

THE INFLUENCE OF SOCIAL CAPITAL ON WILLINGNESS TO PAY FOR THE ENVIRONMENT AMONG EUROPEAN CITIZENS

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ABSTRACT: Social capital has been recognized as one of the most influential concepts in social and political sciences. It is assumed that it has significant influence on several issues such as health status, educational achievement and environmental attitudes. In the present article we attempt to investigate the influence of social capital on the tendency of European citizens to contribute money for the environment using data from EVS 1999/2000. Firstly, an estimation of individual social capital is calculated for European citizens with the use of Confirmatory Factor Analysis. Secondly, the relation between individual social capital and willingness to pay (WTP) is examined. Thirdly, further evidence is provided by introducing in the analysis the influence of other factors such as income, age, gender and educational level. In addition, the influence of contextual factors on WTP is explored. Through the results of the study it is observed that most European citizens are willing to pay for the environment and their decision is influenced significantly from elements of social capital. Furthermore, on a contextual level only some of the factors investigated explain the tendency to contribute money for the environment.

Key words: social capital; willingness to pay (WTP); environmental attitudes; national differences

1. Introduction

The conservation of the environment is a major challenge for the European countries. Environmental problems may range in scale, from local to international problems necessitating cooperation of citizens and actors for their resolution. In this context there is a growing literature

analyzing the interaction between society and the environment. The present article will focus on one specific attitude of European citizens: their willingness to contribute money for the environment and the influence of social capital components on their decision.

Willingness to pay (WTP) for the environment has been extensively analyzed in the literature. From the perspective of environmental economics WTP of citizens is estimated in order to price environmental goods and investigate factors influencing their decision. The main factors identified in the relevant literature may be classified in three categories (see Mitchell and Carson 1989; Bateman and Turner 1993; Hanley and Spash 1993). A first set of factors refers to demographic data such as age, gender and the number of household members. Secondly, economic factors, such as individual or household income and thirdly factors which refer to individuals' attitudes towards the environmental good being valued. In addition, the influence of political factors such as the involvement of the state in the provision of environmental goods (Meyerhoff and Liebe 2006) and the idea that the state should be responsible to pay for expenditures on environmental issues (e.g., Jones *et al.* 2008a) have been proposed. Other studies have explored the influence of materialist and post-materialist attitudes (Gelissen 2007), the level of political interest (Torgler and Garcia-Valinas 2007), free-riding behaviour¹ and issues of collective action (Mitchell and Carson 1989; Jones *et al.* 2008a). Finally, contextual variables in country-level have also been investigated (Gelissen 2007).

The aim of this study is to further explore this field by proposing the influence of social capital components (namely 'generalized' and 'institutional trust', 'social networks', 'social norms' and 'civic participation') on the tendency of individuals to contribute money for the environment. Although there is no widely accepted definition, it is assumed that social capital influences individuals' tendency to act in a collective manner (Putnam 1993) and in this context, it has been introduced to environmental issues. In particular, it is assumed that higher stocks of social capital may facilitate environmental management significantly (Pretty 2003) mainly due to the former's connection with individual behaviour (Pretty and Ward 2001; Rydin and Pennington 2001; Pretty 2003; Torgler and Garcia-Valinas 2007).

Consequently, the main hypothesis to be tested in the present study is that individuals with a higher 'stock' of social capital will have a greater tendency to contribute money for the environment. In addition, the

1. Free-riding behaviour refers to the situation where citizens accept the benefits from the use of an environmental good but are unwilling to share the cost that it implies (Olson 1965).

influence of several other variables, both at the individual and contextual level, will be assessed. For this purpose, we use data from 24 European countries that participated in the European Values Survey (1999). The article is divided into five main parts. Firstly, an analysis of the main connections of social capital with environmental issues is presented in order to justify the primary hypothesis tested in the article. Secondly, the data and methodology used are presented and next, the results of the study are analyzed. In the final section a discussion of the findings is provided followed by the main conclusions of the article.

2. Social capital and natural resources

2.1. Individual level influences

Social capital is one of the most influential terms in the social sciences of the last decade. According to several analysts, social capital refers to social characteristics, which promote collective activity towards the common good (Coleman 1990; Putnam 1993). Components of social capital may include social and institutional trust, social networks, civic participation and the level of compliance to social norms (Coleman 1990; Putnam 1993, 2000; Woolcock and Narayan 2000; Bowles and Gintis 2002). The wide expansion of the theory of social capital has also been accompanied by significant criticism regarding issues of definition, its components and consequences (see Levi 1996; Newton 2001; Uslaner and Conley 2003; Pawar 2006). Despite this critique, the theory has been widely used mainly due to its connection with public policy issues (e.g., Newton 1999; Whiteley 2000; Wallis and Dollery 2001) and its promising insights for studying collective and individual behavior (Coleman 1988; Zhao 2002; Poortinga 2006).

Regarding the connection of social capital to environmental issues, it has been recently argued that in communities with higher stocks of social capital there is a tendency among citizens to act in a collective manner for the conservation of natural resources (Pretty and Ward 2001; Pretty 2003; Rydin and Pennington 2003). A primary link derives from the fact that the management of natural resources necessitates cooperation and participation of community members. The transaction costs and consequently the level of participation may be influenced positively from elements of social capital, mainly referring to social trust and the density and type of social networks (Woolcock 1998; Fukuyama 2001; Pretty and Ward 2001; Lubell 2002).

Another important issue focuses on the need of pursuing the common good when managing natural resources. The tendency of citizens towards

this direction is connected with the level of trust developed among citizens. In particular, environmental behaviour of individuals is influenced by the belief that, in general, the members of the community act in the interests of the common good (Pretty 2003; Rydin and Holman 2004). In this context, it is argued that higher stocks of social capital minimize the occurrence of 'free-riding' behaviours (Coleman 1990) a fact which is connected to the general tendency of compliance with social norms in a community (Pretty 2003).

The level of trust towards institutions is equally important (Beierle and Cayford 2002). Natural resources, as public goods, are mainly managed by the state through public policies. Consequently, trust towards institutions involved in these procedures and the belief in their legitimacy, influences citizens' compliance with environmental regulations and consequently their environmental behaviour. This assumption has also been pointed out through several studies of WTP, where citizens' refusal to pay for the environment was justified by their distrust towards governmental management (e.g., Damigos and Kaliampakos 2003; Jones *et al.* 2008a).

A final component of social capital connected with environmental behaviour refers to formal social networks and civic participation. The term 'formal social networks' refers to the density of citizens' participation in organized social groups, such as sport clubs and non governmental organizations (see Paxton 1999; Newton and Norris 2000; Narayan and Cassidy 2001; Beugelsdijk and van Schaik 2005; van Oorschot *et al.* 2006). A main function of these networks (which mainly refer to 'bridging' social capital – see Putnam 2000: 22; Kaariainen and Lehtonen 2004) is that they facilitate the flow of information and thus may influence the level of awareness on environmental issues.

Regarding civic participation, it mainly refers to the level of political interest. It may be assumed that citizens who are interested in political issues are more informed and concerned on environmental issues. To that extent, numerous studies have substantiated the supportive function of social networks for activism in general (Rosenstone and Hansen 1993; Knoke 1994; Verba *et al.* 1995; Klandermans 1997; Downton and Wehr 1998), and environmental activism in particular (Tindall 2002; Wakefield *et al.* 2006).

From the above, analysis it follows that social capital is related to environmental behaviour. However, limited studies have explored the influence of social capital, as a multidimensional concept, on a specific environmental behaviour in general and specifically WTP (e.g., Torgler and Garcia-Valinas 2007). Thus, the present study will explore the influence of social capital on the tendency of European citizens to contribute money for natural resources.

2.2. National influences

Apart from the individual determinants of environmental behaviour, broader, societal, influences also come into play. Thus, previous research on environmental behaviour, especially the trait which deals with socio-psychological constructs – i.e., the role of values, beliefs, etc. (Dietz *et al.* 1998) – has demonstrated that behaviour is also shaped by nation-level cultural values. Thus, Oreg and Katz-Gero (2006) 27-countries' analysis has shown that incorporating country-level values, particularly 'post-materialism' (Inglehart 1977), as contextual antecedents, influences individual environmental attitudes and behaviours. Furthermore, national differences can also be accounted for on the basis of different, actual, environmental conditions. A number of studies have supported the correlation between environmental concern and objective environmental problems, albeit predominantly at the local level (Inglehart 1995; Blake 2001; Scruggs 2002; Bamberg 2003). Finally, differences between countries could be related to different national policies, and to citizens' perceptions of them. Thus, Guerin *et al.* (2001) multilevel analysis of the determinants of recycling behaviour in European countries, showed that individuals' 'perceptions of the effectiveness of the public bodies regarding their action to protect the environment' as well as contextual 'national state of policies implemented in the sector of waste management' do increase individual (Guerin *et al.* 2001: 207) and public participation in recycling activities (Guerin *et al.* 2001: 211).

More related to our research, are the findings that there are national differences concerning social capital in Europe (Kaariainen and Lehtonen 2006; van Oorschot *et al.* 2006) and also that national, contextual-level variables (such as GDP and environmental conditions) do influence an individual's willingness to pay for the environment (Gelissen 2007). Thus, in the subsequent analysis we shall also check for possible influences of macro-level variables to the individual willingness to pay.

3. Data and methodology

In order to conduct the analysis, data were obtained from the European Values Survey (wave of 1999) for 24 European countries² (Table 1). A set of variables were selected as indicators of individual social capital while for assessing the WTP the question '*Would give part of my income for the environment*' was used. The analysis was conducted in two main stages.

2. The selection of the 24 countries was based on the availability of variables included in the model of the study.

TABLE 1. Countries included in the study and sample sizes

<i>Country</i>	<i>Sample size</i>	<i>Country</i>	<i>Sample size</i>
Austria	1520	Italy	2000
Belgium	1912	Lithuania	1018
Bulgaria	1000	Luxembourg	1211
Belarus	1000	The Netherlands	1003
Czech Republic	1908	Poland	1095
Denmark	1023	Portugal	1000
Finland	1038	Russian Federation	2500
France	1615	Slovenia	1006
Germany	2036	Spain	1200
Greece	1142	Ukraine	1195
Iceland	968	United Kingdom	1000
Ireland	1012	Northern Ireland	1000
TOTAL SAMPLE: 31,402			

In the first stage we estimated the individual social capital, whereas in the second stage the exploration of the possible relation of the estimated social capital and other societal and contextual factors with the willing of individuals to contribute money for the environment was investigated.

The literature of measuring social capital has increased significantly in the last decade (e.g., Narayan and Cassidy 2001; Grootaert and Bastelaer 2002; van der Gaag and Snijders 2005). In the present study several variables commonly used in relevant surveys were selected, although there is no widely acceptable method for measuring social capital. In addition, for the measurement of individual social capital, Confirmatory Factor Analysis (CFA) was conducted, which permits testing factor analysis modelling hypotheses with a specific factor structure (e.g., van Oorschot *et al.* 2006).

The variables selected (all in ordinal scale) were organized in four factors. The first factor (**NETWORKS**) aimed at measuring formal social networks and consisted of two variables distinguishing passive and active participation (as proposed by Beugeldsijk and van Schaik 2005). The first variable (*PASS*) displayed whether the individual was a member to at least one of a list of organizations presented in the questionnaire of the study, and the second (*ACT*) whether the individual was a volunteer to at least one of these organizations.

The second factor (**TRUST**) deals with social and institutional trust (see Paxton 1999; Newton and Norris 2000). For the measurement of this factor five variables were included. The first one (*STRUST*) was the commonly used question of social trust (see Paxton 1999; van Oorschot *et al.* 2006): 'Most people can be trusted or you can't be too careful'. The

remaining questions examined the level of trust on different types of institutions: the police (*POLICE*), the national parliament (*PARL*), the civil services (*CIVIL*) and the justice system (*JUST*).

A third factor (**NORMS**) referred to social norms and examined the perception of individuals towards actions connected to the common good. Three indicative actions were chosen where individuals declared the level that they regarded them as justifiable (claiming governmental benefits, *BENF*; cheating on taxes, *TAX*; and someone accepting a bribe, *BRIBE*) (see also van Oorschot *et al.* 2006).

A final factor (**CIVIC**) created was 'civic participation' indicating the level of interest for public issues (e.g., Narayan and Cassidy 2001; Hjollund and Svensen 2003; van Oorschot *et al.* 2006). Three variables were included: whether the individual regarded politics as important in life (*IMP*), how often the individual discusses political matters with friends (*DISC*) and the frequency of following politics in the news (*NEWS*).

Prior to estimating individual social capital the relation of social capital variables with WTP was investigated and statistically significant interrelations were observed among all variables of social capital and the WTP of individuals ($P < 0.05$).

4. Analysis and results

4.1. Estimation of individual social capital

In order to proceed to social capital measurement, a social capital score for each individual was calculated, using the European Values Survey data. Various approaches and models may be utilized for analyzing ordinal categorical variables in the latent analysis framework. Among them, Muthen (1984) and Jöreskog (1994) proposed estimation methods for handling ordinal polytomous data. Thus, Confirmatory Factor Analysis (CFA) was conducted for the estimation of individual social capital using the selected variables mentioned in the previous section and the methodology of ordinal-scale variables (see Jöreskog and Moustaki 2006).³

The estimated CFA model of the study is presented via the path diagram of Figure 1. In this path diagram squares represent observed

3. Specifically, the latter methodology is a three-step approach that in the first step estimates thresholds from the categorical observed variables, in the second step the polychoric correlations for the given thresholds of the first step are estimated and in the final step the CFA model is estimated from the polychoric correlations using the method of weighted least squares.

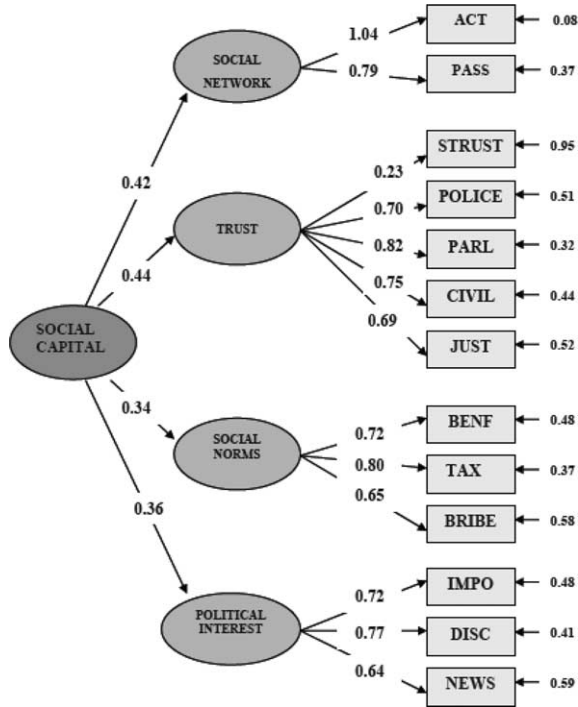


Figure 1. Path diagram.

variables, whereas circles represent latent variables. Moreover, numerical values along each arrow correspond to factor loadings for each observed variable on the corresponding first-order latent variable and factor loadings of each first-order latent variable on the single second-order latent variable. Loadings appearing on the path diagram are the standardized factor loadings. Chi-square statistic for testing model's adequacy was 2911.27 ($df = 61, P < 0.001$) and accordingly, the null hypothesis that the model provides a good fit to the data was not rejected.⁴ Since the CFA model fulfilled the requirement of strong associations between observed and latent variables, individual factor scores were derived of the second-order CFA model and used as estimates of individual social capital.

4. In addition, indices values of goodness-of-fit of the model obtained from LISREL 8.8 also indicate that the second-order factor model tested provided a good fit to the 13 observed variables: RMSEA: 0.043 (accepted boundaries 0.00–0.06), GFI = 0.99, AGFI = 0.99, NNFI = 0.95, NFI = 0.96, CFI = 0.96 (accepted boundaries > 0.90).

4.2. National differences in social capital

Through individual factor scores the mean score for each country included in the analysis was estimated (see also Kääriäinen and Lehtonen 2006). A reverse on the scales used in the EVS was conducted in order higher scores to indicate higher stocks of social capital.

In addition, differences among European regions were explored, by dividing countries in five main categories.⁵ A first category refers to the Scandinavian countries participating in EVS including Iceland. A second category refers to the Anglo-Saxon countries (or Liberal), including Ireland and Great Britain and Northern Ireland. Thirdly, South European (or the Latin Rim) countries (Spain, Italy, Greece, Portugal). A different category was created for the Conservative (or Bismarckian) countries (Austria, Belgium, France, Germany, Luxembourg and The Netherlands). Finally all post-socialist countries were included in the fifth category.

The results of the measurement are in accordance with the relevant literature regarding regional differences of social capital (e.g., Kääriäinen and Lehtonen 2006; van Oorschot *et al.* 2006). The highest stock of social capital is observed in the Scandinavian countries (mean score: 2.208), followed by the Anglo-Saxon countries (mean score: 2.078). The lowest mean score is presented in post-socialist countries (mean score: 1.965). Yet we should note that for the purpose of the present study informal networks were not included in the analysis, which are regarded dense in the Latin Rim (Scheepers *et al.* 2002; Kaariainen and Lehtonen 2006; Jones *et al.* 2008b).

4.3. Influence of social capital and other demographic data on willingness to pay

The question selected for the investigation of WTP among European citizens was phrased as: *'Would give part of my income for the environment'*, with four possible answers 'Strongly Agree', 'Agree', 'Disagree' and 'Strongly Disagree'. Regarding the total sample of European citizens, the majority (45.3 percent) 'agreed' in giving part of their income for the environment, while 13.8 percent 'strongly agreed'. Nevertheless, a

5. Several categorizations of European countries have been proposed in the literature (Esping-Andersen 1990; Ferrera 1996). In the present study countries were divided according to Ferrera (1996) categorization with the addition of the category of post-socialist countries (see also Kaariainen and Lehtonen 2006). The Netherlands, which has been analyzed both as a conservative and a socio-democratic country, is treated as a 'conservative' country in our study. Finally, Iceland, which has been included both in the Scandinavian and Liberal countries (see Arnason 2004; Olofsson *et al.* 2006), it is treated here as a Scandinavian country.

significant percentage of individuals ‘disagreed’ with the WTP question (27.7 percent) and 13.2 percent ‘strongly disagreed’. After estimating individual social capital and frequencies of WTP, the connection between them was investigated. It is observed that variations between average social capital scores for the four categories of WTP exist and higher scores of social capital correspond to higher WTP.

Nevertheless, it can not yet be concluded whether these differences are statistically significant. For this purpose, further statistical analysis must be utilized. In addition although measurements have been collected at an individual level, we also have to take into consideration possible variations among the 24 European countries of our dataset. In this context, a multilevel-type analysis was conducted in order to investigate the connections of WTP with social capital, while controlling for the variance between individuals and the variance among different countries. With only two sources of variation (level 1: individuals; level 2: countries), the fit of a generalized estimating equation (GEE) model (Liang and Zeger 1986) allowing two sources of variation was selected. For modelling the ordinal categorical response, the multinomial distribution and the cumulative logit were used as the model’s link function. Specifically, two multilevel models were assumed using WTP as the dependent variable (Table 2). A summary of the results of the fitted models is presented in Table 3, where the Wald-type test results indicate the significance for each effect separately.

TABLE 2. Parameter estimates from multilevel analyses of WTP

	<i>Model</i>	
	<i>1</i>	<i>2</i>
<i>Intercept</i>		
(WTP = 1)	-0.639** (0.323)	-0.798** (0.348)
(WTP = 2)	0.963*** (0.332)	0.852** (0.360)
(WTP = 3)	3.216*** (0.343)	3.147*** (0.369)
<i>Social Capital</i>	0.670*** (0.148)	0.801*** (0.491)
<i>Gender (ref.: Female)</i>		
Male	-	-0.116** (0.048)
<i>Age (ref.: 50+)</i>		
15-29	-	0.366*** (0.061)
30-49	-	0.206*** (0.047)
<i>Educational level (ref.: Upper)</i>		
Lower	-	-0.754*** (0.118)
Middle	-	-0.379*** (0.070)
<i>Income level (ref.: High)</i>		
Low	-	-0.155* (0.091)
Medium	-	0.035 (0.058)

* $P < 0.1$; ** $P < 0.05$; *** $P < 0.01$.

TABLE 3. Chi-square and associated *P* values for testing the overall significance of predictor variables

Factor	Model			
	1		2	
	Wald Chi-square	<i>P</i> value	Wald Chi-square	<i>P</i> value
Gender	–	–	5.642	0.018
Age	–	–	36.066	< 0.01
Educational level	–	–	45.042	< 0.01
Income level	–	–	8.115	0.017
SC	20.386	< 0.01	28.845	< 0.01

In the first model social capital scores were introduced as the only explanatory variable (level 1). According to the results of the model fit (Table 2), social capital is a significant predictor for WTP (beta coefficient = 0.67, $P < 0.01$). However, it is necessary to additionally examine the influence of other socio-economic factors.

By fitting the second model it is examined whether social capital remains statistically significant even after controlling for the influence of other individual variables. These include: Gender (reference category: females), Age (recoded into three intervals with reference category citizens over 50), Education level (reference category: Middle) and Income level (reference category: Medium). The results of the second model fit indicate that after the inclusion of these variables social capitals' effect remains significant (beta coefficient = 0.801, $P < 0.01$).

Regarding the connection of WTP with demographic data it is observed that women are more willing to contribute money compared to men (beta coefficient = -0.116 , $P < 0.05$). Furthermore, younger respondents (15–49) are more willing to pay for the environment compared to older respondents (50+) (beta coefficient = 0.366 , $P < 0.01$), whereas lower and middle educated people are also less willing to pay for the environment when compared to citizens of higher educational level. Finally, low income individuals are less willing to pay for the environment (beta coefficient = -0.155 , $P < 0.1$), while there is no statistical difference between medium and high income citizens ($P > 0.05$).

4.4. Context-level factors influencing WTP

Although the aim of the present article was to observe the influence of social capital on WTP in individual level, it is interesting to additionally observe the influence of other types of variables from an aggregate

perspective. National variations are of particular interest: ignoring either the within-country or the between-country variation in the data may lead to serious problems in analysing such data, for instance may cause standard errors of regression coefficients to be underestimated. Also, measuring only one source of variation, for example only variation among individuals, one loses significant information attributed to the between-countries differences. Moreover, the possible within-country correlation in the data should be considered since one could assume that measurements taken within the same country are more likely to be correlated, compared to measurements taken from different countries. Thus, we employ the five-fold country categorization of 'Regions' (or, welfare state-regime) we have already referred to in a previous section (reference category: Post-socialist region).

Also, similar to the study of Gelissen (2007: 402–3) four additional context-level covariates/factors were included in the previous model. For enhancing the comparability of our results, we use the same – yet not all-contextual factors employed by Gelissen (2007). Namely, 'GDP growth rate', measured by the GDP per capita annual growth rate (%) for the period 1990 to 2001 (UNDP 2003: 278). Next, 'population density', measured as people per square kilometre, in 2000 (Nationmaster.com 2008). Lastly, two indicators measuring actual environmental conditions, from the Environmental Sustainability Index (World Economic Forum 2001): 'Air quality-based on urban SO₂ concentration, urban NO₂ concentration, and urban total suspended particulates concentration – and water quality – based on dissolved oxygen concentration, phosphorus concentration, suspended solids, and electrical conductivity' (Gelissen 2007: 403). The theoretical reasons for choosing these factors are described in detail by Gelissen (2007: 395–6, 402–3) and can be summarized in a nutshell as follows: it would be easier for publics in wealthier states to allocate money for the environment while their willingness would be further enhanced by the existence of acute, objective, environmental problems – which are more easily identified and perceived in densely populated countries.

The results are presented in Table 4. We observe that the significances of social capital and the other demographic indicators remain relatively unaffected, even after the inclusion of the five country-level covariates/factors. Among these, only two have been found to be significant predictors in explaining WTP for the environment. In particular, population density is positively related to WTP (see Table 4), indicating that countries with higher density are more willing to pay. In addition, the welfare state-regime variable, dividing Europe in five main regions is also statistically significant in explaining variation of WTP (see Table 4). However, not all regions differ between them, in relation to WTP: only

TABLE 4. Influence of individual and contextual factors on WTP

<i>Factor</i>	<i>Wald Chi-square</i>	<i>P value</i>
Social capital	59.970	< 0.01
<i>Individual</i>		
Age	43.231	< 0.01
Gender	5.784	0.016
Educational level	64.658	< 0.01
Income level	8.805	0.012
<i>Contextual</i>		
Welfare regime	16.549	< 0.01
Air	1.063	0.303
Water	0.002	0.961
Population density	6.570	0.010
GDP growth rate	0.653	0.419

Anglo-Saxon and Conservative countries are statistically significantly less willing to pay for the environment compared to all other regions.

5. Discussion and conclusions

In the present study we found a strong connection between social capital and the decision of willing to contribute money for the environment, at the individual level. Individuals with higher stocks of social capital are more willing to give money even when taking into consideration other important socio-economic factors. Consequently it should be assumed that elements constituting social capital influence pro-environmental behaviour.

Regarding the different components of social capital included in our study it can be claimed that all elements have a significant influence as it was emphasized in the relevant literature. This implies that social trust may indeed minimize incidents of 'free-riding' and promote the tendency of individuals to act for the common good. Similarly, the influence of institutional trust may be connected with the belief that these institutions are responsible for the management of natural resources in the context of national and European environmental policies. This fact is in accordance with previous research findings: for example Sonderskov (2008) has demonstrated that aggregate generalized trust has a positive effect on national environmental group memberships. Regarding the importance of social networks, it was observed that citizens who participate in at least one organization are more willing to pay for the environment. This may be attributed to the role of networks on the flow of information for environmental issues and thus in the increase of environmental awareness.

Again, this finding is congruent with other research: Guerin *et al.* (2001) have demonstrated that the higher the participation in environmental organizations, the more the population is likely to recycle. We have also found that citizens who had an increased interest in politics presented a higher WTP.

A second important finding of our analysis is the fact that the majority of European citizens are willing to contribute money for the environment. Nevertheless statistical significant differences were observed among European regions. At the theoretical introduction we have discussed how national and context-level variables might influence individual behaviour. Our results have shown that a number of these variables, such as actual environmental conditions and GDP growth rate, have no impact on WTP, while others, such as population density, did. In addition regional differences were observed. Although a detailed explanation of these differences exceeds the scope of this article, we consider them (which are after all welfare *state-regime* differences) to be due to these macro-level variables which were not included in our model, namely political system and policy styles variables. Nevertheless, these regional (welfare regime) differences should not obscure the main finding of our paper. That is, that even in a model compromising both micro and macro/contextual level variables, the individual WTP is by far mostly influenced by the individual social capital.

Finally, some issues for further research must be underlined. One main issue refers to the measurement of social capital and the fact that there is no widely acceptable measurement technique. On the contrary there is significant differentiation among the variables included in several studies measuring social capital. In the present analysis we attempted to use the most commonly used variables. However, there is a need for a common measurement tool which may be used for comparative purposes among different surveys. Another suggestion in this direction is the further exploration of institutional trust on environmental attitudes. In particular, trust towards 'experts' and other entities (e.g., NGOs) involved in the process of environmental policy and management must also be investigated. Similarly, it is important to distinguish generalized and particularized trust (Uslaner and Conley 2003) and observe their different influence on environmental attitudes. Finally, it would be interesting to investigate social norms related to environmental issues as well as the influence of other type of networks included in bonding and linking social capital. A final major issue emerges regarding the aggregate and individual level analysis. In particular, through this article it is obvious that the explanation of macro phenomena necessitates an approach from a different perspective. It may be assumed that theories regarding the influence of cultural values (e.g., cultural theory, Ellis and Thomson 1997) along with

an exploration of local environmental conditions and the effectiveness of state environmental policies may contribute significantly to this discussion.

Despite these limitations the present article indicated that components of social capital in individual level influence a certain environmental behaviour. Consequently such social factors may be included and emphasized in future studies estimating the WTP of individuals and in general environmental behaviours. There is an increasing need of a more holistic approach in order to understand environmental attitudes and consequently be able to promote public participation and increase environmental awareness, essential prerequisites for sustainable communities.

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