining to marriage asked “Are you currently- married, widowed, divorced, separated, or have ever been married?” and had the reply options of (1) married, (2) widowed, (3) divorced, (4) separated, (5) never married, and (6) no answer. The responses are recoded to include only three categories. Dummy variables are

created to represent respondents who are married or widowed, divorced or separated, and never married. Never married respondents are the reference category.

The GSS also includes questions concerning household composition. Three questions are asked concerning whether there are children of a particular age group in the household. The first question asks how many children under the age of six in the household. A second question is asked whether any children are in the household who are six to twelve years of age, and a third question asks if there are any teenagers living in the house. For the purpose of this analysis, a dummy variable is created for households who have any children eighteen or under living in the household. The omitted or reference category is for households with no children in the household.

Religiosity

Public religiosity is measured by the following question: “How often do you attend religious services?” Responses are coded (0) never, (1) less than once a year, (2) about once or twice a year, (3) several times a year, (4) about once a month, (5) 2-3 times a month, (6) nearly every week, (7) every week, and (8) several times a week. No answer and “don’t know” are eliminated from the analysis.

Subjective religiosity is measured by an individual’s religious self-concept and how important religion is in their everyday lives. The question in the GSS was: “To what extent do you consider yourself a religious person? Are you...” The possible responses to this question were (1) very religious (2) moderate religious (3) slight religious (4) not religious. All other answer options were eliminated. The answer options are reverse coded so that not religious is represented by (1) and very religious is represented by (4).

Spirituality

Subjective spirituality is measured by how individuals define their relationship with a high power and their own moral beliefs that exist independently of organized religion. The question in the GSS was: “To what extent do you consider yourself a spiritual person? Are you...” The possible responses to this question were (1) very spiritual (2) moderate spiritual (3) slightly spiritual (4) not spiritual at all. Not applicable and don’t know responses were eliminated. The answer responses are reverse coded in the same format as the religiosity response options.

Control Variables

Sociodemographic Variables

A number of sociodemographic variables are included in the analyses. Age is coded in actual years and ranges from eighteen to eight-nine.

Family income is coded as (1) under \$1,000, (2) \$1,000 to 2,999, (3) \$3,000 to 3,999, (4) \$4,000 to 4,999, (5) \$5,000 to 5,999, (6) \$6,000 to 6,999, (7) \$7,000 to 7,999, (8) \$8,000 to 9,999, (9) \$10,000 to 12,499, (10) \$12,500 to 14,999, (11) \$15,000 to 17,499, (12) \$17,500 to 19,999, (13) \$20,000 to 22,499, (14) \$22,500 to 24,999, (15) \$25,000 to 29,999, (16) \$30,000 to 34,999, (17) \$35,000 to 39,999, (18) \$40,000 to 49,999, (19) \$50,000 to 59,999, (20) \$60,000 to 74,999, (21) \$75,000 to 89,999, (22) \$90,000 to 109,999, (23) \$110,000 to 129,999, (24) \$130,000 to 149,999, and (25) \$150,000 and over. Mean substitution will be used in place of the “refused to answer,” “don’t know,” and “no answer” response options.

Race and Ethnicity is identified by using the questions concerning race and Hispanic identification. For purposes of this analysis, respondents who identify as White, African American, or Hispanic (regardless of race) are included. Dummy variables for African American and Hispanic respondents are created with White respondents serving as the reference category.

Urban residence is measured using the SRC Belt Code (Survey Research Center, University of Michigan). The variable is recoded so that the “central city of the 12 largest SMSAs” is coded (6), “central city of the remainder of the 100 largest SMSAs” is coded (5), “suburbs of the 12 largest SMSAs” is coded (4), “suburbs of the remaining 100 largest SMSAs” is coded (3), “counties having towns of 10,000 or more” is coded (2), and “counties having no towns of 10,000 or more” is coded (1). Therefore, the higher numbers correspond with more urban areas.

Lastly, regional residence is included in the analysis in order to estimate whether southern residence affects environmental attitudes and recycling behavior. Answer options to the regional residence question in the GSS are (1) New England, (2) Middle Atlantic, (3) East North Central, (4) West North Central, (5) South Atlantic, (6) East South Central, (7) West South Central, (8) Mountain, and (9) Pacific. A dummy variable is created to represent the south (South Atlantic, East South Central, and West South Central) with “other” being the reference code (0).

Analytical Strategy

Multiple regression is used to analyze the impact of attitudinal, behavioral, and social demographic variables on attitudes toward the environment and recycling. Table 1 will exhibit the means and standard deviations for all dependent and independent variables. Table 2 will

show the results of each of the dependent variables regressed on the independent variables and
Table 3 will show the results of each dependent variable regressed on the independent and
control variables.

CHAPTER 4

RESULTS

The results of the analyses are presented in Table 1, Table 2, and Table 3. Table 1 displays the means and standard deviations for environmental attitudes and recycling behaviors. The mean for the environmental attitudes scale (constructed from the two items described in the methods chapter) is 7.24 with a standard deviation of 1.60 on a ten point scale. Higher scores on the scale indicate more environmental concern. The mean for recycling is 2.90 on a four point scale with a standard deviation of 1.08. Higher scores represent more frequent recycling behavior.

Table 1 also shows that the means and standard deviations for the major independent variables, familial components, subjective religiosity and spirituality, and the sociodemographic variables. Since the two sample sizes from the GSS are very similar, the means and standard deviations for the 1282 respondents in the analysis for recycling behavior will be reported.

The mean for political ideology is 3.87 with a standard deviation of 1.45. This indicates that respondent's political ideology tend to be moderate, or toward the middle of the road. The mean level of education completed is 13.46 years, or completion of high school and some college. The mean for the female dummy variable is .575 and indicates that just over half of the respondents are female.

Familial components include the individual's marital status and whether or not they have children living at home. The proportions demonstrate that approximately 30 percent of respondents are single, 19 percent are divorced or separated, and the remaining 51 percent are married or widowed. Under one third reported that they have children living at home.

In regards to religion, the mean for attendance at religious services is 3.51. This indicates that respondents attend services on average between “several times a year” and “about once a month.” The mean for subjective religiosity is 2.58 with a standard deviation of .972. Therefore, respondents are between slightly and moderately religious. The mean for subjective spirituality is 2.87 and denotes that the tendency is for individuals to consider themselves moderately spiritual.

The sociodemographic variables are the last group shown in Table 1. The mean family income is 16.59 on a 25 point scale. The average age is 48 years old. The mean for the SRC Beltcode urban scale (a six point scale with higher scores representing more urban residence) is 2.97 with a standard deviation of 1.49. Roughly 38 percent of respondents reside in the south. The majority of respondents are white. African Americans represent approximately 16 percent of the sample and 12 percent are Hispanic.

**Table 1:
Descriptive Statistics**

Dependent Variables:	Environmental Attitudes N=1274		Recycling Behavior N=1282	
	Mean	SD	Mean	SD
Environmental Attitudes	7.24	1.60		
Recycling Behavior			2.90	1.08
<i>Independent Variables</i>				
Political Affiliation	3.86	1.45	3.87	1.45
Education	13.54	2.98	13.46	3.02
Female	.575	.494	.575	.495
<i>Familial Components</i>				
Single	.300	.454	.296	.455
Divorced	.192	.394	.193	.395
Kids at Home	.283	.450	.284	.451
<i>Religion</i>				
Attendance at Religious Service	3.51	2.78	3.51	2.79
<i>Subjective Religiosity</i>				
Religious Person	2.57	.973	2.58	.972
<i>Subjective Spirituality</i>				
Spiritual Person	2.87	.952	2.87	.952
<i>Sociodemographic Controls</i>				
Income	16.59	5.57	16.49	5.61
Age	47.96	17.56	47.89	17.64
Urban Residence	2.98	1.50	2.97	1.49
Southern Residence	.386	.486	.381	.486
Black	.155	.362	.162	.369
Hispanic	.119	.324	.119	.323

Environmental Attitudes

Table 2 demonstrates the results of two multiple regression models. The first analysis regresses environmental attitudes on education, gender, marital status, children living at home, religiosity, and spirituality.

**Table 2:
Multiple Regression Results:
Effects of Variables on Environmental Attitudes and Recycling Behavior**

Independent Variable	Environmental Attitudes Model 1	Recycling Behavior Model 2
Political Affiliation	.166 / .151** (.032)	.067 / .090** (.021)
Education	.008 / .014 (.015)	.056 / .157** (.010)
Female	-.073 / -.023 (.091)	.013 / .006 (.061)
Single	-.064 / -.018 (.104)	-.373 / -.156** (.069)
Divorced	.236 / .058* (.118)	-.299 / -.109** (.079)
Kids at Home	-.243 / -.069* (.099)	-.239 / -.100** (.066)
Attendance at Religious Service	.037 / .065 (.020)	-.008 / -.022 (.013)
Religious Person	-.150 / -.092* (.064)	-.052 / -.047 (.042)
Spiritual Person	.249 / .148** (.056)	.033 / .029 (.037)
Intercept	6.126	Intercept 2.175
N	1274	N 1282
R ²	.048	R ² .075

Note: Cell entries are given as unstandardized regression coefficient/ standardized (beta) coefficient with the standard error given in parentheses. * $p < .05$ ** $p < .01$

The regression model for environmental attitudes explains 4.8 percent of the variance. Political Ideology shows a significant positive effect on environmental attitudes. That is, a one unit increment in political ideology leads to a .166 in attitudes controlling for all other variables in the model. Therefore, the closer one scores to politically liberal on the scale, the greater their concern for the environment. Surprisingly, education, whether an individual is female, or whether a participant is single were not statistically associated with environmental attitudes. This Model does indicate that divorced people are more likely to express concern towards the environment net the effect of other variables in the model. The last family variable, children living at home, has a negative effect on environmental attitudes, meaning that respondents with children living in the home were less concerned.

When considering religion, attendance at religious services does not significantly impact concern for the environment. However, if people consider themselves religious, they are less likely display positive environmental attitudes. The opposite is indicated if respondents consider themselves spiritual. The more spirituality a person expresses, the more likely they are to show concern for the environment.

Table 3 shows the results for the two dependent variables once sociodemographic controls are entered into the models. The Model for environmental attitudes with the sociodemographic variables shows that four of the five effects in the Model in Table 2 remain statistically significant. The impact of children living at home is no longer significant. The Model explains 5.5 percent of the variance in environmental attitudes.

Table 3 demonstrates that age and Hispanic respondents impact attitudes. That is, a one year increment in age leads to a .007 increase in environmental concern controlling for all other

variables in the model. In addition, Hispanic respondents are more likely to express pro environmental attitudes.

Table 3:
Multiple Regression Results
Effects of Sociodemographic Variables on Environmental Attitudes and Recycling Behavior

Independent Variable	Environmental Attitudes Model 2	Recycling Behavior Model 2
Political Affiliation	.154 / .140** (.032)	.061 / .082** (.021)
Education	.016 / .031 (.017)	.044 / .122* (.011)
Female	-.073 / -.023 (.092)	.052 / .024 (.060)
Single	.023 / .006 (.133)	-.077 / -.032 (.087)
Divorced	.244 / .060* (.122)	-.193 / -.070* (.079)
Kids at Home	-.188 / -.053 (.109)	-.104 / -.043 (.071)
Attendance at Religious Service	.030 / .052 (.020)	.000 / .000 (.013)
Religious Person	-.170 / -.104* (.064)	-.033 / -.030 (.041)
Spiritual Person	.255 / .152** (.056)	.034 / .030 (.036)
Income	.001 / .005 (.009)	.009 / .044 (.006)
Age	.007 / .072* (.003)	.009 / .147** (.020)
Urban Residence	.017 / .015 (.031)	.081 / .112** (.020)
Southern Residence	.034 / .010 (.095)	-.290 / -.130** (.062)
Black	.122 / .028 (.137)	-.327 / -.111** (.087)
Hispanic	.306 / .062* (.151)	-.073 / -.022 (.098)
Intercept	5.614	Intercept 1.477
N	1274	N 1282
R2	.055	R2 .136

Note: Cell entries are given as unstandardized regression coefficient/ standardized (beta) coefficient with the standard error given in parentheses. * p < .05 ** p < .01

Recycling Behavior

The second analysis in Table 2 regresses recycling behavior on education, gender, marital status, children living at home, and spirituality. The regression model for recycling behavior describes 7.5 percent of the variance. Political ideology again is significant and positively associated with recycling behavior. Specifically, a one unit increment in political ideology leads to a .067 in recycling behavior, indicating more liberal individuals are more likely to recycle. Education also shows a significant positive effect on recycling attitudes with a one unit increment in education leading to a .056 increase in recycling behavior. Gender does not have a significant effect.

Marital status and whether there were children in the home have negative effects on recycling behavior. Those who are single, divorced, or who have kids at home are less likely to recycle compared to married respondents. None of the variables pertaining to religion or spirituality (attendance at religious services, subjective religiosity, and subjective spirituality) have a significant effect on recycling behavior.

Table 3 indicates the results of the analysis concerning recycling behavior when controlling for demographics. Both political affiliation and education remain significant. Therefore, the more liberal and higher educated people more frequently recycle. Whether a person is single or whether they have children at home is no longer significant. If a person is divorced still has an impact on recycling behaviors; divorced individuals remain likely to recycle less. Age and residential variables do have an effect on recycling behaviors. Recycling behavior is more prevalent among older respondents with a one unit increment in age resulting in .147 increase recycling behavior. A significant positive relationship is found between urban residents

and recycling behavior while a negative relationship exists when considering region of residence (southerners are less likely to recycle). In regard to race and ethnicity, Blacks are less likely to recycle and whether a person was Hispanic had no effect. The Model explains 13.6 percent of the variance.

CHAPTER 5

DISCUSSION

The purpose of this paper was to examine correlates of individuals' concern for the environment and recycling behaviors. Previous research (Diamantopoulos et al. 2003; Dietz, Guagnano, and Stern 1998; McCright 2010) has frequently examined the influence of education and has found that higher education correlates with greater concern for the environment and more willingness to recycle. Surprisingly, the results of this analysis differ in regard to environmental concern; educational attainment was not significantly associated with a person's concern for the environment. However, education did have a positive influence on recycling behavior; respondents with higher levels of education did report more frequent recycling behaviors. This effect pertaining to recycling habits remained significant after sociodemographic controls were added to the analysis.

Another commonly tested variable involves the political views of the public in regards to environmental views and behaviors. Consistent with the literature, individuals who considered themselves more liberal than conservative were more concerned for the environment and expressed a greater frequency of recycling. It is well documented that politically liberal persons are shown to support environmental causes, therefore this finding was expected. This effect held after sociodemographic controls were added. A more unexpected outcome involved that of gender, which did not have a significant influence on environmental concern or recycling behaviors.

A general presumption remains that familial components, including marital status and children living in the home, would have a positive effect on pro environmental attitudes and

behaviors (Diamantopoulos et al. 2003). An argument could be made that the family unit would inspire more regular habits, including recycling, and that parents may desire to set a positive example for their children regarding preservation of resources. Divorced and otherwise single persons may be understood to have a less routine lifestyle, complicating their ability or willingness to recycle more frequently. In this analysis, while those who were divorced recycled less, a positive effect was found in reference to concern for the environment. This discrepancy could relate to a lifestyle that is not conducive to easy access to recycling options. These effects remained when controls were added. No significant influence was found between single persons and environmental concern. In the first analysis, single people recycled less frequently, but this influence dissipated when the control variables were added. Surprisingly, parents were less likely to express environmental concern and to recycle frequently. Although the results did not hold when the controls were added, this is an interesting addition to the existing literature. It is conceivable that individuals with children in the home are too preoccupied to take the time needed to pay attention to environmental matters but further analysis is needed to confirm this.

Attendance at religious services did not significantly impact recycling behaviors. However, people regarding themselves as more religious expressed less concern for the environment, which is consistent with previous findings (Dietz, Guagnano, and Stern 1998; Greeley 1993). A number of factors may contribute to this outcome including a strict adherence to the bible, a parallel view between religious and political conservatism, and an inclination to consider the human species superior to other elements. As expected, respondents who considered themselves spiritual conveyed greater concern for the environment. This did not extend to recycling behavior, however. Those who deemed themselves spiritual were not any more likely

to recycle more frequently than other groups. Perhaps a spiritual connection with the nature does not equate to a desire to act in environmentally friendly ways. Each of these results held when the control variables were added.

Sociodemographic variables are widely utilized in the analysis of environmental issues (Diamantopoulos et al. 2003; Dietz et al. 1998; Huddart-Kennedy et al. 2009a; O'Shaughnessy & Huddart-Kennedy 2010) yet the results vary depending on the focus of the study. Younger generations are often hypothesized to express more concern and act in more pro-environmental manners than older generations (Dietz et al. 1998). Associations are made between education and current issues with an assumption that the individuals within the current education system, or the younger generations, are more knowledgeable about environmental matters (Diamantopoulos et al. 2003). However, results conflict. This could be due to a focus on different aspects of environmentalism. For example, the elderly may be less environmentally active because they have fewer physical abilities or have a greater number of other commitments. In this study, older respondents were found to possess more environmental concern and were recycled more frequently, refuting the assumption that younger people are more environmental.

In regard to race, former research generally only includes the Black and White races and largely ignores ethnicity. Dietz et al. (1998) suggested that Blacks may actually retain greater environmental concern but are inclined to dedicate themselves to other causes pertaining to public issues. This study did not find a correlation between the Black race and environmental concern. A significant relationship was found in regard to recycling behavior, with Blacks recycling less. Hispanics were shown to have a greater concern for the environment in this study but no statistically significant effect was found on recycling. It would prove worthwhile to

divulge further into the subject of ethnicity, given the complex ethnic make-up of the United States. Those ethnicities that do express greater concern may not have proper access to recycling centers or curbside services, or simply may lack awareness, which would discourage recycling behavior.

Urban residents in this study did not differ from comparison groups in environmental concern, yet they were found to participate in recycling activities at a greater rate. Huddart-Kennedy et al. (2009a) explain that this may be due to the fact that urbanites have better access to recycling facilities. This brings forth the notion that people may recycle out of mere convenience rather than out of great concern for the environment. Further analysis would be useful in determining this relationship. Recycling programs could potentially increase their success rates if programmed around an understanding of the public and their recycling behavior.

These results further the existing literature by assessing the most recent General Social Survey. It was important to include these variables in order to analyze any potential shifts from preceding data. Regardless of an individual's inclination towards the environment, the earth provides mankind with means of living, and therefore understanding how to best utilize and preserve this resource warrants further research. Industries interested in discovering which part of the population expresses concern for the environment in comparison to those who actually recycle could use this analysis as a facilitator to furthering understanding.

This analysis also offers the addition of an ethnicity variable. The United States is comprised of a diverse ethnic make-up, with Hispanics noticeably existing as the largest minority group. If these cultures are to share the same resources they deserve inclusion in the research studies regarding the topic. Considering that in this study respondents classifying themselves as

Hispanic had a positive relationship with environmental concern, additional enquiry should be considered in order to discover why this does not extend to pro-environmental action.

Conclusion

Environmentalism remains an ever present subject matter worthy of a deeper awareness. Whether for the sake of preservation of the planet or merely for the conservation of the resources necessary to live, understanding the opinions and behaviors of the public will allow for a more effective preservation plan. It is also essential to analyze both the attitudes of the population and the actions as a highly concerned public is not always motivated to act. In the same regard, an environmentally active population may be so for reasons other than environmental concern. If policy is enacted or amended without the analysis of such attributes, an outcome opposing the implemented goal may result.

This study's aim was to analyze the relationships of multiple influences on environmental attitudes and behaviors. The results indicated that political liberals and older individuals are more likely to possess higher environmental concern and to recycle more often. Higher education and urban residence are also factors positively correlating with recycling behaviors while those who are divorced, live in the south, or are of the Black race recycle less regularly. Surprisingly, divorced respondents and those of Hispanic ethnicity showed a higher concern for the environment than comparison groups. Spiritual respondents did possess higher environmental concern than those considering themselves religious, although no statistically significant effect was found for either in regards to recycling. The examination of attendance to religious services did not produce a relationship.

These results do not bring any new information in regards to political ideology or religion. However, they do indicate areas of interest for further analysis. A limited amount of literature addresses the relationship between children in the home and environmentalism. While the effect was lost with the addition of the control variables, it would be interesting to explore why the presence of children in the residence has a negative effect on environmental concern and recycling. Another area of interest involves the lack of follow up between environmental concern and recycling behavior. It would prove useful to study public motivation considering that a higher level of concern, but lack of recycling behavior is indicated in divorced respondents, those that consider themselves spiritual, and those of the Hispanic ethnicity. If recycling behavior is a community goal, further analysis of why certain groups express concern but do not follow up behaviorally is warranted. Lastly, the existing literature could benefit from further analysis into the attitudes and behaviors of different ethnicities. Environmental research would benefit from encompassing a whole of society approach rendering the actions and opinions of all members relevant. Given the importance of environmental topics, it is the hope of this study that these issues will continue to be explored, supported by the notion that humans and the environment are indeed interconnected, and that the resources at hand may be finite.

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