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Abstract

Pro-environmental conducts are different from pro-environmental opinions, given the fact that there is not a strict relationship between meaning something and acting according to those principles. The aim of this paper is to examine the attitudinal factors which determine the concern for the environment as well as four environmentally friendly behaviors, while trying to account for the heterogeneity of pro-environment attitudes. What we found is there is a set of characteristics which determine the willingness to take pro-environmental actions: women, marriage, higher education, public employment, higher levels of religiosity, having a left-party ideology and belonging to a trade union are positively correlated with environmentally friendly behaviors. Younger individuals tend to take more environmentally friendly actions compared to older respondents. In general, attitudes and behaviors do not differ between groups of countries. In a second stage, we studied the joint effects of expressing concern and taking environmentally friendly attitudes.

Keywords: environment, conduct, attitudes, concern, behavior

JEL classification codes: D03, Q53

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Resumen

Las conductas a favor del medio ambiente son diferentes de las opiniones a favor del medio ambiente, dado que no hay una relación estricta entre decir algo y actuar en base a esos principios. El objetivo de este trabajo es examinar los factores actitudinales que determinan la preocupación por el medio ambiente así como cuatro comportamientos amigables con el medio ambiente. Lo que encontramos es que hay un grupo de características que determinan la preocupación por el medio ambiente, así como cuatro comportamientos respetuosos del medio ambiente. A la vez tratamos de considerar la heterogeneidad de las actitudes pro-ambientales. Lo que encontramos es que hay una serie de características que determinan la voluntad de tomar acciones pro-ambientales: ser mujer, estar casado, tener educación superior, ser empleado público, tener mayores niveles de religiosidad, una ideología de izquierda y pertenecer a un sindicato están positivamente correlacionados con comportamientos favorables al medio ambiente. Las personas más jóvenes tienden a tomar medidas más favorables hacia el medio ambiente en comparación con los encuestados de mayor edad. En general, las actitudes y los comportamientos no difieren entre los grupos de países. En una segunda etapa, se estudiaron los efectos conjuntos de expresar preocupación y tomar actitudes favorables al medio ambiente.

Palabras claves: medio ambiente, conducta, actitudes, preocupación, comportamiento

1. Introduction

Concern for the environment and pro-environment attitudes can be assessed in a wide arrange of situations, ranging from water savings to buying organic fruits or participating in environmental organizations. Many authors have studied specific behaviors which lead to pro environmental attitudes (Ajzen and Fishbein, 1980; Berenger and Corraliza, 2000; Kaiser and Shimoda, 1999; Kollmuss and Agyeman, 2002; Stern, 2000), finding that one single attitude can have many specific reasons to be (Konisky, Milyo and Richardson 2008; Solís-Salazar, 2010; Owen and Videras, 2004; Frey and Stutzer, 2006; Álvarez and Vega, 2009; Traynor, Lange and Moro, 2012; Videras and Owen, 2006) and that these attitudes need not to be consistent across topics or issues (Van Liere and Dunlap, 1981; Klineberg, McKeever and Rothenbach, 1998; Ferrer-i-Carbonell and Gowdy, 2005).

This paper aims at examining the different attitudinal factors which determine both the concern for the environment and four environmentally friendly behaviors, such as sorting and recycling the trash and cutting back on driving a car. Attitudinal factors include a series of problems which concern the respondent and his or her family, and include air pollution, water shortages and resource depletion. As personal attributes matter (Melgar and Rossi, 2012) individual variables such as gender, political affiliation, religion, education and marital status are included to explain pro-environmental conducts as well.

The contributions of this work to the current literature on environmental attitudes stem from two different areas. First, we consider a set of heterogeneous behaviors, something which would help us compare the consistency of the determinants between different pro-environmental behaviors and add to the current discussion presented above. Second, we use a large and heterogeneous data set, which helps us determine if environmental behaviors differ between countries.

The structure of the paper is as follows. The second section is theoretical in nature. Section three is devoted to the data source, the main features of the econometric methods applied in this analysis and the description of variables. The fourth section deals with results. Finally, the conclusions are presented in section six.

2. Pro-environment conduct, attitudes and personal characteristics

Interest in environmental preferences and attitudes began in the 1970's (Bord and O'Connor, 1997) but the controversy regarding the protection of environmental goods has been a cause of controversy in the last decade. Recent definitions of environmental concern point towards a dimensionality problem regarding the conceptualization and difficulty of measuring the *"degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution"* (Dunlap and Jones, 2002). Kollmuss and Agyeman (2002) and Jensen (2002) define pro-environmental behavior as conscious actions taken by an individual so as to minimize the negative impact of human activities on the environment or to improve the environment. In fact, the psychology literature suggests that there is better chance of capturing actions by asking questions about specific behaviors rather than general attitudes (Ajzen and Fishbein, 1980; Berenger and Corraliza, 2000; Cotrell, Stuart and Allan, 1997; Kaiser and Shimoda, 1999; Kollmuss and Agyeman, 2002; Stern, 2000).

In addition, research shows that a single latent concept of environmental concern carries a wide array of more specific attitudes about environmental issues. For Konisky, Milyo and Richardson (2008), for example, environmental policy attitudes vary by the nature of the issue, due to the geographical scale and between segments of the population: there is support for more government effort to address local and national pollution issues and less for global and natural resource problems. Solís-Salazar (2010) shows that factors associated with frequency of solid waste separation in Costa Rica are related to the perception that there was a place which collects the recycled solids in the community and that waste separation is not a complicated task. Attitudes towards water savings included the responsibility to conserve water and the emotional affinity towards the environment. Other specific attitudes include civic cooperation (Owen and Videras, 2004), environmental morale and motivation (Frey and Stutzer, 2006), education (Álvarez and Vega, 2009), heating expenditure reducing attitudes (Traynor, Lange and Moro, 2012) and attitudes with a warm-glow motive (Videras and Owen, 2006)

There is also disagreement on whether concern for the environment is consistent across different issues (Van Liere and Dunlap, 1981; Klineberg, McKeever and Rothenbach, 1998). For example, Ferrer-i-Carbonell and Gowdy (2005) find that being concerned about the ozone layer correlates negatively with well-being and caring about animal extinction is

correlated positively with well-being. This means that the relationship between environmental awareness and well-being is not only due to the correlation between psychological traits and environmental awareness. Nevertheless, Stern and Oskamp (1991) argue that there is a positive relationship between pro-environmental attitudes and conducts although it cannot be said that there is a causality between the two.

Seeking to understand pro-environmental conducts, previous literature has also made emphasis on the different individual characteristics as well as environmental concerns which determine the behavior.

When it comes to age, the link with environmental conducts is not so clear. Some authors, such as Vlosky and Vlosky (1999) find that when considering only use values, older people would obtain less benefits of preserving resources than younger individuals. But, others such as Gilg and Barr (2006) find that people with pro-environment attitudes have a higher mean age than the ones without such commitment (Traynor, Lange and Moro, 2012; Solís-Salazar, 2010).

Gender is also a relevant variable, as women are expected to have a more prominent role in terms of environmental concern given that women internalize social roles as caregivers, so they tend to be more compassionate and cooperative than men. Other authors such as Dupont (2004), Davidson and Freudenburg (1996) and Zezleny et al. (2000) study the role of gender differences in relation to pro-environment conducts.

Marital status could also be a control variable if we take into account the fact that couples with children could have a less myopic view of the future and therefore, have concerns about the resources available for their children when they grow up (Dupont, 2004 and Tittle, 1980).

In addition, the role of education in actively participating of environmental causes and environmental awareness has been studied by Kütz (2007). Other authors have also highlighted the role of both formal and informal education: Blomqist and Whitehead (1998) conclude that increases in education and income increases willingness to pay for wetlands while García-Valiñas and Togler (2007) show that there is a positive relation between formal education and environmental attitudes. Gilg and Barr (2006) analyze behaviors towards water savings and show that committed environmentalists are less likely to receive formal education but more likely to have a degree. Some studies have also

studied the impact of informal education as well (Whitehead, 1991, Carlsson and Johansson-Stenman 2000, Hidano et al. 2005).

Taking political affiliation as a variable to explain environmental concern and attitudes is also relevant because ideology is related to beliefs on economic and social issues such as poverty, growth, income distribution, environmental regulation and monitoring (Engel and Pötschke, 1998, Konisky, Milyo and Richardson, 2008; Witzke and Urfei, 2001). In fact, several studies have shown that Democrats or liberals are more prone to show stronger environmental attitudes than Republicans or conservatives (Carman, 1998; Dunlap, Xiao and McCright, 2001; Guber, 2003; Uyeki and Holland, 2000; Xiao and Dunlap, 2007).

Lastly, trade unions activism towards the environment has increased since the 1970's, with a special emphasis in developed countries (Snell and Fairbrother, 2011; Savage and Soron, 2011; Keil, 1994; Stevis, 2011). We would expect therefore that belonging to a trade union is positively related to environmental concern and that there is a possibility that this activism would be translated to practices at home.

3. Data source and methodology

We use the cross-country data which comes from the International Social Survey Programme (ISSP) 2010 Environment III survey. The ISSP is an annual programme of cross-national surveys which covers topics important for social science research, such as the role of government, religion, social inequality and leisure. The ISSP surveys have been carried out since 1985 while the Environment survey has two previous waves, collected in 1993 and 2000. The third Environment wave includes more than 38,000 observations from 29 countries, developed and developing. The survey includes information on attitudes and beliefs towards the environment, related to government policy, private firms, fairness, knowledge of environmental issues and environmental behavior at the household level.

The questions used in the ISSP Environment III 2010 questionnaire relate to the relevance of environmental problems for the individual as well as to attitudes regarding the environment. These questions are:

1. "Generally speaking, how concerned are you about environmental issues?"
2. "How often do you make a special effort to sort glass or tins or plastic or newspapers and so on for recycling?"

3. "How often do you make a special effort to buy fruit and vegetables grown without pesticides or chemicals?"
4. "And how often do you cut back on driving a car for environmental reasons?"
5. "How often do you reduce the energy or fuel you use at home for environmental reasons?"

Given these questions, we constructed a series of ordered multinomial variables which reflect attitudes towards the environment. These variables are defined in a 5-point and 4-point Likert scale:

CONCERN = 1 if respondent is worried about environmental issues; = 5 if the person is not worried about environmental issues

SORT_RECYCLE = 1 if respondent always makes an effort to sort glass, tins, plastic or newspapers for recycling; = 2 if respondent often does this; = 3 if respondent sometimes does this; = 4 if he/she never does this

FRUIT = 1 if respondent always makes a special effort to buy fruit and vegetables grown without pesticides or chemicals; = 2 if respondent often does this; = 3 if respondent sometimes does this; = 4 if he/she never does this

CAR = 1 if respondent always cuts back on driving a car for environmental reasons; = 2 if respondent often does this; = 3 if respondent sometimes does this; = 4 if he/she never does this

SAVINGS = 1 if respondent always reduces the energy or fuel you use at home for environmental reasons; = 2 if respondent often does this; = 3 if respondent sometimes does this; = 4 if he/she never does this

Given these multinomial variables, we estimate ordered probit models with the objective of examining if the attitudes of individuals towards the environment depend on individual characteristics and knowledge of environmental problems. We examine if there are relevant factors which determine whether an individual is more or less aware of climate change related issues. We also analyze whether there is increasing awareness and pro-environment behavior if the respondent is affected by environmental problems, such as air and water pollution, water shortage and chemicals and pesticides.

Independent variables include personal attributes as well as pro-environmental behaviors (see Table 1). We also estimate models which include country-specific indicators, such as inflation, gross domestic product (GDP) per capita, GDP growth, inequality (expressed as the Gini index) and development (using the Human Development Index).

In a second stage we want to analyze joint behaviors, specifically the link between concern for the environment and pro-environment attitudes. We want to search for inconsistencies between what individuals say and do. For example, a person could say that he or she is concerned for the environment but could not make any actions which exemplify his or her concern, such as buying organic food, using more public transportation or sorting garbage at home. For this, we estimate a biprobit model which considers the following dependent variables:

1. Concern dummy: we defined a concern dummy based on the 4-point Likert scale "concern" defined above. The new concern dummy is equal to 1 if the individual has a concern for the environment which is above the mean.

2. Behavior dummy: we defined an index summing up the variables sort_recycle, fruit, car and savings. The variable ranges from 4 to 16, meaning that each respondent has at least one pro-environmental attitude. After that we constructed a behavior dummy which is equal to 1 if the index for the respondent is over the mean (around 10, meaning that the respondent could make two pro-environment efforts on a regular basis and make one often).

4. Findings

Regarding the relationships among the assessed attitudes and socio-economic variables; the findings are in line with the previous literature and our expected results. However, given the lack of appropriate exclusion restrictions, we cannot check whether there are causation problems that may give rise to endogeneity problems.

Table 2 shows the results when the whole sample is considered. We also estimate the same models by considering developing and developed countries which are presented in tables 3 and 4.

It is found that women seem to be more worried about environmental issues and they are also more likely to take pro-environmental actions than men. This is consistent with

previous findings based on the fact that women tend to be more sympathetic and collaborative than men. The results are the same for the whole sample as well as for the cases of developed and developing economies.

Age shows, in general, a significant effect on attitudes, which is in line with previous literature. We highlight that environmental attitudes are negatively correlated with age and that its impact is also strictly increasing in absolute terms. Hence, older people tend to take environmental responsible actions more frequently than younger people. This may be related to the fact that older people could have more information and could be more conscious of the importance of taking pro-environmental actions. Moreover, older people seem to be more worried about the environment than younger people. Older people are more likely to have children and they may try to preserve the environment in the long term because their children are the ones who will enjoy a cleaner environment in the future. This result is stronger in developed countries than in developing countries. This finding may be related to the available personal resources needed to take some of these actions.

Regarding marital status, we find that marriage is significant as it does being single while divorce is not. Marriage shows a positive impact which means that these people are more concern about the environment and take more pro-environment actions. There is only one exemption in the case of developing countries: those who are married are less likely "to reduce energy or fuel at home for environmental reasons". Being single shows the opposite effect, if significant it reduces the probability of taking pro-environmental actions and of being concern about the environment.

In general, married people are more likely to be happy or less likely to be depressed (Melgar and Rossi, 2012) and hence, they may show a higher willingness to participate in a social cause and also they may have a better disposition to consider the needs of other people such as the present and future generations. However, we also provide evidence on the non-significant effect of having children at home. These results are maintained in developing and developed countries with the exemption of divorced people who live in developing countries who tend to be concern about the environment.

A higher educational level also tends to raise the probability of taking pro-environmental actions. We clearly provide evidence in favor of the fact that more educated people (those people who are more likely to be materially better-off and with a higher social standing),

tend to worried about the environment and these effects are increasing in the educational level.

We find that there are no significant differences among unemployed people and those who are retired for the sample as a whole and in developing countries. However, in developed countries unemployment makes people more likely to recycle and less likely to "cut back on driving a car for environmental reasons". Moreover, civil servants seem to be more worried about environmental issues and they are also more likely to take pro-environmental actions. There is an exemption; in developing countries this personal attribute plays no role. Finally, those who belong to a trade union are more concerned about the environment and they are also more likely to take a pro-environmental action and these effects seem to be stronger in developing countries. This is in line with the current literature.

We find that there are not deep differences among religious groups. Roman Catholics and Protestants seem to be less worried about the environment than other people. Regarding the assessed pro-environmental attitudes, findings indicate that there are only two significant differences, both religious groups are less likely to "cut back on driving a car for environmental reasons" and they are more likely to "reduce the energy or fuel you use at home for environmental reasons". Being atheists, if significant, tends to reduce the probability of taking pro-environmental actions. Moreover, in developed countries, atheists seem to be less concern about environmental issues. It is highlighted that the models show that what matters is the religiosity and in the expected positive direction. Hence, those who frequently attend religious services are more likely to take pro-environmental attitudes.

Findings show that political affiliation has a very important role in determining the attitudes towards the environment. Those who identify with the left wing seem to be more worried about the environment and they are also more likely to take pro-environmental actions. However, identifying with the right shows a weaker effect and these effects go in opposite directions depending on the attitude. This group of people is more likely to make an effort to "sort glass, tins, plastic or newspapers for recycling" but they are less likely to "cut back on driving a car for environmental reasons". This is related to their preferences: right wing voters are more supportive of pro-business and private market solutions rather than government spending or intervention aimed at reducing environmental problems, while left wing supporters are more supportive of government regulation with the objective

of improving the environment (Dupont, Bateman, 2012). It is worth noting that this fact is stronger in developed countries.

Even when it was expected that living in a city matters; findings show that, in general, it does not occur. Maybe the development of the media has reduced the differences in opinions. The only exemption is to "cut back on driving a car for environmental reasons" which is more likely to occur among people who live in urban areas. This result may be explained by the fact that air pollution and traffic jams are more visible in a city than in the countryside. This finding is maintained in developed countries and is in line with studies such as Huddart-Kennedy et al. (2009). In this case, it is worth noting that people who live in a city in a developed country are more likely to be concern about the environment. It does not occur in the case of those who live in a city in a developing country. Finally, there are no dramatic differences among developed and developing countries. In some cases some effects are stronger in a region but there are no differences regarding the direction of the effects.

Trying to analyze the relationship between opinions and attitudes we study the joint probability of expressing concern towards the environment and taking a pro-environmental actions. For this we estimate a biprobit model which has as dependent variables both concern and behavior dummies, as defined in the previous section. We find that there is a probability of almost 15% of finding a respondent in the whole sample who is concerned for the environment and has pro-environment attitudes. Findings show that women have a lower and significant probability of expressing preoccupation towards the environment and acting accordingly, compared to the sample mean probability.

Younger individuals and with higher education are more likely to express concern and act accordingly. Married and divorced respondents also have a positive and significant probability. Protestants have a positive probability of expressing concern for the environment and taking pro-environmental measures at home as well. Employed individuals and in particular, public sector employees register negative effects while unemployed respondents register a positive probability. Results are consistent between developed and developing countries.

5. Conclusions

Pro-environmental conducts are different from pro-environmental opinions, given the fact that there is not a strict relationship between meaning something and acting according to those principles. For these reasons we tried to examine the attitudinal factors which determine the concern for the environment as well as four environmentally friendly behaviors, while trying to account for the heterogeneity of pro-environment attitudes.

What we found is there is a set of characteristics which determine the willingness to take pro-environmental actions: women, marriage, higher education, public employment, higher levels of religiosity, having a left-party ideology and belonging to a trade union are positively correlated with environmentally friendly behaviors. Younger individuals tend to take more environmentally friendly actions compared to older respondents. In general, attitudes and behaviors do not differ between groups of countries.

In a second stage, we studied the joint effects of expressing concern and taking environmentally friendly attitudes. Findings show that younger individuals, more educated, protestants, married, divorced and unemployed respondents have a probability higher than the sample mean of expressing concern for the environment and acting accordingly. Women, employed and public sector employees have a lower probability of expressing concern for the environment and taking pro-environmental measures.

Our results are based on a set of heterogeneous behaviors, which comprise an array of specific attitudes toward environmental issues at the individual and household level. The results of this study show that individual characteristics define different profiles of environmental concern as well as different pro-environmental behaviors.

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ANNEX

Table 1: Description of independent variables (personal attributes and environmental attitudes) from the ISSP 2010 Environment III survey

Variable	*Description*	*Mean*	*Std. Dev.*
gender	1 if female	0.54	0.50
age1	1 if respondent's age is between 18 and 39 years	0.38	0.49
age2	1 if respondent's age is between 40 and 60 years	0.38	0.48
married	1 if married	0.54	0.50
divorced	1 if divorced	0.07	0.25
Single	1 if single	0.26	0.44
edu_level2	1 if respondent has intermediate secondary completed or higher secondary completed	0.49	0.50
edu_level3	1 if respondent has an incomplete university degree	0.14	0.35
edu_level4	1 if respondent has a complete university degree	0.17	0.37
public	1 if respondent works in the public sector	0.33	0.47
unemployed	1 if unemployed and looking for a job	0.07	0.26
union	1 if member of trade union	0.19	0.39
r_catholic	1 if catholic	0.22	0.41
protestant	1 if protestant	0.07	0.26
no_relig	1 if the person has no religion or is an atheist	0.32	0.47
attend	1 if attends religious services at least once a year	0.69	0.46
left	1 if identifying with left wing ideology	0.21	0.41
right	1 if identifying with right wing ideology	0.20	0.40
urban	1 if living in a big city, the suburbs or outskirts or a town/small city	0.69	0.46
children	Number of children in household	0.71	1.64

Source: International Social Survey Programme (ISSP) 2010 Environment III survey

Table 2: Whole sample econometric results, marginal effects

Variable	sort_recycle	fruit	car	savings	concern
gender	0.076***	0.023***	0.013***	0.021***	0.460***
age1	-0.119***	-0.009	-0.023***	-0.029***	-0.647***
age2	-0.056***	-0.002	-0.014***	-0.014***	-0.353***
married	0.048***	0.020***	-0.003	-0.004	0.113*
divorced	0.001	0.004	-0.001	0.001	0.023
single	-0.048***	-0.002	0.002	-0.014**	-0.214***
edu_level2	0.078***	0.017***	0.000	0.016***	0.201**
edu_level3	0.099***	0.043***	0.004	0.026***	0.390***
edu_level4	0.140***	0.052***	0.013***	0.038***	0.637***
unemployed	-0.023	-0.002	0.009	-0.002	-0.006
public_s	0.017*	0.004	0.011***	0.011***	0.209***
union	0.033***	0.013***	0.004*	0.006	0.187***
r_catholic	-0.019	-0.003	-0.007*	-0.005	-0.221**
protestant	-0.02	0.000	-0.009**	0.022	-0.332**
no_relig	-0.003	0.000	-0.006*	-0.008*	-0.125
attend	0.042***	0.017***	0.014***	0.022***	0.371***
left	0.042***	0.013***	0.013***	0.017***	0.291***
right	0.026*	-0.007	-0.009***	-0.005	-0.112
urban	-0.01	-0.007	0.012***	0.001	0.104
children	-0.007	0.000	0.000	-0.001	-0.014

Note: * Significant at 10%; ** Significant at 5%; *** Significant at 1%. Country-effects were included in all models but not in the tables.

Table 3: Marginal effects for developed countries

Variable	sort_recycle	fruit	car	savings	concern
gender	0.087***	0.025***	0.013***	0.026***	0.496***
age1	-0.158***	-0.011*	-0.025***	-0.032***	-0.721***
age2	-0.070***	-0.002	-0.015***	-0.018***	-0.390***
married	0.058***	0.017***	-0.001	0.003	0.174**
divorced	-0.011	0.004	-0.001	0.005	-0.024
single	-0.054***	-0.003	0.006	-0.010	-0.154*
edu_level2	0.067***	0.011	0.000	0.013	0.151**
edu_level3	0.071**	0.027**	0.002	0.017*	0.256***
edu_level4	0.127***	0.039***	0.013**	0.036***	0.586***
unemployed	-0.047***	-0.003	0.013***	0.006	0.010
public_s	0.021**	0.002	0.012***	0.016***	0.219***
union	0.032***	0.008***	0.003	0.000	0.123***
r_catholic	-0.024	-0.002	-0.008*	-0.009	-0.211***
protestant	-0.099**	-0.017	-0.012	-0.014	-0.508*
no_relig	-0.018	0.001	-0.006**	-0.006	-0.139**
attend	0.033***	0.011***	0.014***	0.021***	0.341***
left	0.038**	0.013***	0.013***	0.020***	0.305***
right	0.022	-0.011***	-0.010***	-0.010***	-0.156***
urban	-0.011	-0.002	0.014***	0.002	0.112***
children	-0.007	-0.001	0.000	-0.001	-0.022

Note: * Significant at 10%; ** Significant at 5%; *** Significant at 1%. Country-effects were included in all models but not in the tables.

Table 4: Marginal effects for developing countries

Variable	sort_recycle	fruit	car	savings	concern
gender	0.025***	0.013*	0.012**	0.011**	0.310***
age1	-0.013	-0.005	-0.014*	-0.026	-0.340*
age2	-0.005	0.002	-0.006	-0.005	-0.116
married	0.008	0.021**	-0.014	-0.019**	-0.201
divorced	0.008	-0.002	0.003	-0.003	0.298
single	-0.024*	-0.001	-0.013	-0.021	-0.494**
edu_level2	0.047***	0.036***	0.003	0.023***	0.331**
edu_level3	0.088***	0.093***	0.017	0.051***	0.906***
edu_level4	0.089***	0.087***	0.017	0.045**	0.797***
unemployed	0.003	0.001	0.001	-0.011	-0.011
public_s	0.004	0.010	0.007	0.000	0.141
union	0.017*	0.032***	0.01	0.029**	0.565***
r_catholic	-0.011	-0.002	0.004	0.007	-0.292
protestant	-0.004	0.005	-0.004	0.028**	-0.324
no_relig	0.012	-0.001	0.002	-0.012**	-0.063
attend	0.037***	0.035***	0.013	0.025***	0.486***
left	0.030*	0.003	0.008	0.005	0.154
right	0.016	0.019	-0.001	0.011	0.138
urban	-0.004	-0.024	0.002	-0.001	0.072
children	-0.008	0.004	0.001	-0.001	0.061

Note: * Significant at 10%; ** Significant at 5%; *** Significant at 1%. Country-effects were included in all models but not in the tables.

Table 5: Marginal effects after biprobit for concern2 = 1 and behavior = 1

	Full sample	*Developed countries*	*Developing countries*
Probability of concern2=1 and behavior=1	14.7%	16.0%	12.1%
gender	-0.039***	-0.045***	-0.031***
age1	0.071***	0.076***	0.060***
age2	0.054***	0.061***	0.040***
married	0.035***	0.024***	0.054***
divorced	0.032***	0.039***	0.009
edu_level2	0.009	0.009	0.010
edu_level3	0.044***	0.043***	0.036***
edu_level4	0.079***	0.067***	0.091***
unemployed	0.077***	0.055***	0.114***
employed	-0.030***	-0.029***	-0.026**
public_s	-0.016***	-0.019***	-0.008
union	0.000	0.004	-0.014
r_catholic	0.004	0.006	-0.001
protestant	0.061**	0.005	0.045***
attend	-0.011	-0.013*	-0.016
left	-0.014**	-0.023***	0.007
right	0.002	0.003	0.002
urban	0.011	0.012*	0.008
children	-0.007	-0.027***	0.027***

Note: Country effects included but not shown.

Table 6: Coefficients of regressions for full sample

Variable	sort_recycle	fruit	car	savings	concern
gender	-0.192***	-0.141***	-0.137***	-0.109***	0.460***
age1	0.302***	0.057	0.255***	0.152***	-0.647***
age2	0.142***	0.010	0.147***	0.070***	-0.353***
married	-0.123***	-0.121***	0.034	0.0230	0.113*
divorced	-0.001	-0.026	0.010	-0.006	0.023
single	0.121***	0.012	-0.020	0.073**	-0.214***
edu_level2	-0.198***	-0.105***	-0.001	-0.081***	0.201**
edu_level3	-0.249***	-0.238***	-0.043	-0.125***	0.390***
edu_level4	-0.353***	-0.283***	-0.133***	-0.184***	0.637***
unemployed	0.058	0.012	-0.088*	0.009	-0.006
public_s	-0.042*	-0.027	-0.114***	-0.058***	0.209***
union	-0.083***	-0.077***	-0.042*	-0.032	0.187***
r_catholic	0.047	0.016	0.076*	0.025	-0.221**
protestant	0.05	-0.002	0.097**	-0.106*	-0.332**
no_relig	0.007	-0.002	0.061*	0.040*	-0.125
attend	-0.107***	-0.104***	-0.144***	-0.111***	0.371***
left	-0.107***	-0.078***	-0.126***	-0.085***	0.291***
right	-0.064*	0.045	0.099***	0.028	-0.112
urban	0.025	0.045	-0.129***	-0.006	0.104
children	0.018	0.001	0.002	0.006	-0.014
constant					8.667***
cut1	-0.562***	-1.641***	-2.046***	-1.371***	
cut2	0.244***	-0.726***	-1.147***	-0.398***	
cut3	1.093***	0.265***	-0.095	0.584***	
R2					0.195
Observations	25,222	24,976	20,535	26,768	18,971

Note: * Significant at 10%; ** Significant at 5%; *** Significant at 1%. Country effects included but not shown.

Table 7: Biprobit model

	Full sample		Developed countries		Developing countries	
	concern2	behavior	concern2	behavior	concern2	behavior
gender	0.134***	-0.299***	0.129***	-0.312***	0.143***	-0.282***
age1	-0.060	0.409***	-0.098***	0.442***	-0.004	0.364***
age2	0.028	0.259***	0.034	0.273***	0.012	0.229***
married	0.081**	0.135***	0.047	0.088**	0.127***	0.252***
divorced	0.114**	0.083	0.091*	0.120**	0.127	-0.029
single	0.002	0.044	-0.009	0.053	0.012	0.055
edu_level2	0.150***	0.132***	0.139***	0.117***	0.170***	0.110**
edu_level3	0.304***	0.177***	0.292***	0.112***	0.322***	0.264***
edu_level4	0.386***	0.123*	0.387***	0.01	0.379***	0.343***
unemployed	-0.059	-0.127***	-0.037	-0.128***	-0.092	-0.112*
public_s	0.071***	-0.133***	0.071***	-0.141***	0.073*	-0.097**
union	0.037*	-0.027	0.038	-0.007	0.019	-0.101*
r_catholic	-0.028	0.041	-0.059*	0.071**	0.055	-0.039
protestant	0.044	0.267*	-0.075	0.079	0.069	0.216***
no_relig	-0.070	-0.012	-0.076**	-0.012	-0.064	-0.056
attend	0.052**	-0.109***	0.051**	-0.152***	0.054	0.008
left	0.158***	-0.094***	0.181***	-0.107***	0.083*	-0.044
right	-0.107**	0.131***	-0.114***	0.143***	-0.042	0.074
urban	0.023	-0.053	-0.002	-0.131***	0.074*	0.121***
children	-0.007	-0.004	-0.007	0.005	-0.011	-0.034*
Observations	27,159		18,270		8,782	
Rho	-0.246***		-0.277***		-0.189***	

Note: * Significant at 10%; ** Significant at 5%; *** Significant at 1%. Country effects included but not shown.