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PARTICIPATION IN ENVIRONMENTAL ORGANIZATIONS:

POLITICAL INTEREST AND STATE CAPACITY*

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Abstract:

The literature on volunteering has strongly increased in the last few years. However, there is still a lack of substantial empirical evidence about the determinants of environmental participation. This empirical study analyses a cross-section of individuals using micro-data of the World Values Survey wave III (1995-1997), covering 38 countries, to investigate this question. The results suggest that not only socio-demographic and socio-economic factors have an impact on individuals' active participation in environmental organizations, but also political attitudes. Furthermore, we observe regional differences. Interestingly, there is the tendency that environmental participation is a stronger channel for action in developing countries, where weak and dysfunctional states lead people to pursue their goals through non-governmental sector activities. We also find that a higher level of perceived corruption leads to a stronger participation in environmental organizations, which shows that individuals take action when they perceive that the government is corrupt.

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1. INTRODUCTION

Social capital has been studied at length by many different disciplines. It has advanced to an important concept in social sciences, enforcing the interdisciplinary social discourse among researchers. Woolcock (1998) stresses that social capital provides a “credible point of entry for sociopolitical issues into comprehensive multi- and interdisciplinary approach to some of the most pressing issues of our time. In social capital, historians, political scientists, anthropologists, economists, sociologists, and policy makers – and the various camps *within* each field – may once again begin to find a common language within to engage one another in open, constructive debate, a language that disciplinary provincialism have largely suppressed over the last one-hundred-and-fifty years” (p. 188).

The rapid growth of the social capital literature underlines a widespread unease with the standard explanations for the different political and economic performances not only across nations but also across sub-national jurisdictions (Ostrom and Ahn, 2003). Many studies in the last ten years tried to check to which extent social capital can be seen as an important omitted factor in previous studies.

The political scientists Almond and Verba (1963) have been among the first who intensively investigated the concept of social capital. Many years later, there has been a renewed interest in the social basis of political and economic life thanks to the work by researchers such as Putnam (1993) and Fukuyama (1995). Social capital advanced to an important research agenda in political sciences. Putnam (1993) claims the importance of social capital for the effective governance of democracy. He defines social capital as “features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions” (p. 167). Many authors have singled out social capital as an important feature of productive social relationships (Gambetta, 1988; Hardin 1993).

Sociologists have also intensively investigated the concept of social capital. Key figures at the beginning were Bourdieu (1979) and Coleman (1988, 1990). They both have

strongly influenced the social capital literature focusing on individuals and small societal units. Portes and Mooney (2002) point out that the most widely accepted definition of the term social capital in sociology is the "the ability to secure resources by virtue of membership in social networks or larger social structures" (p. 305). Social capital has also attracted non-academic institutions such as the World Bank, which developed a Social Capital Initiative focusing mainly on developing countries and investigating the practical relevance of this concept.[1]

Grootaert (2001, pp. 10-11) stresses that there are three major views on social capital: First, the concept developed by Putnam (1993) interpreting social capital as a social network, as networks of civic engagement facilitating coordination and cooperation. Second, Coleman's (1988, p. 598) approach defines social capital as "a variety of different entities", consisting of some aspects of social structure and facilitating certain actions of actors. This allows taking into account not only horizontal but also vertical social relationships. The third concept considers the social and political environment that enforces norms and shapes social structures. According to Paldam (2000, p. 630), there are three families of social capital concepts: trust, cooperation and network. He points out that "most people build *trust* in and *networks* to others and come to *cooperate* with them" (p. 629).

In terms of environmental topics, the so-called Institutional ecological economics, a scientific area which consists in a mixture of institutional economics and ecological economics, shows that social capital influences transaction costs and the effectiveness of public environmental policies. So, "environmental conflicts can be resolved by making collective choices that are implemented by establishing changing or reaffirming governance institutions" (Paavola and Adger, 2005, p. 364). Additionally, the importance of social capital has been shown in order to deal with new environmental scenarios, such as the climate change or to cope with the impact of environmental disasters, such as droughts or floods.

[1] For a well-written overview of the concept of social capital see Woolcock (1998).

The ability of societies to adapt is strongly linked to the ability of acting collectively (Adger, 2003).

In this paper we focus on the network component. Civil engagement in voluntary organizations is a topic that has obtained increased attention among researchers. However, still little is known about the causes of environmental participation. Voluntary activities have the advantage to create social output that would per se require paid resources (Freeman, 1997). Pretty and Ward (2001) showed that the creation of active pro-environmental groups was really significant to solve some local environmental problems[2]. Our study will shed light who is going to participate and will help to see whose priorities and values are best forwarded through voluntary work in environmental organizations. Moreover, one key intention of the paper is to provide evidence to which extent political attitudes affect the participation in environmental organization using three different proxies that measure individual's interest in politics. Using three proxies will have the great advantage to check the robustness of the results. In general, the impact of political attitudes has been neglected in many previous studies. We are also going to investigate regional differences. As we will see, the results show strong regional differences and suggest the usefulness to the check the relevance of state's capacities to understand citizens' involvement in environmental organizations. We observe the tendency that a dysfunctional state leads people to pursue alternative channels through non-governmental sector activities to reach their goals. We also find that a higher level of perceived corruption leads to a stronger participation in environmental organizations, which shows that individuals take action when they perceive that the government is corrupt.

During decades, social scientists have searched the factors which lead to individuals' pro-environmental behavior. An interdisciplinary perspective may be helpful. The analysis can be improved substantially by integrating economics with insights from other social

[2] Those authors analyzed some environmental organizations in rural communities. They found an evolution from being reactive-dependence groups(static and created exclusively in reaction to a threat or a crisis), towards being awareness-interdependence groups(more dynamic and interactive).

sciences as political sciences, social psychology, or sociology (see, e.g., Messick and Brewer, 1983; Guagnano et al., 1995; Clark et al., 2003). However, Bekker (2005) critizes that “Sociologists, political scientists and psychologists have studied civic engagement in relative isolation” (p. 440). In a multi-country context other pro-environmental actions have been analyzed, either using a global viewpoint (Schultz and Zelezny, 1998) or considering a more concrete behavior, such as recycling attitudes (Guagnano et al., 1995; Guerin et al., 2001), collaboration on green programs (Clark et al., 2003) or the choice of recreational activities (Jackson, 1987; Ajzen and Driver, 1992; Luzar et al., 1995).

Thus, only a few studies analyzed the factors which have an impact on the participation in environmental organizations (Mohai, 1992; Thompson and Barton, 1994). Thus, empirical study analyses a cross-section of individuals using the World Values Survey wave III (1995-1997) to shed some light on the extent to which citizens are actively participating in environmental organizations. One of the major advantages of the data set is that different cultural regions can be investigated, i.e. we can assess the cross-culture robustness of our investigated variables. Furthermore, we are not working with the newest available survey, as some of the variables such as individuals’ perceived corruption have not been collected in the newest wave.

Section 2 of the paper introduces to the topic and presents the model. Section 3 then presents the empirical findings and Section 4 finishes with some concluding remarks.

2. ENVIRONMENTAL PARTICIPATION AND ITS DETERMINANTS

Focusing on direct environmental participation has the advantage to observe individuals’ behavior. What is the meaning of ‘pro-environmental behavior’? Kollmuss and Agyeman (2002) define that concept as individual’s actions that consciously seek to minimize the negative impact of human activities on the environment. Jensen (2002) refers to those personal actions that are directly related to environmental improvements. Some daily

activities, such as minimizing resource and energy consumption, reducing and recycling waste, or using public transport are private actions which contribute to the improvement of nature. In the same way, participation in environmental organizations can be seen as a kind of pro-environmental behavior and are highly relevant to achieve the effectiveness of some environmental policies which require behavioral changes.

According to Clark et al. (2003), from an economic perspective, this kind of behavior "exemplifies an individual's voluntary effort to provide an environmental public good" (p. 238). Why are people involvement actions which result in collective benefits? While the traditional outlook point out towards a free-rider effect in the private provision of public goods (Olson, 1965), in practice the observed levels of provision are higher than the theoretical predictions (Andreoni, 1988; Piliavin and Charng, 1990).

As mentioned, the data used in the present study are taken from the World Values Survey, a worldwide investigation of socio-cultural and political change, based on representative national samples. It was first carried out in 1981-83, and subsequently in 1990-91, 1995-96 and 1999-2001. Data from these surveys are made publicly available for use by researchers interested in how views change with time. However, economists have just started to work with the WVS/EVS. In this survey, the question on environmental participation that is of primary interest in this paper is phrased as follows:

> *Now I am going to read off a list of voluntary organizations; for each one, could you tell me whether you are an active member, an inactive member or not a member of that type of organization? Environmental organization*

Our dependent variable has the value 1 if an individual is an active member of an environmental organization, otherwise 0. The interest aspect in this paper is to use a behavioral variable instead of an attitudinal one using survey data covering a broad variety of

countries and investigating at the micro-level the determinants of participating actively in environmental organizations[3].

We will use a probit model. A weighting variable has been applied to correct the samples and thus to get a reflection of the national distribution. In the estimations where we pooled several countries we have integrated an additional weighting variable. The original weight variable was multiplied by a constant for each country to get an equal number of weighted observations (around 1500) for each survey. The World Values Survey provides the weighting variables. Countries with fewer than 750 observations (Montenegro, the Dominican Republic, Ghana, Pakistan, and Tambov) were excluded from the sample to reduce possible biases due to a lack of representativeness. Several other countries were excluded as they don't provide information regarding the dependent and independent variables integrated in our estimations[4]. Finally, Sweden could not be included as one of the control variables (EDUCATION) is coded differently. We proceed with a sample of 38 countries[5]. The estimations are also performed for various geographic sub-samples to compare the relevance of our independent variables in different environments.

Independent Variables

A multivariate analysis allows to shed some light who is going to participate, whose priorities and values are forwarded through voluntary activities and to what extent voluntary participation can achieve representativeness. First of all, we consider several *socio-demographic and economic* variables. *Table A1* in the Appendix provides a description of these variables. This allows to focus in a first step on "external" factors. A traditional

[3] It has been shown that passive forms of participation do no lead to positive environmental outcomes (Pretty and Smith, 2004).
[4] These countries are Poland, Japan, South Africa, Puerto Rico, Turkey, and Columbia.
[5] Western Europe Countries & USA & Australia (USA, Western Germany, Eastern Germany, Switzerland, Australia, Norway Finland Spain), CEE and FSU (Bulgaria, Belarus, Estonia, Georgia, Latvia, Lithuania, Moldova, Armenia, Russia, Slovenia, Ukraine, Azerbaijan, Serbia, Macedonia, Croatia, Bosnia-Hercegovina), Latin America (Mexico, Argentina, Brazil, Chile, Peru, Venezuela, Uruguay) Asia (South Korea, India, Taiwan, China, Philippines, Bangladesh), Africa (Nigeria).

economic approach would suggest that volunteers would mostly be individuals with low opportunity costs of time (Freeman, 1997). However, we will see in the empirical part that the opportunity cost argument fails to predict consistently the probability of participating in environmental organizations. On the other hand, our results are consistent with several previous findings in the area investigating environmental behavior and environmental preferences. In a second step we include political attitudes using three different proxies to check the robustness.

Previous studies have shown the importance of these factors when investigating the preferences for environmental quality (Whitehead, 1991; Cameron and Englin, 1997; Blomquist and Whitehead, 1998; Engel and Pötchske, 1998; Witzke and Urfei, 2001; Dupont, 2004; Israel and Levinson, 2004; Hidano et al., 2005; Torgler and Garcia-Valiñas, 2005).

We expect the number of individuals who are actively involved in environmental organizations to fall with an increase of age, since older people will not live to enjoy the benefits of preserving resources for later years. Howell and Laska (1992) found that younger people are more concerned about environmental problems than older ones. However, Nord et al. (1998) show a strong relationship between age and environmental concern. Additionally, some studies have found that individuals over the age of 50 are more likely to volunteer than young people, because they have more free time (Wymer, 1998). Instead of using age as a continuous variable, we use four dummy variables for age cohorts: AGE<30, AGE 30-49, AGE 50-64, and AGE 65+, with AGE<30 as a reference group, to better investigate the impact of age.

Experimental and empirical studies have shown gender differences in other aspects such as charitable giving, tax morale, bargaining or household decision making (Brown-Kruse and Hummels, 1993; Nowell and Tinkler, 1994; Andreoni and Vesterlund, 2001; Torgler, 2006). It is often argued that traditional gender socialization, cultural norms, the women's roles as caregivers and nurturers, encouragements to be cooperative and feel compassion lead to a higher concern for the maintenance of life and environment. The

"traditional" domain of working at home induces a greater likelihood to engage privately in behaviors aiming at the preservation of the environment[6]. Women have a tendency to be more concerned with the environment than men. Zelezny et al. (2000) find strong evidence that environmentalism does not begin in adulthood, which contradicts the statement that gender differences arise due to motherhood and child protection. Regardless of age, women show more concern for the environment than men. Finally, the literature has found that women volunteer more than men, although political volunteers are more likely to be male (Bussell and Forbes, 2003). Some studies have found that environmental groups in which woman are strongly present, are have positive characteristics, such as collaboration, conflict resolution, solidarity or a high ability for self-sustaining collective action (Molinas, 1998; Westerman et al., 2005). Additionally, norms of reciprocity are more likely to operate in groups where women are participating actively (Westerman et al., 2005).

However, literature reviews in the 80s report that the relationship between environmental attitudes and gender is meager and inconsistent (Van Liere and Dunlap, 1980; Hines et al., 1986-1987; Mohai, 1992). The meta-review of Zelezny et al. (2000) covering the years 1988 and 1998 reports that out of 13 studies, 9 found that women are significantly more active in pro-environmental behaviors than men, 3 found no statistically significant difference between males and females and one study reports a greater participation of men. Davidson and Freudenburg (1996), Bord and O'Connor (1997) or Hunter et al. (2004) found higher values for women, while Kealy et al. (1990), Swallow et al. (1994) and Cameron and Englin (1997) found the opposite result. Finally, Brown and Taylor (2000) did not find any gender difference.

The variable EDUCATION (continuous variable, 1 = no formal education, 9 = university degree) may also be a key variable. Several papers found a positive correlation between education and participation in voluntary organizations (Wilson and Musick, 1999; Freeman, 1997; Bekker, 2005). Higher educated people may be more aware of the social

[6] For an overview see Hunter et al. (2004).

needs. Furthermore, they may get better jobs when they enter the voluntary sector (Wilson and Musick, 1999). Having detailed knowledge about current and future environmental problems and the impact they might have is an important issue too. In this sense, well-informed citizens have a higher probability to be involved in pro-environmental actions. The usual findings show a positive relationship between a pro-environmental behavior and the educational level (Van-Liere and Dunlap, 1980; Nord et al., 1998; Guerin et al., 2001). Similarly, high and middle-income people are more involved in pro-environmental actions (Guerin et al., 2001; Clark et al. 2003). In a meta-analysis, Hines et al. (1986-87) found a positive correlation between knowledge and responsible and pro-environmental behaviors. The deeper the knowledge, the higher the probability that an individual is involved in actions that protect the environment (Kollumuss and Agyeman, 2002).

Marital status is a further control variable (dummy variable, value 1 if the respondent is married and 0 otherwise). Married people are involved or more concerned about environmental degradation than others, especially compared to singles, because they are more constrained by their social network and often strongly involved in the community (Tittle, 1980). They furthermore might be more concerned with environmental problems than singles as the “parent effect” makes them seek their children’s future welfare (Dupont, 2004).

As a proxy for income we use the economic situation of an individual (dummy variable for *UPPER CLASS* with the remaining individuals in the reference group). Using the exact income would produce biases, because this variable is not comparable across different countries. The economic situation of an individual is a significant aspect too. Some previous studies have shown that more privileged social statuses exhibit higher levels of voluntarism and civic participation (for an overview see Hwang, Grabb and Curtis, 2005). It can be argued that the environment is not only a public good, but also a normal good. Thus, demand may increase with income (Franzen, 2003). Wealthier citizens may have a higher demand for a clean environment and less environmental damages and thus a stronger incentive to actively contribute to the environment participating in a voluntary organization.

Furthermore, we control for financial satisfaction (scale 1 = dissatisfied to 10 = satisfied). Participation may depend on the *perceived* restrictions of an individual. If a person is not satisfied with her financial situation, she has a stronger incentive to spend more time and resources in the accumulation of additional wealth rather than spending time in voluntary organizations.

An additional variable that approaches and complements the economic situation of individuals is their occupational status (EMPLOYMENT STATUS). Regarding volunteering, Smith (1999) found differences in employment status among young volunteers. Veisten et al. (2004) showed that unemployed people present, occasionally, lower preferences for environmental protection policies. However, the latter relationship sometimes is neither clear nor significant at all (Engel and Pötchske, 1998; Witzke and Urfei, 2001).

In addition to a dummy variable for unemployment, we use a dummy variable for self-employed individuals. Self-employed people may have higher opportunity costs to be involved in a voluntary organization. On the other hand, it may allow to generate connections that could influence also their businesses in a positive manner. In general, the participation may strongly depend on the type of sector and company a person is active in. Thus, it is not possible to derive a clear prediction. The models also include regional dummy variables for the CEE and FSU (Central and Eastern Europe and Former Soviet Union countries), LATIN AMERICA, ASIA and AFRICA[7], leaving the industrialized economies of WESTERN EUROPE, USA, and AUSTRALIA in the reference group.

In a first step we only included “external” factors. Thus, we have avoided to include preferences and values in the model. The advantage of such an approach is that the measurement and causality problems that inhere in preferences and values are avoided. However, we are aware that such an approach has its limitation and that it does not provide a complete picture of the determinants of environmental engagement. Thus, in a second step, we include political characteristics. Torgler and Garcia-Valiñas (2005) have shown that

[7] Only one country represents Africa (Nigeria).

political interest has a strong impact on environmental preferences. Several previous studies have stressed the relevance of information or informal education (Whitehead, 1991; Blomquist and Whitehead, 1998; Hidano et al., 2005). Well-informed citizens who know about environmental problems might have stronger pro-environmental attitudes, because they are better aware of the possible damage (Danielson et al., 1995). Thus, not only formal education should have an impact on whether an individual participates in an environmental organization. We will use several proxies to check the robustness of the results (level of: DISCUSSING POLITICS[8], INTEREST IN POLITICS[9] and IMPORTANCE OF POLITICS[10]). On the other hand, it can be assumed that politically interested people are well-informed and have a high level of current knowledge about what is going on in politics and thus may also be aware of environmental issues. Compared to other determinants, the aspect of political interest has been widely neglected in the environmental literature.

Finally, we have defined a variable which approximate the state capacities on environmental participation. In developed countries states offer many feasible channels for citizens' actions and expressions of preferences. The democratic structure allows individuals to a certain extend control and influence the government. Furthermore, the government has a higher incentive to take into account citizens' preferences. On the other hand, weak and dysfunctional states lead people to pursue their goals through non-governmental sector such as environmental organizations. Thus, we have considered the perceived level of corruption[11]. Woolcock (1998) points out that the "structure of the state, the nature and extent of its involvement in civic and corporate life, and the organization of society together constitute the key factors determining whether a country succeeds or fails in development"

[8] Question: 'When you get together with your friends, would you say you discuss political matters frequently, occasionally or never?'.

[9] Question: 'How interested would you say you are in politics?'.

[10] Question: 'How important is politics in your life?'.

[11] We are thankful to Jouni Paavola for providing us with this point.

(p. 187). To assess the level of perceived corruption from the WVS, we use the following question:

> How widespread do you think bribe taking and corruption is in this country?
> Almost no public officials are engaged in it (1)
> A few public officials are engaged in it (2)
> Most public officials are engaged in it (3)
> Almost all public officials are engaged in it (4)

PERCEIVED CORRUPTION is in line with other indexes such as the Transparency International that also measures perceptions. However, perceptions are not objective and quantitative measures of the actual degree of corruption. It is an indirect way of measuring corruption (Tanzi, 2002). However, analyzing the Transparency International Treisman (2000, pp. 410-411) brings good arguments why data based on perceptions should be taken seriously. Components of the used surveys and ratings are highly correlated among themselves, although they have been done with different methodologies, different inputs and in another time period. Such a consistency allows to conclude that factors are almost free of biases such as a "temporal mood" or guesses. There is also a consistency in the Transparency International over time, although the construction of the index varies over time. Finally, the index is strongly correlated with other corruption indexes such as the ICRG, the BI or the Gallup International. Tanzi (2002) points out:

> "If corruption could be measured, it could probably be eliminated" (p. 38).

A good feature to test whether the World Values Survey question about PERCEIVED CORRUPTION is a useful proxy is to check whether the variable is correlated with other well-known indexes on corruption. Thus, we compare our variable with the corruption indexes TI (Transparency International), International Country Risk Guide (ICRG) and Quality of

Government (Control of Corruption) developed by Kaufmann, Kraay, and Mastruzzi (2003). The World Values Survey Corruption ratings are highly correlated with the TI (r= -0.878), the ICRG (r=-0.680) and the Quality of Government rating (r=-0.827)[12].

3. EMPIRICAL EVIDENCE

This section reports two groups of estimation results: a panel analysis of all 38 countries (*Tables 1 and 2*) and panel estimates from four geographic regions (*Tables 3* to *6*). The primary objective is to investigate the robustness of our independent variables across countries with different cultural and institutional characteristics and with different levels of economic development.

The models in general use a standard error adjusted for the clustering on countries (except the first and third estimations in *Table 1*), thus taking into account unobservable country specific characteristics. In general, clustering leads to a decrease in the *z*-values, but has no impact on the marginal effects. Since the equation in a probit model is nonlinear, only the signs of the coefficients can be directly interpreted and not their sizes. Calculating the marginal effects is therefore a method to find the quantitative effect of an independent variable. The marginal effect indicates the change in the share of individuals (or the probability of) belonging actively to a voluntary environmental organization, when the independent variable increases by one unit. If the independent variable is a dummy variable, the marginal effect is evaluated in regard to the reference group. Furthermore, “I don’t know” answers and missing values were omitted from all estimations.

Table 1 presents the first results using the entire panel of countries. We observe that all age groups from 30 to 65+ report a significantly lower probability of participation in environmental

[12] The sign is negative because for all three ratings used (TI, ICRG and Quality of Government), a higher score corresponding to a lower corruption.

organizations than the reference group below 30. However, only the coefficient AGE 65+ is statistically significant in the first two estimations. Being at the AGE 65+ reduces the probability of participating in environmental organizations by 1.3 percentage points. Interestingly, we can observe that the marginal effects increase consistently with each additional increase in the age variables. This result supports our prediction of a negative correlation between age and environmental participation. The lower long-term benefits of preserving resources for later years strongly reduce the incentives of older people to participate in environmental organization. On the other hand, for the third estimation including regional dummy variables the coefficient is not statistically significant any longer. Interestingly, women report a lower probability of participating in environmental organizations. Being a woman reduces the probability of participating in voluntary environmental organizations by almost 1 percentage point. One can argue that these results contradict some previous findings showing that women are more concerned with environmental issues and opportunity cost argument as women on average have a lower simple *cost* of time. However, it can be argued that women might be more active in community-based and neighborhood organizations which address local environmental organizations. On the other hand, males are more likely to participate in formal environmental organizations. Our survey question captures more of the latter than the former – for this reason, our results may not be in great conflict with opposite findings.[13] Moreover, it should be noted that women have higher restrictions to participate in voluntary organizations, especially the younger ones, as they are often more strongly involved in household activities which are time intensive. However, we may observe culture differences. Gender differences may be less visible in Western societies where women are more independent.

[13] We are thankful to Jouni Paavola for providing us with this argument.

Table 1

Determinants of Environmental Participation

WEIGHTED PROBIT	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
				clustering on countries					
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	-0.020	-0.63	-0.001	-0.020	-0.54	-0.001	0.025	0.74	0.001
AGE 50-64	-0.047	-1.15	-0.003	-0.047	-0.80	-0.003	0.066	1.57	0.004
AGE 65+	-0.250***	-4.33	-0.013	-0.250***	-2.63	-0.013	-0.095	-1.58	-0.005
FEMALE	-0.134***	-5.22	-0.009	-0.134***	-3.89	-0.009	-0.147***	-5.61	-0.008
EDUCATION	0.024***	3.82	0.002	0.024	1.32	0.002	0.050***	8.49	0.003
b) Marital Status									
MARRIED	-0.035	-1.20	-0.002	-0.035	-1.04	-0.002	-0.016	-0.54	-0.001
c) Economic Variables									
FINANCIAL SATISFACTION	0.062***	11.92	0.004	0.062***	6.75	0.004	0.033***	5.86	0.002
UPPER CLASS	0.190**	2.07	0.015	0.190	1.46	0.015	0.198**	2.03	0.013
d) Employment Status									
SELFEMPLOYED	0.221***	5.73	0.017	0.221**	2.40	0.017	0.039	1.00	0.002
UNEMPLOYED	-0.058	-1.23	-0.004	-0.058	-1.10	-0.004	-0.051	-1.03	-0.003
e) Regions									
CEE and FSU							-0.461***	-11.31	-0.024
LATIN AMERICA							0.188***	5.18	0.011
ASIA							0.204***	5.51	0.013
AFRICA							0.992***	14.14	0.131
Pseudo R2	0.030			0.030			0.082		
Number of observations	48362			48362			48362		
Prob > chi2	0.000			0.000			0.000		

Notes: Robust standard errors and standard errors adjusted for clustering on countries. In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS, WESTERN EUROPE + USA + AUSTRALIA. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. CEE: Central Eastern European Countries, FSU: Former Soviet Union Countries.

A positive relationship between formal education and environmental participation can be observed. The coefficient is highly statistically significant in all three estimations. Similarly, there is a positive correlation between the economic variables and the participation in voluntary environmental organizations. Only in the second estimation the coefficient UPPER CLASS loses its statistical significance. But in general the marginal effects are quite

substantial. Being a member of the upper class increases the probability of participation by 1.5 percentage points. There is also the tendency that self-employed persons have a higher level of participation in environmental organizations. In the first two regressions the coefficients are statistically significant with relatively high marginal effects of 1.7 percentage points. However, when including regional dummies, the coefficient loses its significance which indicates that we may expect cultural differences. On the other hand, the coefficient UNEMPLOYED has a negative sign and is not statistically significant although one can argue that unemployed individuals may have lower opportunity costs to participate in voluntary organizations. Our findings give hardly any empirical foundation to the theoretical argumentation about individuals' opportunity costs of time, which is consistent with the study of Freeman (1997) who finds that volunteers are people with higher potential earnings or greater demands on their time.

We also find regional differences in terms of participating in environmental organization. Interestingly, inhabitants of LATIN AMERICA, ASIA and AFRICA have a higher probability to participate in voluntary environmental organizations than Western societies. Only the coefficient CEE and FSU shows a statistically significant negative sign with relatively high marginal effects of around 2.4 percentage points. The results somehow support the argument of Dekker and Van den Broek (1998) who stress that in the West there "is the widespread concern about the presumed decline in social and political engagement in Western society, which is claimed to affect volunteering too. Civic commitment to the common good is supposed to be eroding, due to various interconnected trends associated with modernization: rationalization, at the expense of traditional religious values and moral obligations; the ascent of individualism, manifesting itself in values of autonomy, self-realization, and personal freedom; and the concomitant rise of the "calculative citizen," which hampers pro-social behavior in general and volunteering in particular" (p. 16).

However, the authors also stress that against such a pessimistic interpretation it can be argued that individualist ideas of self-realization and responsibility may on the other hand

stimulate pro-social behavior. The low participation in CEE and FSU is not a surprise. It can be seen as an indicator of the transition process, where the socio-economic conditions confronting the citizens suddenly deteriorated on a massive scale and the level and quality of life declined even further. The rapid collapse of institutional structures produced a vacuum in the country, followed by worsening income inequality and poverty rates (Alm, Martinez-Vazquez and Torgler 2005). However, these results should be interpreted with due caution as the number of countries in each region is limited.

In *Table 2* we extend the previous model including three different measurements of political interest including one behavioral variable (degree of political discussion). One of the key findings in this study is the fact that political interest is highly correlated with the willingness to contribute. An increase in the level of discussing politics by one unit increases the probability of participating by almost 1 percentage point. This result is confirmed when using two further proxies (INTEREST IN POLITICS and IMPORTANCE OF POLITICS). Thus, the paper shows that we have to go beyond formal education and include individuals' interest for current political matters. This aspect has been neglected in many previous studies. It is worthwhile to mention that the impact of the variable EDUCATION is not affected by the inclusion of political characteristics.

Table 2

Environmental Participation and Political Interest

WEIGHTED PROBIT	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	0.006	0.18	0.000	0.005	0.15	0.0003	0.018	0.53	0.001
AGE 50-64	0.038	0.90	0.002	0.033	0.77	0.002	0.052	1.22	0.003
AGE 65+	-0.113*	-1.83	-0.005	-0.113*	-1.83	-0.005	-0.107*	-1.75	-0.005
FEMALE	-0.117***	-4.30	-0.006	-0.118***	-4.34	-0.006	-0.138***	-5.18	-0.007
EDUCATION	0.040***	6.57	0.002	0.037***	5.95	0.002	0.043***	7.07	0.002
b) Marital Status									
MARRIED	-0.018	-0.58	-0.001	-0.014	-0.44	-0.001	-0.014	-0.46	-0.001
c) Economic Variables									
FINANCIAL SATISFACTION	0.034***	5.95	0.002	0.033***	5.73	0.002	0.033***	5.69	0.002
UPPER CLASS	0.207**	2.07	0.013	0.196*	1.96	0.012	0.198**	1.99	0.013
d) Employment Status									
SELFEMPLOYED	0.039	0.99	0.002	0.016	0.40	0.001	0.024	0.59	0.001
UNEMPLOYED	-0.048	-0.96	-0.002	-0.064	-1.25	-0.003	-0.061	-1.20	-0.003
e) Regions									
CEE and FSU	-0.453***	-11.05	-0.023	-0.420***	-10.13	-0.021	-0.442***	-10.64	-0.022
LATIN AMERICA	0.225***	6.08	0.014	0.277***	7.28	0.017	0.213***	5.81	0.013
ASIA	0.210***	5.58	0.013	0.290***	7.37	0.019	0.186***	4.94	0.011
AFRICA	1.008***	14.30	0.133	1.008***	14.72	0.131	0.961***	13.72	0.122
f) Political Interest									
DISCUSSING POLITICS	0.174***	7.89	0.009						
INTEREST IN POLITICS				0.153***	9.60	0.008			
IMPORTANCE OF POLITICS							0.116***	8.12	0.006
Pseudo R2	0.088			0.095			0.089		
Number of observations	47547			46500			47432		
Prob > chi2	0.000			0.000			0.000		

Notes: Robust standard errors. In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS, WESTERN EUROPE + USA + AUSTRALIA. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. CEE: Central Eastern European Countries, FSU: Former Soviet Union Countries.

Next, we report the effect of the independent variables in the four regions.[14] It can be argued that the observed effects in the panel of countries reported in *Tables 1* and *2* are driven by one of the regions. It is also possible that some variables act differently in the

[14] Africa has not been considered independently, as Nigeria was the only African country in the data set.

different regions. *Tables 3* to 6 present these results. There are no statistically significant differences between the age categories except for ASIA where the group AGE 50-64 has the highest probability of participating in voluntary environmental organizations. Gender differences are observable in all regions except in Western societies, with the strongest marginal effects for Asia. Education is positively correlated with participation and mostly statistically significant in the reference group (Western Europe, USA and Australia), Latin America and Asia.

Financial satisfaction affects the participation in Western societies, in Latin America and in CEE and FSU countries but not in Asian countries. In Asia, the coefficient UPPER CLASS is even statistically significant with a negative sign showing marginal effects of around 2.5 percentage points. In general, the strongest positive impact of the economic variables is visible in Latin America. On the other hand, Latin America also shows the strongest impact of the employment status variables, but with a negative sign. Being self-employed reduces the probability of participating in environmental organizations by around 1.7 percentage points. Finally, we observe very consistent findings for the impact of political discussion and political interest. In all four cases the coefficients are always statistically significant with relatively high marginal effects compared to the other variables.

The results obtained in previous tables showed that the developing continents were more likely to participate in environmental organizations that those living in western societies. Thus, in the light of those findings it would be interesting to investigate the impact of state capacities on environmental participation. The results including our corruption variable are presented in *Table 7.* To check the robustness, we present three estimations. The first one is without the regional dummy variables, the second one includes the regional dummy variables and third one includes additionally the political interest variable with the strongest marginal effects (DISCUSSING POLITICS). As can be seen, the coefficient of CORRUPTION remains highly statistically significant with marginal effects between 0.4 and 0.8 percentage points. Thus, a higher perceived corruption is correlated with a stronger incentive to

participate in environmental organizations. If individuals' perceive a lack of institutional quality they seemed to be willing to find alternative channels to reach their goals.

Table 3

Determinants of Environmental Participation in Western Europe, USA, Australia

WEIGHTED PROBIT CLUSTERING ON COUNTRIES	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	0.076	1.55	0.005	0.079	1.63	0.005	0.064	1.18	0.004
AGE 50-64	-0.028	-0.28	-0.002	-0.035	-0.34	-0.002	-0.039	-0.35	-0.003
AGE 65+	-0.073	-0.67	-0.005	-0.075	-0.66	-0.005	-0.101	-0.85	-0.006
FEMALE	-0.024	-0.45	-0.002	-0.015	-0.29	-0.001	-0.032	-0.62	-0.002
EDUCATION	0.076***	4.62	0.005	0.074***	5.32	0.005	0.071***	4.37	0.005
b) Marital Status									
MARRIED	-0.035	-0.79	-0.002	-0.031	-0.70	-0.002	-0.033	-0.71	-0.002
c) Economic Variables									
FINANCIAL SATISFACTION	0.036**	2.06	0.002	0.035**	2.03	0.002	0.035**	2.02	0.002
UPPER CLASS	0.090	0.63	0.007	0.085	0.58	0.006	0.077	0.54	0.006
d) Employment Status									
SELFEMPLOYED	0.042	0.44	0.003	0.046	0.48	0.003	0.043	0.44	0.003
UNEMPLOYED	-0.131	-0.82	-0.008	-0.152	-1.06	-0.009	-0.110	-0.69	-0.007
e) Political Interest									
DISCUSSING POLITICS	0.099**	2.29	0.007						
INTEREST IN POLITICS				0.093***	2.72	0.006			
IMPORTANCE OF POLITICS							0.131***	4.52	0.009
Pseudo R2	0.034			0.037			0.039		
Number of observations	10757			10785			10706		

Notes: Standard errors adjusted for clustering on countries In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$.

Table 4

Determinants of Environmental Participation in CEE and FSU Countries

WEIGHTED PROBIT clustering on countries	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	-0.013	-0.15	-0.0003	-0.006	-0.07	0.000	0.038	0.51	0.0008
AGE 50-64	0.026	0.25	0.0006	0.037	0.35	0.001	0.081	0.82	0.0018
AGE 65+	-0.046	-0.77	-0.0010	-0.070	-1.12	-0.001	-0.028	-0.41	-0.0006
FEMALE	-0.187***	-3.01	-0.0041	-0.191***	-3.01	-0.004	-0.221***	-3.67	-0.0049
EDUCATION	0.019	1.15	0.0004	0.019	1.06	0.000	0.020	1.00	0.0004
b) Marital Status									
MARRIED	-0.014	-0.22	-0.0003	-0.007	-0.11	0.000	0.006	0.09	0.0001
c) Economic Variables									
FINANCIAL SATISFACTION	0.038**	2.55	0.0008	0.036**	2.49	0.001	0.038**	2.47	0.0008
UPPER CLASS	0.440	1.39	0.0161	0.430	1.36	0.016	0.412	1.31	0.0145
d) Employment Status									
SELFEMPLOYED	0.031	0.23	0.0007	0.044	0.31	0.001	-0.005	-0.04	-0.0001
UNEMPLOYED	-0.024	-0.25	-0.0005	-0.043	-0.39	-0.001	-0.083	-0.81	-0.0017
e) Political Interest									
DISCUSSING POLITICS	0.266***	4.11	0.0058						
INTEREST IN POLITICS				0.157***	3.86	0.003			
IMPORTANCE OF POLITICS							0.148**	2.26	0.0032
Pseudo R2	0.039			0.034			0.037		
Number of observations	20597			20748			20510		

Notes: Standard errors adjusted for clustering on countries In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$.

Table 5

Determinants of Environmental Participation in Latin American Countries

WEIGHTED PROBIT clustering on countries	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	-0.020	-0.35	-0.002	-0.023	-0.41	-0.002	-0.022	0.18	-0.002
AGE 50-64	0.052	0.87	0.005	0.034	0.57	0.003	0.055	1.49	0.005
AGE 65+	-0.128	-1.15	-0.011	-0.144	-1.32	-0.012	-0.126	-1.64	-0.011
FEMALE	-0.112*	-1.69	-0.011	-0.104	-1.53	-0.010	-0.120*	-1.87	-0.012
EDUCATION	0.037***	2.71	0.004	0.029**	1.99	0.003	0.039***	2.93	0.004
b) Marital Status									
MARRIED	0.007	0.13	0.001	0.006	0.11	0.001	0.011	-0.01	0.001
c) Economic Variables									
FINANCIAL SATISFACTION	0.042***	5.35	0.004	0.041***	5.23	0.004	0.042***	5.73	0.004
UPPER CLASS	0.684**	2.13	0.112	0.628*	1.79	0.097	0.642	1.10	0.102
d) Employment Status									
SELFEMPLOYED	-0.172*	-1.72	-0.015	-0.207**	-2.17	-0.017	-0.203**	-1.98	-0.017
UNEMPLOYED	-0.118*	-1.70	-0.010	-0.104	-1.48	-0.009	-0.130**	-2.03	-0.011
e) Political Interest									
DISCUSSING POLITICS	0.085**	2.18	0.008						
INTEREST IN POLITICS				0.152***	4.44	0.014			
IMPORTANCE OF POLITICS							0.071**	2.09	0.007
Pseudo R2	0.026			0.037			0.028		
Number of observations	7392			7410			7385		

Notes: Standard errors adjusted for clustering on countries In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$.

Table 6

Determinants of Environmental Participation in Asian Countries

WEIGHTED PROBIT clustering on countries	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	0.029	0.60	0.003	0.034	0.60	0.004	0.037	0.80	0.004
AGE 50-64	0.170***	2.64	0.017	0.171*	1.87	0.020	0.147**	2.14	0.015
AGE 65+	-0.285	-1.17	-0.021	-0.148	-0.66	-0.014	-0.241	-1.31	-0.019
FEMALE	-0.170**	-2.18	-0.015	-0.212***	-2.94	-0.022	-0.226***	-3.05	-0.022
EDUCATION	0.039	1.63	0.004	0.034	1.55	0.004	0.046**	2.19	0.004
b) Marital Status									
MARRIED	0.032	0.60	0.003	0.057	1.21	0.006	0.020	0.42	0.002
c) Economic Variables									
FINANCIAL SATISFACTION	-0.002	-0.30	0.000	0.001	0.10	0.000	-0.006	-0.84	-0.001
UPPER CLASS	-0.360**	-2.27	-0.024	-0.363**	-2.23	-0.029	-0.347**	-2.30	-0.025
d) Employment Status									
SELFEMPLOYED	0.185*	1.83	0.019	0.117	1.14	0.013	0.165	1.54	0.017
UNEMPLOYED	0.155	1.46	0.016	0.058	0.68	0.006	0.128	1.19	0.013
e) Political Interest									
DISCUSSING POLITICS	0.334***	7.67	0.030						
INTEREST IN POLITICS				0.171**	2.17	0.018			
IMPORTANCE OF POLITICS							0.115***	2.94	0.011
Pseudo R2	0.045			0.033			0.030		
Number of observations	7065			5798			7087		

Notes: Standard errors adjusted for clustering on countries In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$.

Table 7

Environmental Participation and Corruption

WEIGHTED PROBIT	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
INDEPENDENT VARIABLES									
a) Demographic Factors									
AGE 30-49	-0.009	-0.24	-0.001	0.034	0.88	0.003	0.020	0.50	0.002
AGE 50-64	-0.009	-0.18	-0.001	0.078	1.58	0.008	0.056	1.13	0.005
AGE 65+	-0.206***	-2.93	-0.017	-0.087	-1.22	-0.008	-0.108	-1.47	-0.009
FEMALE	-0.125***	-4.06	-0.012	-0.135***	-4.41	-0.013	-0.112***	-3.53	-0.010
EDUCATION	0.036***	4.73	0.003	0.053***	7.66	0.005	0.044***	6.25	0.004
b) Marital Status									
MARRIED	0.013	0.37	0.001	-0.013	-0.38	-0.001	-0.013	-0.36	-0.001
c) Economic Variables									
FINANCIAL SATISFACTION	0.031***	4.67	0.003	0.035***	5.27	0.003	0.036***	5.44	0.003
UPPER CLASS	0.216*	1.80	0.025	0.137	1.08	0.014	0.145	1.11	0.015
d) Employment Status									
SELFEMPLOYED	0.146***	3.28	0.015	0.014	0.32	0.001	0.017	0.38	0.002
UNEMPLOYED	-0.032	-0.55	-0.003	-0.074	-1.27	-0.006	-0.076	-1.29	-0.007
e) Regions									
LATIN AMERICA				0.181***	4.63	0.018	0.210***	5.27	0.020
ASIA				0.246***	6.08	0.026	0.248***	6.02	0.026
AFRICA				0.996***	13.28	0.187	1.003***	13.31	0.187
f) Political Interest									
DISCUSSING POLITICS							0.144***	5.62	0.013
g) Institutional Quality									
CORRUPTION	0.088***	4.82	0.008	0.035*	1.86	0.003	0.039**	2.02	0.004
Pseudo R2	0.017			0.042			0.047		
Number of observations	24672			24672			24313		
Prob > chi2	0.000			0.000			0.000		

Notes: Robust standard errors. In the reference group are AGE<30, MALE, OTHER MARRIED STATUS, OTHER CLASSES, OTHER EMPLOYMENT STATUS, WESTERN EUROPE + USA + AUSTRALIA. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. CEE and FSU countries not included.

4. CONCLUDING REMARKS

Since the 1970s, the number of environmental studies has been growing. However, there is still a lack of papers that investigate the determinants of participating in voluntary environmental organizations. The rapid growth of the social capital literature inspired our efforts to check in detail the determinants of this variable. In an environmental context, social capital seems to improve the effectiveness of public environmental policies. Additionally, non-active forms of participation in environmental groups don't generate positive environmental outcomes (Pretty and Smith, 2004).

Furthermore, it is a promising line to search empirically for factors mostly neglected in previous studies such as political discussion and political interest. This empirical study analyses a cross-section of individuals using the World Values Survey wave III (1995-1997) covering 38 countries. The estimations not only investigate regional differences but are also performed for various geographic sub-samples to compare the relevance of our independent variables in different environments. One of the major advantages of the data set is that different cultural regions can be investigated, i.e. we can assess the cross-culture robustness of our investigated variables.

The results indeed indicate that there are differences between regions. Interestingly, inhabitants of LATIN AMERICA, ASIA and AFRICA have a higher probability to participate in voluntary environmental organizations than Western societies. However, although we work with an extensive survey, the interpretation of regional differences should be treated with caution, as only a limited number of countries are available in each category. Interestingly, we observe the tendency that environmental participation is used as a channel for action in developing countries, where weak and dysfunctional states lead people to pursue their goals through non-governmental sector activities. Such an arguments is supported when investigating the impact of corruption on individuals' active participation in environmental

organizations. A higher perceived corruption leads to stronger participation which shows that individuals are able to find alternative ways to express their preferences and take action.

However, our study provides further significant findings. It shed some light who is going to participate, whose priorities and values are forwarded through voluntary activities and to what extent voluntary participation can achieve representativeness. The findings in the pooled estimations indicate the tendency of a negative correlation between age and environmental participation. Women report a lower probability of participating in environmental organizations. Interestingly, gender differences are observable in all regions except in Western societies, with the strongest marginal effects for Asia. The variables EDUCATION, FINANCIAL SATISFACTION, UPPER CLASS and SELF-EMPLOYED indicate a positive correlation with the probability of participating in environmental organizations, which shows that an argumentation based on individuals' opportunity costs is empirically not well founded.

In sum, the paper shows that socio-demographic and socio-economic variables help to understand what shapes individuals' probability of participating in a voluntary environmental organization. This paper also shows the relevance of political discussion and political interest, variables that have mostly been neglected beforehand in the environmental literature. These variables have a strong impact on the probability of participating in environmental organizations. All three proxies for political interest and political discussion have a statistically significant positive impact with relatively high marginal effects.

These findings can be useful in order to create and maintain social capital to better preserve the environment. As Pretty and Smith (2004) pointed out, it important than international agencies, governments, and other organizations accept and understand that investment in the creation of social capital pays-off. Thus, all kind of efforts made to characterize the kind of people who participate actively in environmental organizations help to assure those investments' success.

REFERENCES

Adger, W.N. (2003), 'Social capital, collective action and adaptation to climate change', *Economic Geography*, 79, 387-404.

Ajzen, I. and Driver, B.L. (1992) Application of the theory of planned behavior to leisure choice, *Journal of Leisure Research*, 24: 207-213.

Alm, J., Martinez-Vazquez, J. and Torgler, B. (2005) *Russian Attitudes Toward Paying Taxes – Before, During, and After the Transition*, CREMA Working Paper 2005-27, Center for Research in Economics, Management and the Arts: Basel.

Almond, G. A. and S. Verba (1963) *The Civic Culture: Political Attitudes and Democracy in Five Nations*, Princeton University Press: Princeton.

Andreoni, J. (1988) Privately provided public goods in a large economy: the limits of altruism, *Journal of Public Economics*, 35(1): 57-73.

Andreoni, J. and Vesterlund, L. (2001) Which is the fair sex? Gender differences in altruism, *Quarterly Journal of Economics*, 116: 293-312.

Bekker, R. (2005) Participation in voluntary associations: relations with resources, personality, and political values, *Political Psychology*, 26: 439-454.

Blomquist, G.C. and Whitehead, J.C. (1998) Resource quality information and validity of willingness to pay in contingent valuation, *Resource and Energy Economics*, 20: 179-196.

Bord, R. J. and O' Connor, R. E. (1997) The gender gap in environmental attitudes: the case of perceived vulnerability to risk, *Social Science Quarterly*, 78: 830-840.

Bourdieu, P. (1979) Les trois états du capital culturel*, Actes de la Recherché en Sciences Socials,* 30: 3-6.

Brown, K. and Taylor, L. (2000) Do as you say, say as you do: evidence on gender differences in actual and stated contributions to public goods, *Journal of Economic Behavior and Organization*, 43: 127-139.

Brown-Kruse, J. and D. Hummels, D. (1993) Gender effects in laboratory public goods contribution: do individuals put their money where their mouth is?, *Journal of Economic Behavior and Organization*, 22: 255-267.

Bussel, H. and Forbes, D. (2003) Understanding the volunteer market: the what, where, who and why of volunteering, *International Journal of Nonprofit and Voluntary Sector Marketing*, 7(3): 244-257.

Cameron, T.A. and Englin, J. (1997) Respondent experience and contingent valuation of environmental goods, *Journal of Environmental Economics and Management*, 33: 296-313.

Clark, C.F., Kotchen, M.J. and Moore, M.R. (2003) Internal and external influences on pro-environmental behaviour: participation in a green electricity program, *Journal of Environmental Psychology*, 23: 237-246.

Coleman, J. S. (1988) Social capital in the creation of human capital, A*merican Journal of Sociology*, 94: 95-121.

Coleman, J. S. (1990) *Foundations of Social Theory*, Belknap Press of Harvard University Press: Cambridge, Mass.

Danielson, L., Hoban, T.J., Van Houtven, G. and Whitehead, J.C. (1995) Measuring the benefits of local public goods: environmental quality in Gaston County, North Carolina, *Applied Economics*, 27: 1253-1260.

Davidson, D. J. and Freudenburg, W. R. (1996) Gender and environmental risk concerns: a review and analysis of available research, *Environmental and Behavior*, 28: 302-329.

Dekker, P. and A. van den Broek (1998) Civil society in comparative perspective: involvement in voluntary associations in North America and Western Europe, *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 9: 11-38.

Dupont, D.P. (2004) Do children matter? An examination of gender differences in environmental valuation, *Ecological Economics*, 49: 273-286.

Engel, U. and Pötschke, M. (1998) Willingness to pay for the environment: social structure, value orientations and environmental behavior in a multilevel perspective, *Innovation*, 11(3): 315-332.

Franzen, A. (2003) Environmental Attitudes in International Comparison: An Analysis of the ISSP Surveys 1993 and 2000, *Social Science Quarterly*, 84: 297-308.

Freeman, R. B. (1997) Working for nothing: the supply of volunteer labor, *Journal of Labor Economics*, 15: S140-S.166.

Fukuyama, F. (1995) Social capital and the global economy*, Foreign Affairs*, 74: 89-103.

Gambetta, D. (1988) *Trust, Making and Breaking Cooperative Relations*, Blackwell: Oxford.

Grootaert, C. (2001) Social capital: the missing link?, in: P. Dekker and E. Uslaner (eds.), S*ocial Capital and Participation in Everyday Life*, Routledge: London.

Guagnano, G.A., Stern, P.C. and Dietz, T. (1995) Influences on attitude-behavior relationships: a natural experiment with curbside recycling, *Environment and Behavior*, 27(5): 699-718.

Guerin, D., Crete, J. and Mercier, J. (2001) A multilevel analysis of the determinants of recycling behavior in the European countries, *Social Science Research*, 30: 195-218.

Hardin, R. (1993) The street-level epistemology of trust, *Politics and Society*, 21: 505-531.

Hidano, N., Kato, T. and Aritomi, M. (2005) Benefits of participating in contingent valuation mail surveys and their effects on respondent behavior: a panel analysis, *Ecological Economics*, 52: 63-80.

Hines, J., Hungerford, H. and Tomera, A. (1986-87) Analysis and synthesis of research on responsible environmental behavior, *Journal of Environmental Education*, 18: 1-8.

Howell, S.E. and Laska, L.B. (1992) The changing face of the environmental coalition: a research note, *Environment and Behavior*, 24: 134-144.

Hunter, L. M., Hatch, A. and Johnson, A. (2004) Cross-national gender variation in environmental behaviors, *Social Science Quarterly*, 85: 677-694.

Hwang, M., E. Grabb and J. Curtis (2005) Why get involved? reasons for voluntary-association activity among Americans and Canadians, *Nonprofit and Voluntary Sector Quarterly*, 34: 387-403.

Inglehart, R. et al. (2000) *Codebook for World Values Survey,* Ann Arbor: Institute for Social Research.

Israel, D. and Levinson, A.(2004) Willingness to pay for environmental quality: testable empirical implications of the growth and environmental literature, *Contributions to Economic Analysis & Policy*, 3(1): art.2.

Jackson, E.L. (1987) Outdoor recreation participation views on resource development and preservation, *Leisure Sciences*, 9: 235-250.

Jensen, B.B. (2002) Knowledge, action and pro-environmental behaviour, *Environmental Educational Research*, 8(3): 325-334.

Kealy, M., Montgomery, M. and Dovidio, J. (1990) Reliability and predictive validity of contingent values: does the nature of the good matter?, *Journal of Environmental Economics and Management*, 19: 244-263

Kollmuss, A. and Agyeman, J. (2002) Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behaviour?, *Environmental Educational Research*, 8(3): 239-260.

Luzar, E.J., Diagne, A., Gan, C. and Henning, B.R. (1995) Evaluating nature based tourism using the new environmental paradigm, *Journal of Agricultural Applied Economics*, 27(2): 544-555.

Messick, D.M. and Brewer, M.B. (1983) Solving social dilemmas: a review, in Wheeler, L. and Shaver, P. (eds.), *Review of Personality and Social Psychology*, 4: 11-44, Sage Publications: Beverly Hills:.

Mohai, P. (1992) Men, women, and the environment: an examination of the gender gap in environmental concern and activism , *Society and Natural Resources*, 5: 1-19.

Molinas, J.R. (1998), 'The impact of inequality, gender, external assistance and social capital on local level cooperation', *World Development*, 26(3), 413-431.Nord, M., Luloff, A.E. and Bridger, J.C. (1998) The association of forest recreation with environmentalism*, Environment and Behavior*, 30: 235-246.

Nowell, C. and Tinkler, S. (1994) The influence of gender on the provision of a public good, *Journal of Economic Behavior and Organization*, 25: 25-36.

Ostrom, E. and T. K. Ahn (eds.) (2003) *Foundation of Social Capital,* Critical Studies in Economic Institutions, Edward Elgar: Cheltenahm, UK.

Paldam, M. (2000) Social capital: one or many? definition and measurement, *Journal of Economic Surveys*, 14: 629-653.

Paavola, J., and Adger, W. N. (2005), 'Institutional ecological economics', *Ecological Economics* 53, 353-368.Piliavin, J.A. and Charng, H. (1990) Altruism: a review of recent theory and research, *Annual Review of Sociology*, 16: 27-65.

Portes, A. and M. Mooney (2002). Social Capital and Community Development, in: M. F. Guillén, R. Collins, P. England and M. Meyer (eds.), *The New Economic Sociology. Development in an Emerging Field*. Russell Sage Foundation: New York: 303-329.

Pretty, J. and Smith, D. J. (2004), 'Social capital in biodiversity conservation and management', *Conservation Biology,* 18(3), 631-638.

Pretty, J. and Ward, H. (2001), 'Social capital and the environment', *World Development,* 29(2), 209-227.Putnam, R. D. (1993) *Making Democracy Work. Civic Traditions in Modern Italy*, Princeton University Press: Princeton.

Schultz, P.W. and Zelezny, L.C. (1998) Values and pro-environmental behavior: a five-country survey, *Journal of Cross-Cultural Psychology*, 29(4): 540-558.

Smith, D.J. (1999) Poor marketing on the decline of altruism? Young people and volunteering in the United Kingdom, *International Journal of Nonprofit and Voluntary Sector Marketing*, 4(4): 372-377.

Swallow, S., Weaver, T., Opaluch, J. and Michelman, T. (1994) Heterogeneous preferences and aggregation in environmental policy analysis: a landfill siting case, *American Journal of Agricultural Economics*, 76: 334-431.

Thompson, S.C.G. and Barton, M.A. (1994) Ecocentric and anthropocentric attitudes toward the environment, *Journal of Environmental Psychology*, 14: 149-157.

Tittle, C. (1980) *Sanctions and Social Deviance: The Question of Deterrence*, Praeger: New York.

Torgler, B. (2006) The importance of faith: tax morale and religiosity, forthcoming: *Journal of Economic Behavior and Organization*.

Torgler, B. and M. A. Garcia-Valiñas (2005) *The Determinants of Individuals' Attitudes Towards Preventing Environmental Damage*, Fondazione Eni Enrico Mattei (FEEM) Working Paper Series. No. 110.05: Milano.

Van Liere, K. and Dunlap, R. (1980) A review of studies that measured environmental attitudes and behaviors, *Environment and Behavior*, 11: 22-38.

Westerman, O., Ashby, J. and Pretty, J. (2005), 'Gender and social capital: the importance of gender differences for the maturity and effectiveness of natural resource management groups', *World Development,* 33 (11), 1783-1799.Whitehead, J.C. (1991) Environmental interest group behaviour and self-selection bias in contingent valuation mail surveys, *Growth and Change*, 22: 10-21.

Wilson, J. and M. A. Musick (1999) Attachment to volunteering, *Sociological Forum*, 14: 243-272.

Witzke, H.P. and Urfei, G. (2001) Willingness to pay for environmental protection in Germany: coping with the regional dimension, *Regional Studies*, 35(3): 207-214.

Woolcock, M. (1998), 'Social capital and economic development: toward a theoretical synthesis and policy framework, Theory and Society', 27, 151-208.Wymer, W.W. (1998) Youth development volunteers: their motives, how they differ from other volunteers and correlates of involvement intensity, *International Journal of Nonprofit and Voluntary Sector Marketing*, 3: 321-336.

Zelezny, L.C., Chua, P.P. and Aldrich, C. (2000) Elaborating on gender differences in environmentalism, *Journal of Social Issues*, 56: 443-457.

APPENDIX

Table A1

Description of Variables

Variable	**Derivation**
AGE	DUMMIES AGE 30-49, AGE 50-64, 65+ (reference group, AGE < 30)
GENDER	FEMALE (MALE in the reference group)
EDUCATION	Continuous variable What is the highest educational level that you have attained? 1. No formal education 2. Incomplete primary school 3. Completed primary school 4. Incomplete secondary school: technical/vocational type 5. Complete secondary school: technical/vocational type 6. Incomplete secondary: university-preparatory type 7. Complete secondary: university-preparatory type 8. Some university-level education, without degree 9. University-level education, with degree
MARITAL STATUS	DUMMY: MARRIED=1, all other classes (divorced, separated, widowed, single) in the reference group.
FINANCIAL SATISFACTION	How satisfied are you with the financial situation of your household? (scale 1 = dissatisfied to 10=satisfied)
ECONOMIC CLASS	People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the: DUMMY: UPPER CLASS, the rest (middle class, working class and lower class) is the reference group.
EMPLOYMENT STATUS	TWO DUMMIES: SELFEMPLOYED, UNEMPLOYED, the rest (part time employed, at home, student, retired, other) is in the reference group.
CORRUPTION	To assess the level of perceived corruption from the WVS, we use the following question: How widespread do you think bribe taking and corruption is in this country? Almost no public officials are engaged in it (1) A few public officials are engaged in it (2) Most public officials are engaged in it (3) Almost all public officials are engaged in it (4)

Source: Inglehart et al. (2000).