To buy green or not to buy: environmental concerned companies and individuals' rewarding behavior.

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Abstract

The present research aim to examine individuals´ purchasing behavioural intention related with corporations who are environmental concerned. Two Structural Equations Models are proposed and tested independently for the behavioral intention or rewarding and punishing companies by buying or not their products. Results highlight the importance of increasing perceived consumer effectiveness of their energy saving actions, as well as involvement to enhance the risk perceived of global climate change and pro-environmental related behaviors. Furthermore, behavioral intention seems to be determined by past reported behaviour and consumers´ risk perception.

Keywords: Global Climate Change; Pro-Environmental Behavior; Behavioural Intention; Risk Perception; Perceived Consumer Effectiveness.

1. INTRODUCTION

Global climate change has become an unequivocal matter and one of the most significant environmental issues in recent years. According to the data identified by the Intergovernmental Panel on Climate Change (IPCC, 2007) and the United Nations Framework Convention on Climate Change (UNFCCC, 2007) global average air and ocean

temperature are increasing in addition to sea level, and widespread melting of snow and ice are affecting the whole globe, influencing many natural systems which tend to disappear.

Even though this phenomenon has taken place in nature in the course of planet's life, it has also been acknowledged by scientists (IPCC, 2007; UNFCCC, 2007) that nowadays one of the main sources seems to be the increases in greenhouse gases caused by human activities, becoming more and more severe every time, resulting in what is called *climate sensitivity*, which is benchmarked against the warming expected for a doubling of carbon dioxide levels from pre-industrial situation.

Engagement in pro-environmental behavior has increased in the last decades from a consumer's perspective (Dunlap *et al.* 1993; Schultz 2002), and scientists coincide regarding the current state of the environment, however there is still a segment of the society that doesn't believe in the accuracy of the subject. In order to decrease global climate change the first step should be to recognize that it is really happening and that individuals can cooperate for its solution by reducing their impact on the environment. In this line, preceding research has shown how people differ when evaluating environmental problems as they diverge in their perceptions (Dunlap & Jones, 2002; Milfont & Gouveia, 2006). Hence, further research is needed to understand how these individuals think, what are their beliefs and concerns, which might be related to their previous cognition, but it is also needed to identify how we could change their minds, focusing on them as the target public.

In the present study we would like to examine a survey tool that has been developed by the Yale Project on Climate Change Communication[1] and applied for the US and Spanish population segmentation (Maibach *et al.*, 2009; Rodríguez-Priego *et al.*, 2012). Our aim will be to explore what variables may have an influence on pro-environmental behavioral

[1] http://environment.yale.edu/climate/

intention, focusing on *beliefs*, *global climate change*, *involvement*, and *past reported behavior*.

Our study begins with a review of the literature on *pro-environmental behavior* and *concern*; then we will address the previous literature concerning individuals´ *beliefs* and the influence that *past behavior* as well as the impact of *risk perception* related beliefs seem to have on *behavioral intentions*. The methodology used and the behavioral models proposed are subsequently exposed in the third section. Finally, the results, discussion and conclusions are presented, as well as future lines of research.

2. LITERATURE REVIEW

PRO-ENVIRONMENTAL BEHAVIOR AND CONCERN

Over the past decades, environmental concern has been a trend topic in academic research. Dunlap and Jones define it as "*the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or willingness to contribute personally to their solution*" (2002: 485). Fransson and Gärling (1999) refer to both the specific attitude that directly determines intentions and a general value orientation toward the environment. Besides, Schultz *et al.* (2004) stated that environmental concern is also the "*affect associated with beliefs about environmental problems*" and is related to the degree with which individuals see themselves as part of the natural world (Schultz, 2000).

Environmentally significant behavior has also been previously described by several authors; however, we will focus the present research on Stern´s perspective, which identifies it based on its actual impact, but also on intentions. Concerning the impact it is meant to be "*the extent to which it changes the availability of materials or energy from the environment or alters the structure and dynamics of ecosystems or the biosphere itself*" (Stern, 1997).

Relating to the intention, this behavior is undertaken with the purpose to benefit the environment (Stern, 2000).

Ecologically conscious behavior has been examined along decades addressing the main characteristics that influence the commitment, concern, attitudes and other variables. Environmental issue involvement has been shown to predict individuals´ behavior since consumers who are aware toward the environment will try to take into account their concern when purchasing (Mainieri *et* al., 1997; Laroche *et al*., 2001; Ishaswini & Data, 2011). In this particular research, we will consider two different kinds of pro-environmental behaviors: as a result of the decision (1) to purchase products with the aim to reward companies for taking steps to reduce global climate change; and as a result of the decision (2) to not purchase products with the purpose to punish companies for not taking steps to reduce global climate change. Considering this, our first hypothesis is divided into two sub-hypothesis, presented as follows:

H_1: *Individuals´ issue involvement will determine their behavior toward the environment.*

> H_{1A}: *Individuals´ issue involvement will determine their behavior of rewarding companies that take actions to reduce global climate change.*
>
> H_{1B}: *Individuals´ issue involvement will determine their behavior of punishing companies that do not take actions to reduce global climate change.*

A review of past studies suggests the existence of different factors related to green behavior. Dietz *et al.*, (1998) distinguish two major streams: studies focused on socio-demographic factors and studies of values, beliefs and other socio-psychological constructs related to environmentalism.

In the first line, there are quite a few studies stating that demographic variables are associated with environmental commitment (Straughan & Roberts, 1999). Age has been examined by a number of researchers (e.g. Anderson & Cunningham, 1972; Aaker & Bagozzi, 1982; Samdahl & Robertson, 1989; Straughan & Roberts, 1999), although some studies reveal contradictions in their findings and are far from being conclusive, as the relationships are sometimes not significant (e.g. Gatersleben *et al*., 2002; Diamatopoulos *et al*., 2003; Fraj and Martinez, 2006; Barr, 2007). Similar results are found if we focus on research concerning income, education and place of residence as environmental determinants, where we also found studies stating opposite relationships between the variables (Kinnear *et al.*, 1974; Van Liere & Dunlap, 1981; Samdahl & Robertson, 1989; Zimmer *et al.*, 1994).

The second stream attempts to explain environmentalism through attitudinal variables (Stern, 2000). Specifically, in the environmental literature related to psychology, the New Environmental Paradigm (Dunlap & Van Liere, 1978) has been commonly used to explain environmental concern (Poortinga *et al.*, 2004). The link between values theory, norm-activation theory and New Environmental Paradigm is shown in the Value-Belief-Norm theory with the purpose to explain environmentalism (Stern *et al*., 1995b) which seems to be due to three main determinants: fundamental values, specific beliefs and personal moral norms that guide individuals´ actions.

Furthermore, the Theory of Planned Behavior (TPB) from Ajzen (1991) links attitude, subjective norms and perceived control with behavioral intention and has been widely implemented in the literature related with pro-environmental behavior. Besides, in the last few years, academic research has also included *past behavior* in the explanatory equation, which seems to predict not only behavioral intentions but future behavior (Brickell *et al.*,

2006; Smith *et al.*, 2008; Kim & Chung, 2011; Sommer, 2011). Thus, we propose the second hypothesis as follows:

H_2: Past behavior toward the environment will determine behavioral intentions.

H_{2A}: Past behavior of rewarding companies that take actions to reduce global climate change will determine behavioral intentions.

H_{2B}: Past behavior of punishing companies that take actions to reduce global climate change will determine behavioral intentions.

Although it has been shown the increasing awareness of people about environmental problems, some authors have illustrated that it is not always traduced into actual behavior (Dunlap *et al.*, 2000; Kaplan, 2000; Schultz, 2000), consequently, in the present research we do not examine only environmental involvement, but also beliefs, with the purpose to analyze the relationship with behaviors and intentions toward the environment.

BELIEFS

Regardless of the scientific consensus around environmental hazard, individuals still differ in their personal *beliefs* toward the issue (Maibach *et al.*, 2009). This may be due to several factors as it has been highlighted by different authors. Furthermore, when lay public lack of accessibility to scientific knowledge; we would expect beliefs to be uncorrelated with each other. However, individuals´ values and beliefs on environmental topic that can seem disengaged have been shown to be correlated. As Cultural Theory asserts (Schwarz & Thompson, 1990: 6), individuals´ values and beliefs may be determined by group membership. Kahan *et al.* (2005) have also illustrated some cultural patterns in their Cultural Cognition theory for the US population. They state that if someone believes that global

warming poses no serious environmental risk, he is very likely to believe that gun control doesn't determine gun violence, and that abortion clearly puts the health of women in danger; as well, if he believes that gun control does determine crime, he's likely to think that global warming is a serious problem, and that abortion isn't dangerous to a woman's health.

In line with those studies which aim to examine environmentalism from a psychological perspective, and as it has been previously mentioned, Schwartz´s Norm Activation Theory (1977) attempts to explain pro-social or altruistic behavior as a result of personal norms, meaning the strong moral obligation feeling that people experiences when engaging in this kind of behavior. Likewise, as mentioned before, in the TPB Ajzen (1991) asserts that behavioral intentions are determined by individual's attitudes and beliefs, which is an extension to the Theory of Reasoned Action. Moreover, as described in the previous subsection, Stern (2000) and Stern *et al.* (1999; 1995a; 1995b) developed and tested the Value-Belief-Norm theory, based on Ajzen´s TPB and Schwartz´s Norm-Activation theory, that support a causal relationship where beliefs determine behavioral intentions toward the environment, which will lastly have an effect on actual behavior.

Finally, Dunlap *et al*. (1993) have proposed that the rise of the environmental movement is linked to growing acceptance of a new ecological paradigm or worldview (NEP). The NEP scale measures broad beliefs about the biosphere and the effects of human action on it, and it prompt an individual to accept more narrowly focused awareness of consequences beliefs (Stern *et al*., 1999).

In this study, we examine individuals´ *beliefs* with reference to two main constructs: (1) *perceived consumer effectiveness*, meaning the extent to which individuals believe that their actions will make a difference in solving a problem (Ellen *et al*., 1991); and (2) *risk*

perception of global climate change, regarding how it will affect future generations, plants and animals.

Concerning perceived consumer effectiveness (PCE), it is related to the concept of perceived behavioral control developed in the TPB, and defined as individuals´ belief that their efforts can make a difference in the solution to a problem (i.e. global climate change), or if they believe that their behavior will lead to the desired outcome (Ellen *et al*., 1991). It seems to be related to pro-environmental behavior (Kinnear *et al*., 1974; Webster, 1975) and has been tested to predict socially responsible and green purchasing behavior (Kim & Choi, 2005; Wesley *et al.*, 2012). Consequently, we hypothesize that:

H_3: *Perceived consumers effectiveness will determine their behavior toward the environment*.

H_{3A}: *Perceived consumers effectiveness will determine their behavior of rewarding companies that take actions to reduce global climate change*.

H_{3B}: *Perceived consumers effectiveness will determine their behavior of punishing companies that do not take actions to reduce global climate change*.

PCE is also related to the concept of perceived self-efficacy (PSE) from Bandura (1977), defined as people´s beliefs about their competence to have an effect in the events that affect their lives. This last concept has been shown to determine risk related behaviors (Morisset, *et al*., 2010), although in the present research, instead of PSE we have measured PCE with the aim to differentiate our research from previous approaches. Thus, we propose that PCE might be related to risk perception as stated in the subsequent hypothesis:

H_4: *Perceived consumers effectiveness is related with their risk perception of global climate change*.

In the present research, issue involvement is measured regarding the level of worry that individuals feel they are facing toward global climate change. Preceding research has shown that level of worry among other factors is related with the level of risk perceived, when referring to health risk (Lee *et al*., 2005) and to environmental hazards (Kahan *et al*., 2011). Thus, we want to test if this relationship is verified with when considering global climate change threat:

H_5: *Individuals´ issue involvement is related with their risk perception of global climate change*.

Finally, risk perception is understood in the present paper as individuals´ beliefs regarding the harm that global climate change will cause on human being, but also on plants and animals species. Previous research has shown the relationship between risk perception and purchasing intention (Lobb *et al.*, 2007), but also with the willingness to address global climate change, meaning the intention to engage in environmentally friendly behavior (O´Connor *et al*., 1999). Hence, we postulate the following hypothesis:

H_6: *Individuals´ risk perception of global climate change will determine their behavioral intentions*.

3. METHODS

3.1. Procedure and Respondents

A national study was conducted in Spain in June and July 2011, with a representative sample of the online population, where participants completed a 38-item survey, with an average length of 16 minutes per participant, that included measures developed by the Yale Project on Climate Change Communication, with the aim to asses four categories of global-warming

and energy-related constructs: global warming individuals´ behavior, intentions, beliefs, issue involvement, and preferred societal response. Finally, other socio-demographic variables were included which reference to income, current employment state, educational aspects, religion and political ideology matters.

The sample was recruited by Toluna Networks, *an online panel community with 147,883 panelists. A total of 835 completed surveys were returned for an overall response rate of 75%, however 233 of them were excluded from the final data base since the time of response was considerably under the average time that participants spent in the pre-test of the questionnaire (16 minutes), giving a final sample of 602 individuals.*

The distribution of the final sample corresponded to 52% of females. The ages were ranged between 18 and more than 75 years old, distributed as shown in Table 1.

[Insert Table 1]

3.2. Measures

In order to achieve the objectives of the present paper, several of the items were chosen to measure the latent constructs presented in the model proposed (see Figure 1).

Issue Involvement

This latent variable (INVOLV) was built by a combination of two items that presented high reliability ($\alpha = 0.766$): concern about global climate change which has previously been proven to be related to risk perception (Kahan et al., 2011); and previous thoughts regarding the topic. Both items were measured with a four-point Likert scale (see Table 2).

[Insert Table 2]

Beliefs

In this occasion two different latent constructs were included as distinct dimensions of individuals´ beliefs: *perceived consumer effectiveness* and *risk perception*. The first one (PERC_CE) is defined as the extent to which individuals believe that their actions will make a difference in solving a problem (Ellen *et al*., 1991). It was measured using a three items scale (α = 0.792) with a four-point Likert scale (see Table 3) from "*Not at all*" to ""*A lot*", related to the effectiveness of the energy-saving actions taken by the participants.

[Insert Table 3]

The second one, Risk perception (RISK_P), was measured by a combination of three single items (see Table 4) in a four-point Likert scale ranging from "Not at all" to "A great deal" (α = 0.821). Participants were asked whether or not they perceived that global climate change would harm them personally, future generations and/or plant and animal species.

[Insert Table 4]

Past Reported Behavior

Participants were asked regarding their accomplishment for two kinds of reported behavior during the last twelve months, which will be considered as the behaviors of "*Reward*" and "*Punishment*": (1) the behavior of purchasing products to reward those companies that were taking steps to reduce global climate change; and (2) the behavior of not purchasing products with the purpose to punish those companies that were not taking steps to reduce global climate change. Both behaviors were measured with a five-point Likert scale [1 = *Never*; 5 = *A lot of times*].

[Insert Figure 1]

Behavioral Intentions

This variable was measured by two separated items related to the previous reported behavior: (1) the intention to keep rewarding companies that were taking steps to reduce global climate change; and (2) the intention to keep punishing companies that were not taking steps to reduce global climate change. Both items were measure with a three-point Likert scale [1 = *Less frequently*; 3 = *More frequently*].

3.3. Data Analysis

In order to test the model proposed, the first step was to conduct Exploratory Factor Analysis (EFA) with SPSS 18.0 version of the software for the latent constructs that were presented in the last subsection: PERC_CE, INVOLV and RISK_P.

This methodology provides a way to investigate and find common but unobserved factors that may influence a set of variables (Cudeck, 2000). It involves the study of order and structure when facing multivariate data, and attempts to reveal those intrinsic constructs and dynamics from observed data (Tucker & MacCallum, 1997).

The sample considered is sufficient according to Luque Martínez (2012: 44), who recommends having at least 100 cases and never less than 50. Hair et al. (1995) establish that the number of cases should be five times higher to the number of variables to analyze.

With this purpose, EFA was tested within the items that would shape the three latent constructs proposed: *perceived consumer effectiveness, involvement* and *risk perception. Kaiser-Meyer-Olkin* coefficient and *Bartlett's test of sphericity* were computed to determine the adequacy of the methodology. Principal Components Analysis with varimax rotation results are presented in section 4.

The second step was to conduct Confirmatory Factor Analysis (CFA). It was performed to assess comprehensively the measurement scales used in the proposed model, in order to determine whether the tools used in this paper were adequate. The main difference between the EFA and the CFA is that the latter allows for restrictions on the charges, setting a priori which observed variables are affected by what factors, what variables are correlated, and so on, whilst the first method didn´t impute the given sources of information to prefixed latent constructs. Results for the evaluation of the global goodness of fit, as well as the composite reliability and the variance extracted are presented in section 4.

Finally, Structural Equation Modeling (SEM) was used to test the postulations regarding the relationship of *perceived consumer effectiveness* and *involvement* with *behavior* and *risk perception*; and the relationship between *behavior* and *risk perception* with *behavioral intention*.

SEM is a multivariate regression methodology that allows testing hypothesized effects between variables that were considered dependent in the first step, but are independent in the second step (Barrio García & Luque Martínez, 2012: 527), as it happens with *behavior* and *risk perception* in the present research, in fact variables in SEM may influence on-another reciprocally, either directly or using a third variable as intermediate or moderator. Hence, there are two latent exogenous variables: *perceived consumer effectiveness* and *involvement*; and three latent endogenous variables: two first-degree endogenous variables (*risk perception* and *behavior*); and one second-degree endogenous variable which is *behavioral intention*.

4. RESULTS

4.1. EFA

The first step to analyze the data in order to estimate the model proposed, was the preparation of the data. Missing values were estimated using multiple imputation method by expectation-maximization with the statistical program Lisrel 8.80. This method first impute predicted scores for missing values for a number of regressions in which each incomplete variable is regressed on the remaining variables for a given case; then, the entire data set is subjected to maximum likelihood estimation. Both steps are subsequently repeated until it finds a stable solution (Barrio García & Luque Martínez, 2012: 546).

Afterwards, EFA was lead through Principal Components Analysis, so as to seek the best linear combination of the proposed variables that explains a higher percentage of data variance (Luque Martínez, 2012: 48).

Three main components were found to explain 74.88% of the variance, as indicators of the three latent constructs included in the model (see Table 5).

[Insert Table 5]

The results showed that Principal Components Analysis was suitable for the latent constructs proposed since: (1) Bartlett's test of sphericity provided significant differences between the correlation matrix and the identity matrix (Chi-Square = 1834.652; df = 28; *p*-value = 0.000); (2) Kaiser-Meyer-Olkin index was higher than 0.75; and (3) the correlation coefficients of the anti-image correlation matrix presented low values. Moreover, we found: (a) factor loadings higher than the minimum required ($R^2 > 0.5$); (b) high communalities for all the variables (> 0.5); and (c) three factors were extracted as expected and according to the literature reviewed (Table 6).

[Insert Table 6]

4.2. CFA

First of all, CFA and test for univariate and multivariate normality were computed providing non normality for the distribution of the variables tested. Moreover, the CFA values given suggested to exclude two of the items from the analysis (RISK_PERC1 & PERC_CE1), restricting the model as shown in Figure 2.

[Insert Figure 2]

Robust Maximum Likelihood was implemented to correct deviations from normality. Global adjustment of CFA provided appropriate levels for the measures of goodness of fit as showed in Table 7.

[Insert Table 7]

4.3. SEM

The last step in the methodology proposed is related to the construction of the integrative model that aims to explain the behavioral intention to (not) purchase products from companies that are (not) taking steps to reduce global climate change, what we call *reward* and *punishment*.

Once again, we decided to estimate the parameters of the model with Robust Maximum Likelihood estimation methodology, with the purpose to correct deviations from normality.

Concerning the SEM analysis, same model was tested separately for each of the behaviors and behavioral intention: (1) the first model examined the behavior and intention of rewarding companies for taking steps to reduce global climate change; and (2) the second one was related to the behavior and intention of punishing companies for not taking steps to reduce global climate change.

4.3.1 Reward Model

Global adjustment for the *Reward Model* provided appropriate levels for the RMSEA, AGFI, NFI, NNFI, IFI, RFI and CFI measures of global adjustment, as showed in Table 8.

[Insert Table 8]

The structural model adjustment was analyzed using the estimated coefficients significance (Table 9), where all the values for the Student *t*-test were significant at a 95% level of confidence. Likewise, after examining the reliability of the standardized coefficients (R^2) it was noted that all of them were over 0.5. Besides, the structural equations indicate that the relationships within the endogenous variable explain: 40% of the variance of RISK_P; 26% for the BEHAV1; and 28% for INTEN1 as stated in Table 10. The estimated standardized model is displayed in Figure 3.

[Insert Table 9]

[Insert Table 10]

Finally, to assess the measurement model adjustment it is necessary that all the latent constructs have a high internal consistency that will be determined through the *composite reliability* and the *variance extracted*, both presented in Table 11 and computed with the following mathematical formulas (Barrio García y Luque Martínez, 2012: 563-564).

[Insert Figure 3]

[Insert Table 11]

The values for composite reliability are all of them above the limit imposed (> 0.70). Variance extracted will indicate the percentage of the indicators explained by the latent variable. The scores obtained for variance extracted are over 0.50, therefore they adequately measure the latent construct (Barrio García & Luque Martínez, 2012: 564).

4.3.2 Punishment Model

Regarding the *Punishment Model* proposed, global adjustment also provided appropriate levels for the RMSEA, AGFI, NFI, NNFI, IFI, RFI and CFI measures of global adjustment, as showed in Table 12.

[Insert Table 12]

The estimated coefficients for the structural model adjustment are presented in Table 13, where all the values for the Student *t*-test were significant at a 95% level of confidence. Moreover, all the R^2 of the standardized coefficients were over 0.5, assessing sufficient reliability. Also, the structural equations indicate that the relationships within the endogenous variable explain in this particular case: 39% of the variance of RISK_P; 27% for theBEHAV2; and 13% for INTEN2 as stated in Table 14. The estimated standardized model is displayed in Figure 4.

[Insert Table 13]

[Insert Table 14]

Finally, in order to examine the internal consistency, we computed the *composite reliability* and the *variance extracted*, as indicated previously. Results are presented in Table 15.

[Insert Table 15]

As we can realize, all the values for composite reliability and variance extracted indicate that there is high internal consistency in the model proposed (composite reliability > 0.70; variance extracted > 0.50). Consequently, they adequately measure the latent construct (Barrio García & Luque Martínez, 2012: 564).

5. DISCUSSION

The results of the present research corroborate the hypotheses tested, finding predictors of pro-environmental behavioral intention to purchase products from companies that are taking steps to reduce global climate change, as a reward for those corporations, and to not purchase products from companies that are not taking steps to reduce global climate change, as a punishment for them.

The EFA conducted through Principal Components Analysis and varimax rotation found three latent constructs as predicted, corresponding to perceived consumer effectiveness, involvement and risk perception. However, later CFA suggested excluding two of the items that were identified as PERC_CE 1 and RISK_P1.

Furthermore, results for the CFA test of global goodness of fit gave appropriate levels for the χ^2 (9.23; *p*-value = 0.16130), RMSEA (0.03), AGFI (0.98), NFI (1.00), NNFI (1.00), IFI (1.00), RFI (0.99), and CFI (1.00) indexes.

Finally, two Structural Equations Models were proposed with the latent variables found in the previous step (see Table 16): (1) the first one for the behavioral intention of rewarding companies; (2) and the second one for the behavioral intention of punishing them.

[Insert Table 16]

Regarding the first model, the analysis revealed satisfactory values for the absolute measure of fit, RMSEA (0.077); and the incremental adjustment measures: AGFI (0.93), NFI (0.98), NNFI (0.96), IFI (0.98), RFI (0.95) and CFI (0.98) indexes.

Likewise, the structural model adjustment gave significant values for the Student *t*-test for all the items, at a 95% level of confidence (*t*-value > 1.96), and all the standardized coefficients were sufficiently reliable ($R^2 > 0.5$).

The results for the structural equations showed that 28% of the variance of the behavioral intention of rewarding the companies was explained in the model proposed, whilst the percentage increased until a 26% for the behavior of rewarding the corporations, and a 40% for risk perception latent construct.

Composite reliability and variance extracted were also computed to test the adjustment of the measurement model. The first one ensures the internal consistency of the indicators as composite reliability is over 0.70 for all the latent variables; and the second one indicates the percentage of the variance of the indicators that is explained by the latent variable, all over 0.50 as expected.

With regard to the second model, the punishing behavioral intention, it also proved an adequate adjustment for the absolute measures with a RMSEA of 0.043; as well as incremental adjustment measures: AGFI (0.97), NFI (0.99), NNFI (0.99), IFI (0.99), RFI (0.98), CFI (0.99).

Furthermore, the standardized coefficients were found to be reliable ($R^2 > 0.5$), and all the values for the Student *t*-test of the structural model adjustment were significant at a 95% level of confidence (> 1.96).

In this predictive and explanatory model we found that the variance of the final variable, INTEN2, was explained in a 13%, whilst it was a 39% for risk perception, and a 27% for the reported behavior of punishing companies for not taking steps to reduce global climate change.

Finally, internal consistency of the indicators was confirmed (composite reliability > 0.70), in addition to the values expected for the variance extracted (> 0.50).

When comparing both explanatory Models (Table 16) we can see that the final variable *behavioral intention* is better explained in the first Model, which means that the model proposed predicts a higher percentage of the behavioral intention of rewarding companies instead of the behavioral intention of punishing them (28% for the reward vs. 13% for the punishment).

6. CONCLUSIONS

The purpose of the present research was to explain and predict two different behavioral intentions related with individuals´ decisions of purchasing: the first one involves the behavioral intention of rewarding companies for taking steps to reduce global climate change, by buying their products; and the second one include the behavioral intention of punishing companies for not taking steps to reduce global climate change, by not buying their products. Both behavioral intentions were proposed to be predicted through two latent variables: risk perception and past reported behavior.

First of all, EFA was conducted in order to find the number of latent variables that could be derived from the items included, followed by CFA to confirm the results previously found. Finally, SEM was accomplished as an adequate methodology that would predict the interdependent relationships between the variables included in the model, since risk perception and behavior were considered dependents in the first step, but independents in the next one.

Regarding the results, the EFA found three latent factors as predicted in the literature proposed: perceived consumer effectiveness, involvement and risk perception of global

climate change. Moreover, the CFA confirmed those postulations and gave adequate adjustment for the previous factors established.

SEM results confirmed that the variables found in the literature would verify the hypotheses tested with a 28% of the variance of rewarding behavioral intention explained, and a 13% for punishment. Therefore, we can state that greater levels of risk perceived and past behaviors toward the corporations, should predict future behavioral intentions to keep rewarding or punishing them. Likewise, perceived consumer effectiveness and involvement seem to predict individuals´ reported behavior, as well as their risk perception of global climate change.

Besides, the outcomes obtained in the present study, could be helpful for those corporations who are thinking to change their production chain in order to include environmental care in their concerns, as consumers will consider this when facing their purchasing decisions.

In addition, they might consider the possibility to improve their communication strategies with the purpose to increase consumers´ awareness about the pro-environmental actions that the companies are taking, so they do not miss any information that could distort the image that the corporations want to give in an integrative way.

On the other hand, institutions that are planning to enhance individuals´ pro-environmental purchasing behavior, should focus on improving their perceived risk of global climate change, as it seems to positively determine behavioral intention; but they should also try to increase consumers´ involvement with global climate change, as well as to make them aware of the positive outcomes that their pro-environmental actions are having, so their perceived effectiveness could augment.

Finally, the present research has some limitations since it only considers behavioral intention as the final variable of the model proposed, instead of actual behavior. Therefore we think that future research should go a step further including how the model could be improved by adding the effect that the variables proposed may have on individuals´ final behavior toward those companies.

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ANNEX: TABLES AND FIGURES

Table 1: Sociodemographic distribution

Sample	n = 602
Cooperation rate*	75
Gender*	
Males	48
Females	52
Ages*	
18-24	13
25-34	22
35-44	20
45-54	24
55-64	17
65-74	4
75+	1
Education*	
Less than high school	3
High school	11
Some college	40
Bachelor´s degree	46

* Data are given in percentages.

Table 2: Reliability test for INVOLV

	Mean	SD	Cronbach's Alpha
INVOLV1: How worried are you about global climate change?	3.15	0.694	0.766
INVOLV2: How much had you thought about global climate change before today?	3.12	0.739	

Table 3: Reliability test for PERC_CE

Think back to the energy-saving actions you're already doing and those you'd like to do over the next 12 months.	Mean	SD	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
PERC_CE1: If you did most of these things, how much do you think it would reduce your personal contribution to global climate change reduction?	2.62	0.785	0.823	0.792
PERC_CE2: If most people in the Spain did these same actions, how much would it reduce global climate change?	3.10	0.749	0.565	
PERC_CE3: If most people in the modern industrialized countries around the world did these same actions, how much would it reduce global climate change?	3.52	0.696	0.741	

Table 4: Reliability test for RISK_P

How much do you think global climate change will harm…?	Mean	SD	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
RISK_P1: [You personally]	2.90	0.775	0.886	0.821
RISK_P2: [Future generations of people]	3.62	0.623	0.665	
RISK_P3: [Plant and animal species]	3.65	0.617	0.716	

Table 5: Principal Components Analysis: Total Variance Explained

Component	Initial Eigenvalues		
	Total	% Variance	Cumulative %
1	3.602	45.024	45.024
2	1.462	18.277	63.301
3	0.927	11.582	74.883

Table 6: Rotated Component Matrix

	1	2	3
RISK_PERC1	**0.627**	0.175	0.345
RISK_PERC2	**0.895**	0.117	0.202
RISK_PERC3	**0.896**	0.113	0.126
PERC_CE1	0.004	**0.743**	0.222
PERC_CE2	0.154	**0.897**	0.110
PERC_CE3	0.227	**0.799**	0.052
INVOLV1	0.320	0.229	**0.799**
INVOLV2	0.184	0.108	**0.888**

Table 7: Global Goodness of Fit for the CFA

	χ^2	p-value	RMSEA	AGFI	NFI	NNFI	IFI	RFI	CFI
Model	9.23	0.16130	0.030	0.98	1.00	1.00	1.00	0.99	1.00
Recommended		> 0.05	< 0.05	> 0.90	< 0.90	≈ 1	≈ 1	> 0.90	≈ 1

Table 8: Reward Model - Global Goodness of Fit for Behavioral Intention 1

	χ^2	p-value	RMSEA	AGFI	NFI	NNFI	IFI	RFI	CFI
Model	68.64	0.000	0.077	0.93	0.98	0.96	0.98	0.95	0.98
Recommended		> 0.05	< 0.05	> 0.90	< 0.90	≈ 1	≈ 1	> 0.90	≈ 1

Table 9: Reward Model – Structural Model Adjustment for Behavioral Intention 1: Estimated Coefficients

Observed Variables	Estimated Coefficients	t-student	R^2
RISK_P2	0.56	-	0.80
RISK_P3	0.55	19.57	0.79
PERC_CE2	1.00	-	0.69
PERC_CE3	0.94	14.97	0.72
INVOLV1	0.61	19.50	0.77
INVOLV2	0.53	15.05	0.51

Table 10: Reward Model – Structural Model Adjustment for Behavioral Intention 1: Structural Equations

Relationships	Estimated Coefficients	t-student	R^2
PERC_CE → RISK_P	0.29	3.58	0.40
INVOLV → RISK_P	0.52	8.87	
PERC_CE → BEHAV1	0.57	6.25	0.26
INVOLV → BEHAV1	0.36	5.95	
BEHAV1 → INTEN1	0.19	10.70	0.28
RISK_P → INTEN1	0.13	4.96	

Table 11: Reward Model – Measurement Model Adjustment

Latent construct	Composite reliability	Variance extracted
PERC_CE	0.901	0.820
INVOLV	0.807	0.771
RISK_PERC	0.918	0.909

Table 12: Punishment Model – Global Goodness of Fit for Behavioral Intention 2

	χ^2	p-value	RMSEA	AGFI	NFI	NNFI	IFI	RFI	CFI
Model	31.29	0.00803	0.043	0.97	0.99	0.99	0.99	0.98	0.99
Recommended		> 0.05	< 0.05	> 0.90	< 0.90	≈ 1	≈ 1	> 0.90	≈ 1

Table 13: Punishment Model – Structural Model Adjustment for Behavioral Intention 2: Estimated Coefficients

Observed Variables	Estimated Coefficients	t-student	R^2
RISK_P2	1.00	-	0.82
RISK_P3	0.96	19.58	0.77
PERC_CE2	1.00	-	0.75
PERC_CE3	0.87	13.60	0.67
INVOLV1	1.00	-	0.78
INVOLV2	0.85	12.02	0.50

Table 14: Punishment Model – Structural Model Adjustment for Behavioral Intention 2: Structural Equations

Relationships	Estimated Coefficients	t-student	R^2
PERC_CE → RISK_P	0.15	3.44	0.39
INVOLV → RISK_P	0.48	8.52	
PERC_CE → BEHAV1	0.29	2.75	0.27
INVOLV → BEHAV1	0.98	8.12	
BEHAV1 → INTEN1	0.10	1.96	0.13
RISK_P → INTEN1	0.17	7.89	

Table 15: Punishment Model – Measurement Model Adjustment

Latent construct	Composite reliability	Variance extracted
PERC_CE	0.904	0.825
INVOLV	0.812	0.778
RISK_PERC	0.919	0.911

Table 16: Comparison of both explanatory Models

	Model 1	Model 2
PERC_CE → RISK_P INVOLV → RISK _P	0.40	0.39
PERC_CE → BEHAV INVOLV → BEHAV	0.26	0.27
BEHAV → INTEN RISK_P → INTEN	0.28	0.13

Figure1. Illustration of the model proposed

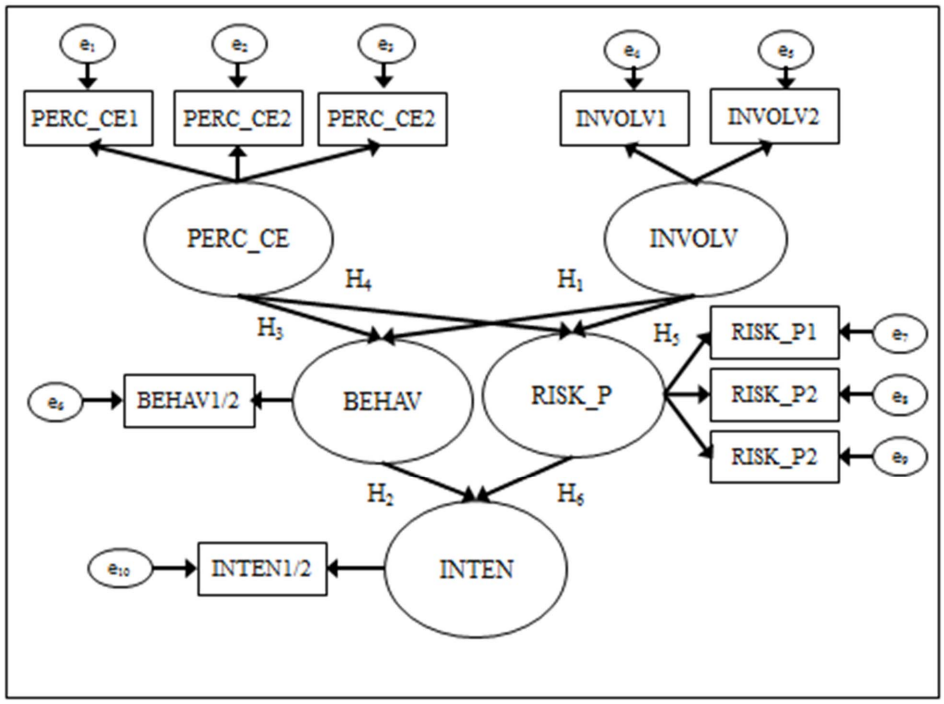

Figure 2: Model proposed modified after CFA

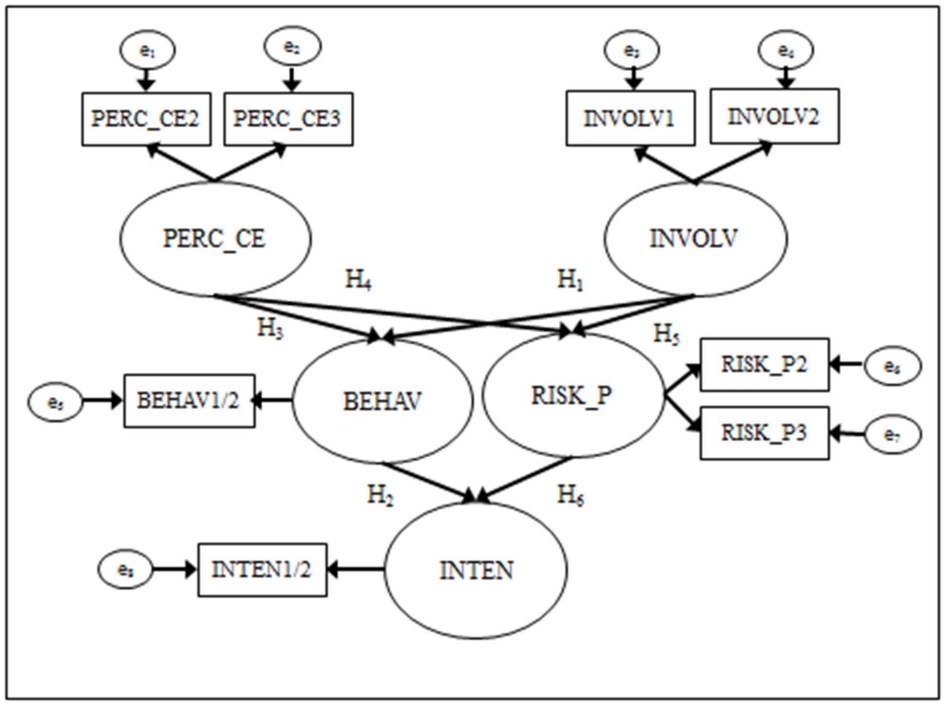

Figure 3: Reward Model - Standardized Structural Equation Model for Behavioral Intention 1

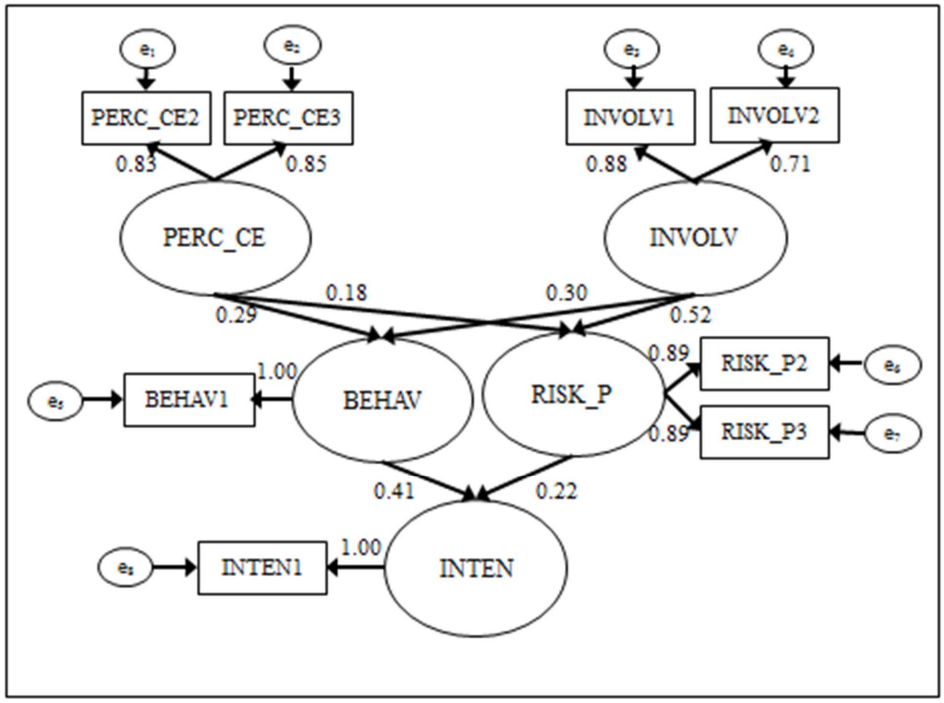

Figure 4: Punishment Model - Standardized Structural Equation Model for Behavioral Intention 2