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The Social Drivers of Conservation: Social Capital, Environmental Concern and Transportation

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1. Introduction

1.1 Social bonds and conservation

What kinds of personal ties to organizations, community and family would be most strongly associated with pro-environmental behavior, especially within the realm of transportation? What role do participation in community activities and organizations play in motivating people to engage in carpooling, rideshare programs and other environmentally beneficial activities which might not themselves generate an immediate material payback or benefit for individuals? In this paper, we propose that the work on social capital provides novel insights into the constraints and opportunities shaping individual environmental and transportation behavior. Specifically, we are interested in why – given their interactions with friends, family and neighbors – people opt to make changes in transportation and other environmental-friendly behavior.

1.2 Well-intentioned but inadequate efficiency-based solutions

Despite increased levels of interest in addressing the global challenges of climate change, and other ecological problems of anthropogenic origin, the lack of political sponsorship on the part of the U.S. and other governments to put in place the array of regulatory reforms necessary to lessen the likelihood of environmental calamity continues to be a problem (World Bank 2012). Moreover, it is not clear that the consumer-oriented strategies already in place and designed to reorient patterns of consumption will lead to a net reduction in environmental impacts. Specifically, increasing fuel efficiency in motor vehicles, and replacing incandescent light bulbs with compact fluorescents will likely not be enough to reduce greenhouse gas (GHG) emissions to levels necessary to prevent irreversible climate change by the middle part of this century (Hansen et al. 2008). Researchers in this area have long observed a "rebound effect" with relation to technological advances in efficiency which have only resulted in the increased utilization of the technology in question (Clark and Foster 2001; Greene, Kahn, and Gibson 1999; Jevons 2001; York and Rosa 2003). In the case of automobiles this has meant that the benefits of greater fuel efficiency have been outweighed by increased vehicle ownership and greater miles per year driven by the average driver (Portney, Gruenspecht, and Harrington 2003).

1.3 The significance of social capital for pro-environmental behavior and transportation

The growing literature on social capital and social networks has highlighted the importance for individuals and communities of being connected to others in a number of different arenas, including access to childcare, educational outcomes, housing, job market opportunities, and personal health (Coleman 1988; Kawachi, Kennedy and Glass 1999; Putnam 1993; Putnam 2000; Röper et al. 2009; Sanders and Nee 1996; Thompson 2009; Tierney and Venegas 2006). The underlying theme here is that people with more extensive social networks are exposed to a greater diversity of views and information upon which they may base their attitudes and behavior (Granovetter 1985; Granovetter 1973). In an effort to better understanding the influence of social connection on pro-environmental behavior, we focus here on two well-established elements of social capital research: relational and collective social capital.

1.3.1 Relational Social Capital

Research on relational social capital draws our attention to an individual's structure of relationships with others which may be used to obtain useful information, material resources, or influence (Brunie 2009; Foley and Edwards 1999; Portes 1998). In contrast to the instrumental use of network ties to attain a specific goal – professional advancement, for example – we focus here on "accessed social capital," i.e., the accumulated informational and resource benefits of routine interactions embedded in an individual's established array of network ties (Brunie 2009; Portes 1998). Such advantages, be they access to high, low or popular forms of culture, or greater insight into personal health and diet (Erickson 2003; Erickson 1996), are a product of social interaction itself and may accrue without any intention on the part of the individual in question (Lin 2008).

The distinction between strong and weak network ties is crucial within the relational framework (Granovetter 1973). Strong ties refer to one's closest relationships where there exists a high degree of mutual affinity and where one may find the most important sources of emotional support in the company of close friends and kin. Though obviously important psychologically, the primary weakness of strong ties is that they provide redundant information. Along with being exposed to similar sources of news and entertainment, the people to whom we are closest tend to, on the whole, share our views and reinforce our beliefs.

Given the tendency in American culture to value economic growth, individualism and free market imperatives over environmental protection (Brown 1981; Cotgrove 1982; Dunlap and Van Liere 1978; Dunlap et al. 2000; Pierce et al. 1992; Pirages and Ehrlich 1974), we hypothesize that people with a greater frequency of interactions among their strong ties would tend to encounter fewer challenges to status quo perspectives and thus be reluctant to engage in conservation or other behaviors that might lower human impact on the environment. In contrast, we expect that people with a greater frequency of interactions with others in the community who do not constitute their closest relationships would be

exposed to a greater variety of perspectives that differ from the status quo and thus, controlling for other relevant factors, be more likely to engage in conservation and environmentally beneficial behavior. That is, exposure to a greater diversity of opinion and experience will increase the likelihood of adopting consumer and conservation behaviors that benefit the environment and society, more broadly.

1.3.2 Collective Social Capital

Volunteering, attending public meetings and participation in local clubs and associations are all activities that tend to structure face-to-face interactions among members of a community and which are characteristic of collective social capital. Putnam (1993 and 2000) has focused his research in this area on the significance of community organizations such as bowling leagues, church groups and the PTA. Others have given greater attention to how social norms and sanctions within local communities can foster a sense of trust and personal safety; features which themselves tend to generate higher levels of collective social capital (Coleman 1988; Portes and Sensenbrenner 1993).

The positive outcomes of collective social capital are evident in both the developing world where small communities may effectively pool resources to solve collective problems (Krishna 2002; Lyon 2000), and in economically advanced societies where local and regional collectivities establish neighborhood watch associations, community gardens, babysitting circles and carpooling alternatives to single-occupancy vehicle commutes (Brunie 2009; Macias 2008; Newton 1997). From this angle, social interactions are not an end in and of themselves, but rather the basis for mutual trust which facilitates both the exchange of useful information and mutually beneficial collaboration within a given community (Putnam 2000; Stolle and Rochon 1998).

1.3.3 Generalized Trust

The ability of people to cooperate with and trust in others, is not restricted to trust in individuals a person knows, but may also reflect a widespread and generalized trust in the integrity of others (Brunie 2009; Newton 1997; Uslaner 1998). The source of generalized trust is still the basis of much debate, though research in this area suggests that civic engagement and participation in community activities, especially those that provide interaction with people of diverse social backgrounds (Stolle and Rochon 1998), tend to foster generalized trust among individuals rather than the other way around (Brehm and Rahn 1997).

The important point for the work presented here is that generalized trust among individuals is associated with positive altruistic outcomes, including volunteering, giving to charity, moderation and self-sacrifice (Brehm and Rahn 1997; Uslaner 2000; Uslaner 2008). We thus hypothesize that higher levels of generalized trust will be associated with a greater willingness to pay green taxes and other forms of self-sacrifice that in the long run will benefit both the environment and society as a whole.

2. Data Description and Methodology

The data used in this analysis comes from the 2010 General Social Survey (GSS), taking particular advantage of questions included in that year's environmental module. Questions from the environmental module address established areas of interest within environmental sociology (Dietz et al. 1998; Stern et al. 1999), including consumer behavior (6 items) and an array of questions tied to environmental values which we have endeavored to sort out and scale using exploratory factor analysis. Additionally, we have culled from both the core section of the GSS and the environmental module seven social capital questions tied to face-to-face interaction with friends, family and neighbors, generalized trust in other people and government, attendance of religious services, and time spent watching television.

2.1. Dependent Variables

Scale reliability coefficients for each of our three major outcome categories and their constitutive items are shown in Table 1. Consumer behavior questions, namely recycling, purchasing chemical free produce, using less water, using less household energy, driving less and avoiding products for environmental reasons were grouped into a composite variable we called "environmental lifestyle. The alpha for environmental lifestyle was 0.765. Individual items were reverse-scaled when necessary to assure higher values reflected better environmental outcomes.

Table 2-1. Dependent Variables

Variable	Description	N	Mean	SD
Environmental Lifestyle (alpha = .765)				
Recycle	How often do you make a special effort to sort glass or cans or plastic or newspapers and so on for recycling? (Reverse Scaled - Never, Sometimes, Often and Always: 1-4)	1394	2.904	1.081
Chemical-free fruits and vegetables	How often do you make a special effort to buy fruit and vegetables grown without pesticides or chemicals? (Reverse Scaled - Never, Sometimes, Often and Always: 1-4)	1385	2.158	0.982
Use less water	And how often do you choose to save or re-use water for environmental reasons? (Reverse Scaled - Never, Sometimes, Often and Always: 1-4)	1419	1.905	0.958
Use less household energy	How often do you reduce the energy or fuel you use at home for environmental reasons? (Reverse Scaled - Never, Sometimes, Often and Always: 1-4)	1417	2.288	0.974
Drive less	And how often do you cut back on driving a car for environmental reasons? (Reverse Scaled - Never, Sometimes, Often and Always: 1-4)	1321	1.761	0.875
Avoid certain products for the environment	And how often do you avoid buying certain products for environmental reasons? (Reverse Scaled - Never, Sometimes, Often and Always: 1-4)	1407	2.107	0.911
Willingness to Sacrifice for the Environment (alpha = .767)				
Higher taxes	And how willing would you be to pay much higher taxes in order to protect the environment? (Reverse Scaled - Very Unwilling, Fairly Unwilling, Neither Unwilling or Willing, Fairly Willing, Very Willing: 1-5)	1368	2.687	1.276
Higher prices	How willing would you be to pay much higher prices in order to protect the environment? (Reverse Scaled - Very Unwilling, Fairly Unwilling, Neither Unwilling or Willing, Fairly Willing, Very Willing: 1-5)	1361	3.079	1.218
Standard of living reductions	And how willing would you be to accept cuts in your standard of living in order to protect the environment? (Reverse Scaled - Very Unwilling, Fairly Unwilling, Neither Unwilling or Willing, Fairly Willing, Very Willing: 1-5)	1374	2.737	1.264
Greater costs of time or money for the environment	I do what is right for the environment, even when it costs more money or takes more time. (Reverse Scaled - Disagree Strongly, Disagree, Neither Agree Nor Disagree, Agree Strongly: 1-5)	1385	3.383	0.923

2.2 Independent Variables

A summary of the independent variables, including brief descriptions, means/percentages and standard deviations, is given in Table 2. The first set of controls consists of background variables, including age, gender (1 = male), a dichotomous race variable (1 = white), a dichotomous employment variable (1=fulltime), education, household income, a dichotomous variable for non-adult children in household (1 = at least one child), urban residence, and political views (1 = "extremely liberal to 7 = "extremely conservative"). Studies on the whole have found that age correlates negatively with environmental concern, though there is growing evidence that this is a cohort effect wherein more recent generations tend to be more informed and concerned about the environment than previous ones (Barr 2007; Evans and Jacobs 1981; Jones and Dunlap 1992; Kanagy, Humphry and Jacobs 1994).

Table 2-2. Background Independent Variables

Variable	Description	N	Mean	SD
Age of respondent	Min 23, Max 77	1414	52.595	11.719
Male	Female= 0, Male=1	1430	.424	.494
White	Other = 0, White = 1	1427	.721	.449
Fulltime	No = 0, Yes = 1	1427	.439	.496
Education	1= no high school diploma, 2 = high school diploma, 3 = some college, 4 = college graduate 5 = advanced degree	1430	2.586	1.227
Household Income	1 = under $1000 to 19,999, 2 = $20,000 to $34,999, 3 = $35,000 to $59,999, 4 = $60,000 to $89,999, 5 = $90,000 to $149,999, 6 = $150,000 and over	1255	2.939	1.549
Non-adult children in household	0 = No non-adult children in household, 1= One or more non-adult children in household	1428	.726	.446
Urban	6 = central city of 12 largest SMSAs, 5 = central city of the remainder of the 100 largest SMSAs, 4 = suburbs of the 12 largest SMSAs, 3 = suburbs of the remaining 100 largest SMSAs, 2 = other urban (counties having towns of 10,000 or more), 1 = other rural (counties having no towns of 10,000 or more), reverse-scaled	1430	2.987	1.502
Conservative	1 = extremely liberal, 2 = liberal, 3 = slightly liberal, 4 = moderate, 5 = slightly conservative, 6 = conservative, 7 = extremely conservative	1380	4.111	1.462

Women are shown to have higher levels of environmental concern than men (Barr 2007; Bickerstaff 2004; Finucane et al. 2000) as are individuals with higher levels of educational attainment, though this latter association appears to have waned over the years as the significance of liberal-versus-conservative political views has grown stronger (Barr 2007; Dietz, et al. 2007; Elliott, Regens and Seldon 1995; Hamilton 2008; Jones and Dunlap 1992).

Time spent at work and commuting may constrain the amount of time we have to interact with others outside of work (Portes 1998; Putnam 2000; Wilson 1996). We thus include a dichotomous measure of full-time employment as a control variable in our model.

With regard to household income, higher earners may be able to focus more energy and time on environmental issues than those who are less affluent (Inglehart 1995; Jones and Dunlap 1992). Another body of research, however, challenges this assertion arguing that those with high self-perceptions of agency and power are more likely to dismiss environmental concerns and risks because they have more control in their daily lives (Bickerstaff 2004; Kahan et al. 2005). Households with children may be especially interested in environmental issues because of concern about child safety and health and the future world they will eventually inhabit (Finucane et al. 2000).

Work in rural sociology has suggested that rural residents may be less supportive of environmental protection, principally because of the economic dependency of rural communities on extractive industries (Theodori, Luloff, and Willits 1998; Willits and Luloff 1995). More recent work has found that the growth in outdoor recreation and the draw of urban denizens to rural areas has lessened the rural/urban split vis-à-vis environmental concern (Allen 2004; Freudenburg 1991; Jones et al. 1999; Lyson and Guptill 2004). A more relevant concern in this regard for the present study is the regional availability of services such as public transportation and municipal recycling programs which, when used en masse, may lessen the environmental impact of consumer behavior.

The largest grouping of control variables fall under the category of environmental concern, reflecting the heavy emphasis on this area in the environmental sociology literature. For our environmental concern variables we included 22 of the 60 items from the environmental module of the 2010 GSS, excluding those items that: a) had already been used as outcome variables; b) did not directly concern the environment – e.g., questions about "faith in science" or the role of government in addressing inequality; c) concerned America's role in shaping global environmental policy; d) dealt with specific policy questions regarding the relative effectiveness of fines, taxes or education in promoting environmental protection; e) asked respondents to rank the importance of specific environmental issues; or f) had 15 percent or greater missing cases – these included questions concerning "post-materialism" and the risks inherent in producing genetically modified crops.

In order to create composite measures of underlying constructs, we conducted exploratory factor analysis. We obtained four initial factors with eigenvalues greater than one for the 22 environmental concern items. We extracted these factors using principal factoring and rotated them using a promax oblique rotation, keeping three factors with factor loadings of at least 0.35 and alphas of 0.7 or higher (Hamilton 2009: 341-44). In this fashion, we generated three composite variables: perception of environmental risk; value progress over the environment; and self-assessed knowledge of environmental issues.

Of the nine single-item indicators remaining, two of them – "There is no point in doing what I can for the environment unless others do the same," and "Almost everything we do in modern life harms the environment" – were consistently statistically insignificant across our models predicting pro-environmental behavior and, for the sake of parsimony, dropped from

the analysis. The remaining seven items are classified here within two broad categories of "personal impact" and "growth and the environment," and one thematically unique item, "science will solve our environmental problems."

Our social capital variables consist of five items that have been included in every year of the GSS since 1972 and two more recent items that have been included as part of the environmental module. Of the older questions, three concern the frequency of social evenings spent with relatives, neighbors and friends outside of the neighborhood. Putnam (1995) used these variables to argue that neighborliness in America had declined between 1974 and 1993. Fischer (2009) used these same variables to help refute an earlier study (McPherson, Smith-Lovin, and Brashears 2006) which claimed that social isolation among Americans had increased dramatically over the previous 20 years. Most recently, this set of questions has been used to compare the relative effects of age, period and cohort on social capital in the U.S. over four decades (Schwadel and Stout 2012). "How often respondent attends religious services," and "Hours per day watching television" have also been used over the years to support or refute arguments about relative levels of community interaction (Putnam 2000).

The two more recent items consist of the expansion of an older dichotomous response question – "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" – into a five-point Likert scale, and a related question from the environmental module: "Most of the time we can trust people in government to do what is right." Neither exploratory factor analysis nor scale reliability tests of various combinations of the social capital variables suggested the presence of an underlying latent variable. They have thus been left as seven single indicators in the model.

2.3 Statistical Analysis

Analysis was carried out using STATA 12. Ordinary least-squared regressions were computed for environmental lifestyle (Table 3) using, first, only the nine background variables, and then the entire suite of independent variables described above. Both unstandardized and standardized (beta) coefficients are provided in the OLS table. Ordered-logit regressions were computed for all individual environmental lifestyle variables. However, chi-squared tests of five of the environmental lifestyle models showed that the parallel regression assumption of ordered-logit proportional odds had been violated (Long 1997: 140-45). For these five models, multiple response categories for dependent variables were collapsed into dichotomous responses (0 = "never" or "sometimes"; 1 = "often" or "always"), and logistic regression was used instead, as indicated in Table 4. Predicted changes in environmental lifestyle variables given changes in statistically significant social capital variables while holding all other independent variables at their means are shown in Figure 1.

So as to provide a relative sense of magnitude among the independent variables, the percentage change in odds for a standard deviation increase in the independent variable holding all other variables constant is shown alongside untransformed logistic and ordered-logistic coefficients in Tables 4-6 (Long and Freese 2006: 219).

Table 2-3. Environmental Concern Independent Variables

Variable	Description	N	Mean	SD
Perception of environmental risks (alpha = .805)	Composite of 7 questions: "Generally speaking, how concerned are you about environmental issues?" (Not at all - Very concerned: 1-5); "In general, do you think that air pollution caused by cars is…" (Not dangerous - Extremely dangerous: 1-5, reverse-scaled); "In general, do you think that air pollution caused by industry is…" (Not dangerous - Extremely dangerous: 1-5, reverse-scaled); "In general, do you think that pesticides and chemicals used in farming are..." (Not dangerous - Extremely dangerous: 1-5, reverse-scaled); "In general, do you think that pollution of America's rivers, lakes, and streams is..." (Not dangerous - Extremely dangerous: 1-5, reverse-scaled); "In general, do you think that a rise in the world's temperature caused by the `greenhouse effect', is…" (Not dangerous - Extremely dangerous: 1-5, reverse-scaled); "In general, do you think that nuclear power stations are…" (Not dangerous - Extremely dangerous: 1-5, reverse-scaled); (Min 12, Max 35).	1230	25.925	4.671
Value progress over the environment (alpha =. 701)	Composite of 4 questions: "There are more important things to do in life than protect the environment." (Strongly disagree - Strongly agree: 1-5, reverse-scaled); "We worry too much about the future of the environment, and not enough about prices and jobs today." (Strongly disagree - Strongly agree: 1-5, reverse-scaled); "People worry too much about human progress harming the environment." (Strongly disagree - Strongly agree: 1-5, reverse-scaled); "Many of the claims about environmental threats are exaggerated."(Strongly disagree - Strongly agree: 1-5, reverse-scaled); Min 4, Max 20	1290	11.424	3.182
Self-assessed knowledge of environmental issues (alpha = .772)	Composite of 2 questions: "How much do you feel you know about the causes of these sorts of environmental problems?" (Know nothing at all - Know a great deal: 1-5); "And how much do you feel you know about solutions to these sorts of environmental problems? (Know nothing at all - Know a great deal: 1-5); Min 2, Max 10	1367	5.469	1.884

Personal Impact				
"It's too difficult for me to do much about the environment"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1382	2.746	1.117
"Hard to know whether how I live is harmful or helpful"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1363	2.855	0.988
"Environmental problems directly affect my life"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1377	3.209	1.01
Growth versus the Environment				
"Economic growth always harms the environment"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1361	2.527	0.885
"Economic growth is needed to protect the environment"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1353	3.458	0.974
"Population growth at the present rate is unsustainable"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1327	3.356	1.038
"Science will solve our environmental problems"	Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5	1331	2.692	0.973

Table 2-4. Social Capital Independent Variables

Variable	Description	N	Mean	SD
Social evenings with relatives	Spend a social evening with relatives (Reverse Scaled - Never, About Once a Year, Several Times a Year, About Once a Month, Several Times a Month, Once or Twice a Week, Almost Every Day: 1-7)	1425	4.696	1.640
Social evenings with neighbors	Spend a social evening with someone who lives in your neighborhood (Reverse Scaled - Never, About Once a Year, Several Times a Year, About Once a Month, Several Times a Month, Once or Twice a Week, Almost Every Day: 1-7)	1426	3.499	2.056
Social evenings with friends	Spend a social evening with friends who live outside your neighborhood (Reverse Scaled - Never, About Once a Year, Several Times a Year, About Once a Month, Several Times a Month, Once or Twice a Week, Almost Every Day: 1-7)	1425	4.123	1.599
Most people can be trusted	Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please tell me what you think, where 1 means you can't be too careful and 5 means most people can be trusted.	1403	2.748	1.358
Trust people in government	Most of the time we can trust people in government to do what is right (Reverse Scaled - Disagree Strongly, Disagree, Neither Agree nor Disagree, Agree, Agree Stongly: 1-5)	1389	2.540	1.069
Attendance of religious services	How often do you attend religious services (Never, Less Than Once a Year, About Once or Twice a Year, Several Times a Year, About Once a Month, Two-Three Times a Month, Nearly Every Week, Every Week, Several Times a Week)	1425	3.500	2.794
Hours per day watching television	On the average day, about how many hours do you personally watch television? (Min, Max)	1426	3.027	2.766

Table 2-5. OLS Regressions

Variable	Environmental Lifestyle coefficient		beta	Willingness to Pay coefficient		beta
Background						
Age of respondent	0.000		-0.001	0.014		0.046
Male	**-0.692**	**	**-0.087**	0.050		0.007
White	-0.065		-0.007	-0.320		-0.039
Fulltime	-0.489		-0.062	0.134		0.019
Education	0.168		0.052	0.096		0.033
Household Income	-0.030		-0.012	0.014		0.006
Non-adult children in household	0.103		0.012	-0.212		-0.027
Urban	**0.222**	**	**0.084**	0.011		0.005
Conservative	-0.065		-0.025	-0.108		-0.045
Environmental Concern						
Perception of environmental risks (composite)	**0.238**	***	**0.280**	**0.165**	***	**0.214**
Value progress over the environment (composite)	-0.052		0.042	**-0.280**	***	**-0.249**
Self-assessed knowledge of environmental issues (composite)	**0.426**	***	**0.189**	**0.295**	***	**0.144**
Personal Impact						
It's too difficult for me to do much about the environment	-0.158		-0.043	-0.153		-0.046
Hard to know whether how I live is harmful or helpful	-0.231		-0.058	0.211		0.057
Environmental problems directly affect my life	**0.356**	**	**0.092**	**0.359**	***	**0.102**
Growth versus the Environment						
Economic growth always harms the environment	0.051		0.011	0.248		0.060
Economic growth is needed to protect the environment	0.235		0.059	-0.022		-0.006
Population growth at the present rate is unsustainable	**0.264**	*	**0.069**	**0.295**	**	**0.085**
Science will solve our environmental problems	-0.030		-0.007	0.157		0.043
Social Capital						
Relational Social Capital						
Social evenings with relatives	**-0.137**	*	**-0.055**	**-0.163**	*	**-0.073**
Social evenings with neighbors	**0.244**	***	**0.124**	**0.119**	*	**0.067**
Social evenings with friends	-0.029		-0.011	0.011		0.005
Generalized Trust						
Most people can be trusted	0.089		0.030	**0.265**	***	**0.099**
Trust people in government	0.014		0.004	**0.384**	***	**0.115**
Community Social Capital						
Attendance of religious services	0.073		0.051	**0.103**	**	**0.080**
Hours per day watching television	0.024		0.014	-0.042		-0.029
Constant	2.709			3.989		
Adusted R-squared	0.260			0.354		
N	851			882		

* p <0 .05; ** p < 0.01; *** p < 0.001

3. Results

3.1 Background Variables

In Table 5, ordinary least-squared regressions were computed for environmental lifestyle variables using the complete set of independent variables described above. The findings in Table 5 suggest that, with the exception of being male and urban living in the lifestyle model, the effect of background variables on our outcome variables is largely indirect, mediated by their relationship with environmental concern and social capital. Structural equation modeling using finer grain data would likely shed further light on these connections.

3.2 Environmental Concern

In the OLS regressions in Table 5, four of the environmental concern variables were statistically significant and positively correlated with the environmental lifestyle index – perception of environmental risk, self-assessed knowledge of environmental issues, environmental problems directly affect one's life, and concern over population growth.

Among the individual environmental lifestyle indicators (Table 6), the perception of environmental risks composite was significant and positively correlated with all environmental practices. Self-assessed knowledge was also important, being statistically significant in all but two of the Table 6 models: recycling and driving less. This likely speaking to the structural limitations of both these behaviors – even if you know recycling and reduced driving are good things, you will be severely limited from doing these things the place where you live lacks recycling service or public transportation, for example. The sense that environmental problem's directly affect one's life was an important variable, being positively related to using less energy, driving less, and avoiding purchasing products for environmental reasons. The personal impact variable concerning the sense that it is difficult for an individual to do much about the environment was negatively tied to water conservation and driving less. Concern over unsustainable population growth was positively tied to water and energy conservation.

For the individual lifestyle variables (Table 6) being male was statistically significant and negatively correlated in three of the four models – buying chemical free produce, using less water and avoiding non-green purchases – while the urban variable was positively tied to recycling, purchasing chemical free produce and driving less. Obviously, in the last instance, there will simply be more opportunities to drive less in a high-density urban context than not. Household income was statistically significant and had opposite ties with two of the lifestyle outcomes; positively correlated with recycling and negatively correlated with buying chemical free produce.

Table 3-1. Logistic and Ordered-logistic Coefficients for Social Capital Variables Regressed

Variable	Recycle [a]	Buy chemical-free fruits	Use less water [a]	Use less household energy [b]	Drive less [a]	Avoid non-green products [a]
Social Capital						
Relational Social Capital						
Social evenings with relatives	-0.069	0.047	-0.024	-0.05	**-0.172** **	-0.086
Social evenings with neighbors	0.058	**0.083** *	**0.141** ***	**0.090** **	**0.102** *	0.046
Social evenings with friends	0.006	-0.012	-0.038	0.024	-0.105	0.059
Generalized Trust						
Most people can be trusted	0.059	-0.036	-0.001	0.030	0.035	-0.034
Trust people in government	-0.064	0.010	0.041	0.077	-0.018	0.015
Community Social Capital						
Attendance of religious services	-0.003	**0.054** *	0.020	0.020	-0.035	0.039
Hours per day watching television	0.041	-0.044	0.043	0.031	0.053	-0.013
Constant	**-3.470** **	**-4.007** ***	**-4.481** ***		**-3.224** *	**-5.250** ***
Chi-squared	**122.3** ***	**101.1** ***	**114.3** ***	**157** ***	**122.10** ***	**230.16** ***
N	894	896	906	905	868	905

* p <0 .05; ** p < 0.01; *** p <0 .001
a: logistic regression (logit), b: ordered logistic regression (ologit)

3.3 Social Capital

For the OLS regressions in Table 5, time spent with neighbors was positively tied to environmental lifestyle composite dependent variables. Time spent with relatives, in contrast, was negatively tied to environmental lifestyle. Generalized trust variables had no significant connection to the environmental lifestyle index. Among the individual environmental lifestyle variables (Table 6) there were no significant social capital variables for either recycling or refraining from purchases for environmental reasons. However, social evenings with neighbors was an important social capital variable for chemical-free produce purchases, water and energy conservation, and driving less. Though, as mentioned above, many Americans face severe structural constraints on their ability to drive less even if they want to, we presume this connection between driving less and spending social time with neighbors is premised on at least factors: information and opportunity. This would be especially significant in the case of carpooling and ridesharing. Neighbors are quite likely to share similar transportation challenges. Talking to each other presents the possibility of common solutions be that through learning about transportation alternatives, or deciding to share a commute with each other. Predictive outcomes of this association are represented graphically in Figure 1 and 2. The evenings spent with relatives variable appeared less important than evenings spent with neighbors in the Table 6 lifestyle models, though it did have a statistically significant negative association with driving less for environmental reasons, also shown in Figure 1. According to Appendix B of the GSS Codebook, “relatives”

refers only to relatives living outside the respondent's household (Smith et al 2011). Our assumption here is that the frequency of social evenings with relatives is capturing the close ties of family who live nearby and many of the structural barriers in the way of reducing individual levels of environmental impact.

Figure 3-1. Predicted probabilities for driving less given social evenings with relatives

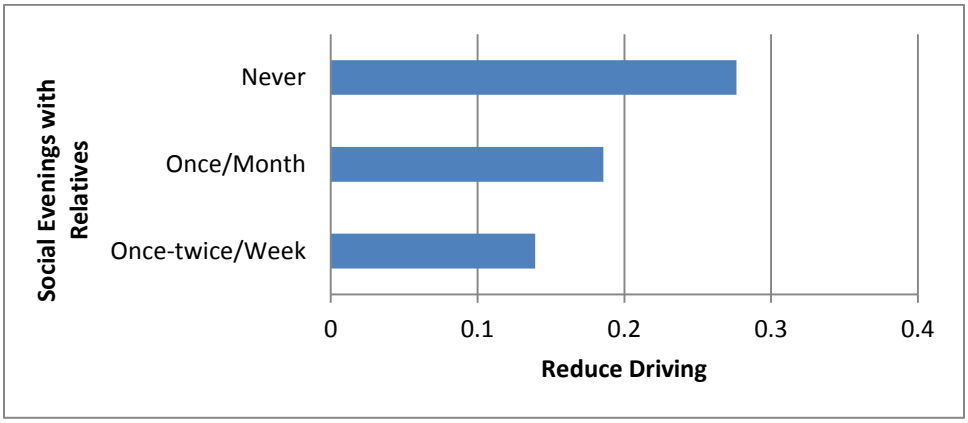
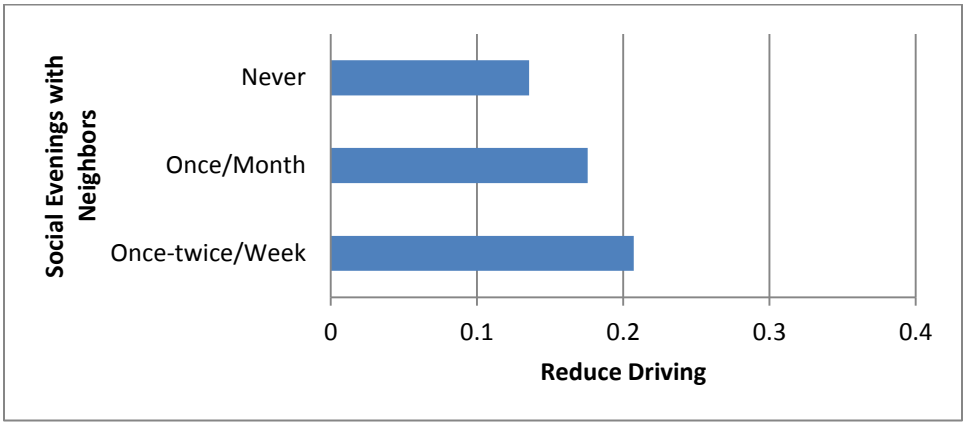


Figure 3-2. Predicted probabilities for driving less given social evenings with neighbors



4. Discussion

4.1 Neighborly neighbors and pro-environmental behavior

The first social capital variable which catches our attention in the lifestyles models is social evenings with neighbors. In the OLS regression model of environmental lifestyles, social evenings with neighbors was third in magnitude among the standardized coefficients, behind the perception of environmental risks and the respondents' self-assessed knowledge of environmental issues. Why do social interactions with neighbors matter in our models? We suggest three possible mechanisms at work here: *reliable information, opportunity and example*. As regards information and opportunity, the underlying premise is the following: when community members of roughly equal social status have frequent interactions they are likely to create geographically-grounded networks of engagement (Bridger and Luloff 2001). This, in turn, generates both higher levels of trust and more reliable sources of information, especially concerning local issues and opportunities within the community.

Feasibly, neighborly neighbors – i.e., those who interact with each other on a regular basis – may help encourage low impact lifestyles without consciously promoting conservation. By way of illustration, consider Front Porch Forum, a neighborhood-based website established in Burlington, Vermont in 2006, and which has since been adopted by over 40 towns and communities in Vermont, New York and New Hampshire (Huey-Burns 2010). In addition to providing a venue for posting missing pet searches, and collective concerns such as street traffic and child safety, much of the postings include giving away furniture or children's toys, and sharing potentially redundant equipment such as garden tools, lawn mowers and snow blowers. By enhancing the ability to interact with neighbors (especially through the New England winter) Front Porch Forum provides a venue for sharing, not only practical information, but common material resources, as well. Information about rideshare programs and the physical sharing of vehicles through carpools and van pools could also be facilitated by through neighborly networks.

With regard to relevant examples, it is clear that one of the biggest challenges inherent in trying to promote conservation in American culture is the dearth of models with which to follow. As has been clear since the Carter administration, elected officials have all but refused to be associated with any kind of policy or message that would encourage the citizenry to consume less. Moreover, the central goal of commercial advertising – ubiquitous in the geographic, electronic and social landscape of American life – is to promote greater consumption, either of things people already consume or of new products for which demand did not previously exist.

Neighborly neighbors thus present a potentially interesting, if seemingly innocuous, example of conservation through sharing and conversation otherwise unavailable in the dominant culture of electronic media, politics and commerce. In the current environment, backyard conversations and neighborly visits may be one of the best sources of information about

carpooling, ridesharing, savings accrued through thermostat reductions, and other environmentally friendly practices. Moreover, the structural position of neighbors as not-financially dependent, near status equals make them a key potential source of mutual influence in the realm of conservation.

4.2 The structural constraints of strong ties and family

In direct contrast to social evenings with neighbors, social evenings with relatives is correlated in our models with an aversion to conservation and lifestyle sacrifices for the benefit of the environment. According to Appendix B of the GSS Codebook, "relatives" refers only to relatives living outside the respondent's household (Smith et al. 2011). Our assumption here is that the frequency of social evenings with relatives is capturing the close ties of family who live nearby and many of the structural barriers in the way of reducing individual levels of environmental impact. This is most notable in Table 4 where among the standardized coefficients the negative relationship between social evenings with family and driving less cancels out and exceeds the positive relationship of time with neighbors. Presumably, the costs and cultural expectations associated with close family ties weighs more on the minds of many individuals than lifestyle sacrifices in the name of the environment.

Friends "who live outside your neighborhood," as specified in the GSS, present in many ways an intermediate position between neighbors and family with regard to influence on consumer behavior and conservation. On the one hand, friends do not present the immediate structural pressures on individuals as do family members. On the other hand, research on social networks suggests a strong tendency in American life towards homophily with regard to selectivity and the people with whom we surround ourselves (McPherson et al. 2001). A recent study based on the 2006 GSS finds that extended family networks are now more diverse than friend networks as we have become ever more efficient at selecting friends similar to ourselves (DiPrete et al. 2011).

In calling our attention to homophily, we are reminded of a central point in social network theory: though close ties may serve as a key source of psychological support, they offer relatively little with regard to challenging points of view or behaviors and practices that might differ very much from our own (Granovetter 1973). Given the intermediate nature of the friend relationship – being a homophilous close tie, yet not a family member – it is perhaps not surprising that the social evenings with friends variable was the only one among the relational social capital variables to have no statistically significant relationship with either the lifestyle or willingness to sacrifice sets of dependent variables.

5. Conclusions

A central motivating factor in this research is the mounting evidence that improvements in technological efficiency will not be enough to effectively reduce human impact on the global ecosystem. Along with changing over to renewable forms of energy and encouraging consumers to maintain and purchase more efficient vehicles and household appliances, we must also find ways to simply reduce our consumption of energy and resource-intensive consumer goods. The specific practices that would allow for such a reduction are well known (Armel et al. 2011; Dietz et al. 2009). How to get popular support for the shift towards conservation, away from unsustainable consumption, has been a much greater challenge. We provide evidence here that certain social contexts are more strongly associated with conservation and personal sacrifice than others.

Specifically, controlling for an array of background and environmental concern variables, social evenings spent with neighbors are strongly tied in our models with environmentally-friendly practices such as household energy and water conservation, driving less, and buying chemical-free produce. We hypothesize that neighborly sharing of information and possibly material resources is a factor in this relationship. However, more targeted research looking at change in specific communities over time would be necessary to confidently rule out alternative explanations such as: people who value and practice environmentally-friendly behavior are also people who value time with their neighbors. Perhaps our data is simply capturing common manifestations of altruism as expressed in concern for both the environment and people in the neighborhood.

In many ways our findings are consistent with previous research that underscores the significance of community-level dynamics essential to encouraging environmentally-friendly behavior (Stern 2002). Successful campaigns for conservation such as the Hood River Project in Oregon, the Neighborhood Energy Consortium in St. Paul, Minnosota, and Atlanta's efforts at promoting mass transit and carpooling in the early 2000s all relied on a combination of publicity, incentives and face-to-face interactions with people in the community or workplace (Gardner and Stern 2002; Henry and Gordon 2003). Along with basic knowledge of the problem, active participation and knowing that others are committed to the project of conservation appear to be key elements of success. As Stern (2002: 204) has effectively argued, environmentally significant behavior is a product of both individual factors such as values, attitudes, personal abilities and habit, and contextual factors which provide "incentives, possibilities and constraints."

Through our focus on social capital, we have placed special emphasis on the social context of environmentally significant behavior. It is our belief that a social capital approach to conservation will likely demonstrate how being connected to other people, along with its proven health, and psychological benefits, can make us more ecologically-minded citizens. Simply put, a healthy array of social connections may represent an opportunity to circumvent our own unquestioned understanding of how the world works by providing a needed source of meaningful alternatives to ecologically threatening levels of energy and natural resource consumption. By placing special emphasis on conservation, this research suggests there exists untapped knowledge about how ecologically-minded practices are

learned and shared within the population. In doing so, we perhaps betray our optimism about the ability of people to adapt collaboratively to new economic and environmental circumstances while providing policy-makers and concerned citizens additional insights into how to bring about needed reductions in environmentally-threatening behavior.

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