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SOME SOCIO-DEMOGRAPHIC AND SOCIO-PSYCHOLOGICAL PREDICTORS OF ENVIRONMENTALISM

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Abstract. The article aims to reveal the relative impact of various socio-demographic and socio-psychological variables on empirical indicators of environmentalism (environmental concern, ecological behavior, environmental attitudes and beliefs). Standard multiple regression models were used for analyzing the data of a questionnaire study of a representative sample of an Estonian subpopulation (N = 440). Among socio-demographic variables age, sex, education and subjective religiosity were significant predictors of environmentalism. Among socio-psychological variables general values, perceived control over the environment, local attachment, as well as nature experiences in childhood had a significant impact on various indicators of environmentalism. Different measures of environmentalism were predicted by different patterns of independent variables.

Introduction

Two tendencies have emerged in contemporary public consciousness: on the one hand, superficial ecological awareness has become widespread and normative in Western developed nations (e.g. Nas 1995, Nas & Dekker 1996, Thompson & Rayner 1998), on the other hand – environmental mentality and ecological life-styles are becoming increasingly heterogeneous and inconsistent (Brand 1997, Macnaghten & Urry 1998). In other words, on a declarative level more and more people express their concern over the ecological situation and declare their willingness to contribute somehow to the protection of environment. However, in reality this concern may not be manifested consistently. Identification of factors that influence various forms of environmentalism remains a theoretical and empirical problem.

Environmental concern may be manifested both in representational phenomena (beliefs and attitudes concerning nature and human-environment relations) as well as in overt (ecological) activities (e.g. self-restriction in consumption, participation in ecological movements, willingness to sacrifice for environmental quality). Attitudinal phenomena and overt behavior are easily distinguishable, but relations

between them remain a controversial issue. Models based on attitude theories assume a causal chain starting from most general beliefs, proceeding to more specific attitudes and beliefs, which cause behavior intentions and/or actual behavior (e.g. Fishbein & Ajzen 1975). Other models consider the system of attitudes and the behavioral system as relatively independent and not necessarily consistent with each other (e.g. McGuire 1986). Alternatively (e.g. in the theory of social representations), attitudinal and behavioral aspects can be considered as two manifestations of the same underlying symbolic structures, therefore denying any causal relations between them (Wagner 1993).

In psychology environmentalism is most often conceptualized either in the framework of various *attitude theories* (e.g. theory of reasoned action (Fishbein and Ajzen 1975) and theory of planned behavior (Ajzen 1985) which deal with cognitive and normative beliefs that influence behavior intentions), or *theories of altruism* (e.g. norm activation model (Schwartz 1977) which deals with the activation of interiorized values through the processes of ascription of responsibility and awareness of consequences, resulting in the feeling of moral obligation to perform specific actions). An example of applying the attitude-theory approach to environmentalism could be a model by Kaiser et al (1999) that operates with such variables as knowledge (factual and normative), attitudes (towards environment and towards ecological behavior), a sense of responsibility and behavior intentions. Examples of altruistic models could be an extension of norm activation model to situations of individual contribution to common good (Blamley 1998), and a model of actively caring by Geller (1995) which emphasizes value preferences, self-esteem and a sense of belonging. Thogersen (1996) has compared these two general approaches, arguing that the theory of reasoned action implies that people decide on the basis of calculating costs and benefits resulting from the chosen alternative. On the other hand, when the action is perceived in the framework of morality, the perceived behavioral costs are not in the foreground, but, instead, the moral value of the decision alternatives is under consideration. Kaplan (2000) has recently proposed to integrate the models of rational decision-making and of altruism in order to explain and change environmental behavior.

An integrative model of environmentalism has been presented by Stern (2000) which includes not only attitudinal variables, but also personal capabilities, contextual (interpersonal) and social structural variables. It is supposed that different varieties of environmentalism (types of ecological behavior) are associated with a specific set of determinants. The model postulates four causal levels: 1) social structural factors (variables that reflect position in the social structure, as well as institutional constraints and early socialization experiences); 2) general worldview, values and beliefs about human-environment relations; 3) specific beliefs and attitudes about environmental issues; 4) behavior commitments, intentions and environmentally relevant behavior. The causal chain inside the attitudinal domain moves from relatively stable elements of personality and belief structure to more specific beliefs about the environment, to beliefs about the

consequences of an action, personal responsibility and personal norm to take pro-environmental action. Different types of causal factors may interact (e.g. contextual or personality factors may promote or constrain the attitude-behavior associations). This approach regards environmentalism as a joint product of social structural, socialization and social psychological processes.

Predictors of environmentalism: empirical evidence

The model by Stern (2000) differentiates four types of causal variables of ecological behavior: 1) attitudinal factors (e.g. norms, values and beliefs), 2) external or contextual forces (e.g. legislation, price policy, rewards and sanctions, as well as interpersonal influences and community expectations), 3) personal capabilities (e.g. personal resources) and 4) habit or routine. We will present some empirical data concerning socio-demographic and socio-psychological predictors of environmentalism.

Although some authors (e.g. Dietz et al 1998) argue that there is little theoretical argumentation about why various *socio-demographic* variables would influence environmentalism, there are plenty of empirical evidence about the relationships between socio-demographic variables and the environmental concern or ecological behavior. Such variables like *age, education, gender, place of residence* and *political preferences* have often shown strong and consistent relations with environmentalism (younger, more educated, women, members of minority groups, urban residents and politically liberal showing more environmental concern), whereas *income, class membership, occupation* and *religious beliefs* have shown weak and inconsistent relationships with environmentalism (Stern, Dietz and Kalof, 1993; Dietz et al 1998, Zelezny et al. 2000). In another overview Greenbaum (1995) reports controversial results concerning the relationships of gender, socio-economic status and occupation with environmentalism. On the other hand, Brand (1997) claims that since the 1980s there are no more consistent relations between traditional socio-demographic categories and environmental attitudes or behavior.

Socio-psychological factors that influence a person's pro-environmental orientation may function both on the *individual* level (e.g. environmental locus of control (Allen & Ferrand 1999), authoritarianism (Schultz & Stone 1994), personal norms (Widegren 1998), emotional affinity towards nature (Kellert 1996; Kals et al. 1999), self-esteem (Geller 1995), self-assertiveness (Dake 1991), type of motivation (e.g. Green-Demers 1997, De Young 2000), ecological attitudes and knowledge (Stern 1992), general value orientation (Stern & Dietz 1994)), and on the *group* level (e.g. group identity (Bonaiuto et al 1996), pattern of social relations (Jaeger et al 1993), group norms of environmental friendliness (Widegren 1998), behavioral models of pro-environmental behavior (Dillon & Gayford 1997), to mention but a few.

Among individual level factors *ecological knowledge* and *perceived control over the state of the environmental situation* are considered as significant

determinants of ecological activity. On the one hand, a person has to know which kind of behavior is considered as environmentally friendly (including knowledge of ecological consequences of certain behavioral acts). On the other hand, a person has to see the effectiveness of his activity. If a person believes that his activities can make any difference (to the state of the environment), then he is more likely to engage in some kind of pro-environmental activity. Kaiser et al (1999) use the sense of environmental responsibility as a predicting variable in their theoretical model of environmental attitudes. We may also draw analogy to personal control as a component of self-affirmation (empowerment) in Geller's (1995) model of actively caring (see Allen & Ferrand, 1999). Geller's (1995) theory assumes that environmentally responsible behavior is motivated by the altruistic attitude of "actively caring" (tendency to feel sympathy for and to help others) which is related to personality factors of self-affirmation (self-esteem, belongingness, personal control, self-efficacy, optimism). Analogously, Macnaghten & Urry (1998), relying on the results of their qualitative study, stress the importance of the *sense of agency* (perceived tractability of environmental issues, sense of power or freedom to do anything for the environment) as a significant element of environmental consciousness.

Among group level (interpersonal) factors, *group identity* and *perception of shared norms of pro-environmental behavior* in one's in-group are considered as conditions that promote environmentalism. Perception of shared norms may be conceptualized as an aspect of external support for the environmentally friendly behavior. Environmentally relevant individual actions are influenced by other people through perceived social norms and personal contact with people who already act pro-environmentally (see review by Stern, 1992). A study in a Swiss community (Jaeger et al 1993, cit. in Thompson & Rayner 1998:275–278), comparing different predictive models of pro-environmental behavior, found that sociocultural factors (namely group identity, interpersonal contacts and norms of pro-environmental behavior in the community) were more significant predictors of environmentally friendly behavior than general environmental concern (being informed) or socio-demographical variables (age, sex). If a person believes that pro-environmentalism is a norm in his or her in-group, (s)he will be more likely to engage in pro-environmental activities. Environmental friendliness of older people was explained by their greater attachment to local community and their more dense interpersonal relationships with friends and neighbors. This study indicates the significance of locally grounded ecological common sense in shaping individual pro-environmental behavior.

In different sociocultural circumstances various determinants of environmentalism may dominate (cf. Levy-Leboyer et al 1996, Nas & Dekker 1996).

Dietz et al (1998) have made the first effort to assess inductively the relative impact of various social structural and socio-psychological factors in shaping environmentalism, using regression analysis of the data from a representative national sample. Dietz et al (1998) posit the following causal ordering: social structural factors → general worldview about humanity and the environment →

specific attitudes and beliefs about environmental issues → behavior intentions → actual pro-environmental behavior. In general, social psychological variables appeared to have greater explanatory power than social structural variables, but their effect varied for different indicators of environmentalism (self-reported behavior and environmental beliefs).

Our study will follow the same logic.

Empirical study

The present study starts from the conceptual approach developed by Stern (2000) discussed above. We will use a simplified model that includes attitudinal factors (values, perceived control), socialization experiences (including nature experiences in childhood), contextual factors (perceived norm of pro-environmentalism and local attachment), and socio-demographic factors (age, sex, education, income, subjective religiosity) as predictors of environmentalism (habitual pro-environmental behavior, environmental concern, general environmental beliefs and specific attitudes to forest).

Our study aims to clarify the relative impact of social psychological and socio-demographic variables in determining various indicators of environmentalism. It is exploratory in the sense that no specific model will be tested.

Research questions and hypotheses

Based on the model by Stern (2000) and earlier empirical findings we suppose that the pattern of relevant predictors will be different for different indicators of environmentalism.

Sample and procedure

The data are based on a questionnaire study of a representative sample of adult population of Hiiumaa (N 440). The details are presented in Raudsepp (2001a).

Measures

A. Independent variables:

1. Socio-demographic variables: age (years) (mean = 43.6, SD = 18.07); sex (0 = male, 1= female), education (years of schooling) (mean = 11.7, SD = 3.5); income (mean monthly income per family member in Estonian crowns) (mean = 1620.2, SD = 922.3).

Subjective religiosity (self-assessment on a 5-point scale of the importance of religion in one's life) (mean = 2.9, SD = 1.4).

2. Socio-psychological variables

Local attachment was measured with an abridged collective self-esteem scale (Luhtanen & Crocker 1992) which was modified to measure the sense of worth

related to the local Hiiumaa community, assessment of 8 items on a 5- point scale. A composite *index of local self-esteem* (CSE) was computed (alpha = 0.8090, mean = 2.48, SD = 0.74).

The index of *perceived norm* of pro-environmental behavior was constructed as a mean of 2 items: "How many of your neighbors/inhabitants of your village try to act pro-environmentally?" and "How many of your friends/relatives try to act pro-environmentally?" (assessment on a 4-point scale) (α = 0.8541, mean = 3.06, SD = 0.68).

The index of *perceived control* over environment was constructed as a mean of 5 items ("How much can you do, if at all, about the environment at home, in home community, in Hiiumaa, in Estonia, in the world?"), assessment on a 5-point scale (α = 0.8509, mean = 2.88, SD = 0.99).

Values were measured, using an abridged version of the Schwartz value survey (44 items) (see Raudsepp, 2001a for details). Principal component analysis with Varimax rotation extracted 7 factors that explained 49.7% of the total variance. The first rotated factor (10%) with the highest loadings on 3 environmental values (protecting environment, beauty of nature, unity with nature), as well as value items *tradition, peace, social justice, honoring parents, politeness, national security (*loadings from 0.44 to 0.7) was used in the regression models.

Nature experiences in childhood: a summation index based on the mean scores of 7 items (that were assessed on a 5-point scale) that concerns associating childhood with natural environment (mean = 2.28, SD = 0.96).

B. Dependent variables:

Index of ecologically oriented activity: summation index of 15 items (assessed on a 4-point scale), encompassing pro-environmental behavior at home (using composting, recycling paper, separating hazardous waste) (alpha-reliability 0.776, mean = 3.02, SD = 0.45).

Index of environmental concern: summation scale, based on the mean response across 5 items (e.g. to what extent you are worried about the changes in the Earth's ozone layer, about the health of Hiiumaa forests, etc.) measuring self-assessed interest in specific (locally and globally relevant) ecological problems (alpha = 0.7946, mean = 2.44, SD = 0.38).

General environmental beliefs were measured with several question batteries using items from the scales proposed by Grendstad & Wollebaek (1998), Dunlap & Van Liere (1978). Summation indexes based on the first 2 rotated factors were used in the regression models (labeled as pro-nature and utilitarian beliefs)(see details in Raudsepp, 2001b).

Specific *attitudes* were measured as attitudes *towards forest.* 10 attitudinal items were factor analyzed and after the rotation 3 factors explained 59.4% of the total variance. Mean scores of the first factor (labeled as general positive attitude to forest) was entered into the regression models.

Data analysis

First, the data was controlled for assumptions of multiple regression analysis (linearity, normality of distribution, homogeneity of variance, and lack of outliers). Matrix of intercorrelations between variables is presented in Table 1.

Table 1

Matrix of intercorrelations of independent variables

	Age	Sex	Educ	Relig	Income	CSE	Norm	Contr	Child
Sex	0.082								
Educ	–0.383	0.005							
Relig	0.208	0.231	–0.024						
Income	–0.071	–0.115	0.205	–0.093					
CSE	0.231	0.040	–0.201	0.127	–0.004				
Norm	0.251	0.008	0.008	0.060	–0.020	0.182			
Contr	–0.109	0.049	0.173	0.075	–0.019	0.153	0.022		
Child	0.260	0.035	–0.187	0.102	–0.086	0.378	0.202	0.027	
Value	0.358	0.143	–0.111	0.252	–0.164	0.180	0.188	–0.110	0.280

We performed several multiple regression analyses with various environmental indexes as dependent variables. We used the standard method of multiple regression that allows to evaluate each independent variable in terms of what it adds to the prediction of the dependent variable that is different from the predictability afforded by all other independent variables included in the model (Tabachnick & Fidell, 1996). The following indexes described in the measures section were included as independent variables in the regression models: age, sex, education, subjective religiosity, income, index of collective self-esteem, value factor score, index of childhood nature experiences, index of environmental control and pro-environmental norm. Five different environmental indexes (index of ecological activity, index of environmental concern, pro-nature and utilitarian belief indexes, and attitudes to forest factor score) were successively used as dependent variables.

Results

The aim of the empirical analysis was to find out the extent to which a set of socio-demographic and socio-psychological variables account for the variance in different measures of environmentalism. The same group of predictors (10 variables) was used for 5 dependent variables.

The final models are shown in Table 2.

The table enables us to compare the pattern of predictors for different indicators of environmentalism.

Table 2

Standard multiple regression of socio-demographic and socio-psychological variables on measures of environmentalism (standardized beta coefficients)

	Ecological activity	Environmental concern	Pro-nature beliefs	Utilitarian beliefs	Attitude to forest
Age	0.162**	0.090	0.037	0.078	0.043
Sex	0.002	0.185***	0.086	–0.073	0.007
Education	0.055	0.185***	–0.055	–0.222***	–0.017
Religiosity	0.138**	0.165***	–0.099	–0.056	0.078
Income	–0.056	–0.028	–0,079	0.005	–0.092
Values	0.139**	0.283***	0.290***	–0.046	0.327***
CSE	0.155**	0.023	0.091	0.218***	0.086
Control	0.061	0.187***	0.098*	–0.135**	0.025
Norm	0.067	0.022	–0.018	0.079	0.053
Childhood	0.129*	0.066	0.048	–0.027	0.134*
R	0.480	0.506	0.428	0.423	0.475
R square	0.230	0.256	0.183	0.179	0.226

* p<0.05, ** p<0.01, ***p<0.001

Variability *of ecological activity* and *environmental concern* are to the greatest extent (23% and 25.6% respectively) predicted by this set of variables. Five of the 10 predictors affected significantly the degree of everyday *ecological activity.* Age, collective self-esteem, values and religiosity appear to be the strongest predictors compared to other variables included in the model. The older, more religious and more locally attached a person is, the more often (s)he is engaged in environmentally friendly activities at home. Nature experiences in childhood have also a positive contribution to ecological activity.

Environmental concern is significantly predicted by 5 independent variables, values being the most important contributor. Women, more religious and more educated persons who perceive that they can control some aspects of the environment are more likely to be concerned about the environmental situation.

General pro-nature beliefs are most strongly predicted by values and subjective control.

General utilitarian beliefs are most strongly predicted by education, the level of local attachment and perceived control. Less educated, locally attached and persons who perceive less subjective control over the environment, tend to hold more utilitarian beliefs concerning the environment.

The *specific attitude to forest* was significantly predicted by two variables: values and nature experiences in childhood.

Almost all the variables included in the model have significant explanatory power for some of the environmental indicators when other variables are controlled for (the exception is the level of income and perceived norm of environmental friendliness that did not reach significance in relation to any environmental indexes).

Comparing the *relative impact of various independent variables* we can see that the effects of explanatory variables vary across different environmental indicators.

Socio-demographic variables on the whole contribute less to the prediction of environmentalism than socio-psychological variables (attitudes and beliefs). *Age* predicts significantly 1, *education* 2, *religiosity* 2 and *sex* only 1 of the five environmental indicators. With the increasing *age* everyday ecological activity and environmental concern increase. Sex is an important predictor for environmental concern. *Women* are significantly more likely than men to be concerned with environmental problems. More *educated* persons tend to be more concerned about the environment and think less about the environment predominantly in utilitarian terms.

In contrast to earlier studies (Boyd 1999) where various *religion* variables appeared to be weak predictors of environmental attitudes and behaviors, our study showed that subjective religiosity was a significant predictor of both the environmental concern and ecological behavior. Dietz et al (1998) refer to the possibility that religiosity and environmentalism are mediated by the assignment of sacredness (of whatever origin – intrinsic or God-related) to nature. Our question on subjective religiosity (without specifying the denomination or kind of practicing) may capture this general tendency. Besides, a significant correlation ($r = 0.366^{**}$) between subjective religiosity and the belief in supernatural forces in nature indicates the same relationship.

Among socio-psychological variables environmental values and collective self-esteem appeared to be the most significant predictors.

The level of *local attachment* is a strong predictor of ecological activity and utilitarian environmental beliefs. The relation of the index of collective self-esteem is positive with all indicators of environmentalism.

A noteworthy result of our study is that in exploratory factor analysis the values related to environment and its protection did not form a separate factor of biospheric values (as it has been hypothesized by Stern & Dietz (1994)), but were grouped together with several items from universalism, tradition and security value types. The resulting group of values was the most significant predictor of various forms of environmentalism, compared to socio-demographic and contextual factors used in our study. *Value* complex containing environmental values contribute most to the prediction of ecological activity, environmental concern, pro-nature beliefs and positive attitude to the forest. The only negative association of this group of values was with utilitarian beliefs concerning the environment.

Perceived control significantly promotes environmental concern and pro-nature beliefs, and is negatively related to utilitarian beliefs. *Childhood nature experiences* are a significant predictor of ecological behavior and positive attitude to the forest.

The level of income and *perceived norm of environmental friendliness* as measured in this study did not reach significance in these regression models.

The relatively small amount of explained variance in all our analyses (from 17.9 to 25.6%), which, however, is comparable to previous results (e.g. Dietz et al

1998) indicates that there are also other factors responsible for the unaccounted variance in environmental attitudes, beliefs and behavior.

Conclusion

The results demonstrate that various environmental indexes emphasize different aspects of environmentalism, indicating that subjective environmentalism is heterogeneous and determined by a complex set of factors. Measures of environmentalism are predicted by *different patterns of independent variables* – there are complex relations between different indicators of environmentalism.

On the whole, socio-demographic characteristics have relatively minor importance for explaining the variance in environmental attitudes/beliefs and ecological behavior compared to a set of attitudinal variables. This impact would be even less if we interpreted subjective religiosity as a measure of belief.

Among socio-demographic variables *age* has strong impact on ecological activity. Environmental friendliness increases with advancing age: the peak of environmental concern is in the age group 40–54, the peak of everyday pro-environmental habits is in the age group 65–89. Young age groups tend to be more passive in this respect. This result is in variance with the tendencies observed in several previous studies of environmentalism where reverse relation with age has been observed (see overviews by Greenbaum 1995, McKenzie-Mohr 1995, Dietz et al. 1998, Brand 1997). On the other hand, when ecological behaviors are disaggregated into distinct types, similar results with ours have been obtained by Dietz et al (1998) where habits of frugality and pro-environmental consumer behavior were most common to the oldest cohort. In our study the ecological activity was operationalized as the frequency of everyday activities at home. Although we can assume deliberate choices to some extent, these activities reflect at the same time a certain kind of lifestyle that is, in all probability, largely shaped by contextual factors – objective constraints and opportunities (rural way of life, relative poverty). However, such attitudinal factors as values and collective self-esteem had a strong impact on the frequency of such behavior. Similarily, Grendstad & Wollebaek (1998) report that increasing age leads to increased ecocentrism. In our study, although not reaching significance, age is positively related with all indicators of environmentalism. Possible explanations of this result may include both cohort effects and life-cycle effects. Most environmentally friendly age groups in our sample are those that have personal experience of rural traditional way of life which corresponds to many criteria of environmental friendliness. At the same time those persons have witnessed Estonian mass environmental movement in the 1980s which has probably had an impact on their environmental consciousness. Our results indicate also that socialization experiences including direct contacts with nature (which are more common among the older persons) have certain impact on the formation of environmental mentality (they are significant predictors for ecological activity and attitude to forest).

Similarly to Grendstad & Wollebaek (1998) who report inverse relations of education with specific varieties of environmentalism, we observed significant negative relation of education with utilitarian beliefs concerning nature (concerning pro-nature beliefs the negative relation did not reach significance). On the other hand, education was positively related to environmental concern.

A significant predictor of environmentalism is also the perceived *control* over the environment. People who feel that they can somehow affect the environmental situation, are more environmentally concerned and tend to hold more pro-nature beliefs. On the other hand, people who feel relatively more helpless in relation to the environment, tend to hold more utilitarian views concerning the environment. Among contextual factors *subjective connectedness* to the local community significantly promotes ecological activity and utilitarian beliefs. At the same time the perception of social context as holding pro-environmental *norms* did not reach significance in our models. This may be explained by orientation to broad cultural norms of environmentalism and lesser orientation to the norms and behavioral models in the local communities.

Value complex that unites environmental values with tradition, conformity and security values seems to be the most important predictor of environmentalism as it was operationalized in this study, confirming the assumptions that environmentalism belongs to a large extent to moral domain (cf. Thogersen 1996, Kaiser et al. 1999).

Our results are parallel to findings by Jaeger et al (1993) who established the primacy of socio-cultural factors (local interaction network density and local norms of ecological behavior) over individual level factors (knowledge about environmental problems, age, and sex) in determining everyday pro-environmental behavior. Although we used various indicators of environmentalism, our results support also the general conclusion by Dietz et al (1998) about the primacy of socio-psychological factors over socio-demographic variables in predicting environmental attitudes, beliefs and behavior.

Although our aim was not to compare specific theories, the results indicate that both the theory of rational action (operating with such variables as general and specific attitudes and sense of control), as well as the model of environmentalism as altruistic behavior (incorporating self-esteem and a sense of belonging to a community), may be appropriate for different indicators of environmentalism.

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