

Postmaterialism and Altruism: A Cross-National Comparison

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Abstract

Altruism is quintessential to human evolution. In this paper it is argued that cultural evolution has an impact on altruism. Using data from the sixth wave of World Values Survey we examined the mechanisms through which altruistic orientations may be affected at both side of the Atlantic. Employing the data that cover the United States and the members of the European Union, it was found that postmaterialism negatively affects altruism in Estonia, Sweden, and the United States. Reciprocity enhances postmaterialism-altruism association in Cyprus while buffering it in Poland. Furthermore, it was established that the importance assigned to an omniscient and omnipotent being enhances this association in the Netherlands, Poland, and the United States. The results also have some public policy implications regarding the adoption of pro-environmental behaviour.

Keywords: *Altruism, Reciprocity, Postmaterialism, Autonomy, Religious Belief*

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Özet

Diğerkamlık insan evriminde önemli bir yere sahiptir. Bu makale külterel evrimin diğerkamlık üzerinde etkili olduğunu öne sürmektedir. World Values Survey çalışmasının altıncı veri toplama dalgası kullanılarak, diğerkamlık eğilimlerinin belli başlı Avrupa ülkelerinde ve Amerika Birleşik Devletleri'nde hangi faktörler tarafından etkilenebileceği araştırılmıştır. Sonuçlar, postmateryalist değerlerin diğerkamılığı Estonya, İsveç, ve Amerika Birleşik Devletleri'nde olumsuz yönde etkilediğini göstermektedir. Mütekabiliyet ise postmateryalizm-diğerkamlık ilişkisine Kıbrıs'ta güçlendirirken Polonya'da düşürmektedir. İlâveten, dini inançların kuvvetli oluşu postmateryalizm-diğerkamlık ilişkisini Hollanda, Polonya ve Amerika Birleşik Devletleri'nde kuvvetlendirmektedir. Makale dahilinde, sonuçların kamu politikası çıkarımları tartışılmaktadır.

Anahtar kelimeler: *Diğerkamlık, Mütekabiliyet, Postmateryalizm, Otonomi, Dini İnanç*

Introduction

Despite what you might think of your own specie, humans appear to have an innate tendency to cooperate with one another even when it is not to their benefit. The selfish gene theory of altruism which promoted the idea of reciprocal altruism has for a long time occupied the general understanding of pro-social behavior in the social sciences, especially in the field of economics (Gintis et al, 2003). According to this view, altruism can be understood as long-run self-interest. Recent findings from experiments and fieldwork have shown, on the other hand, that strong reciprocity in the form of cooperating with others and punishing those violating cooperation is important in explaining pro-sociality (Gintis et al. 2003). As such, the socially rewarded pro-social behavior is expected to enhance welfare and happiness. Henrich et al. (2001) have shown evidence from a large number of diverse societies that pro-social behavior is observed in many and diverse societies.

On the relationship between strong reciprocity and altruistic behavior, Gintis et al. (2003) showed using economic experiments that strong reciprocity may invade a group of self-interested individuals and the group may evolve into one with strong reciprocity. They argued that this sort of evolution is observed in many cases such as wage-setting practices and cooperation for environmental protection. They further argued that the evolution of the society at large progresses from strong reciprocity and reciprocal altruism towards postmaterialism. In other words, in the progressive stages of evolution, societies develop respect for individual liberties, representative politics, and equality (Gintis et al., 2003).

The scrutiny of altruism and the question of whether human beings are fundamentally altruistic triggered behavioral economists to travel around the world to test the hypothesis in laboratory conditions by giving participants money and offering them the option to give it away or keep it for themselves (e.g. Camerer & Fehr, 2006; Chaudhuri, 2011; Gintis et al. 2003). On a separate account, Bowles & Gintis (2003) suggest that the frequently employed method of repeated interaction in experimental

designs does not extend plausibly from two-person to n-person groups for large sample sizes. Although human interactions are mostly dyadic, “many important examples of human cooperation such as risk reduction through co-insurance, information sharing, the maintenance of group beneficial social norms, and group defense, are large group interactions” (Bowles & Gintis, 2003: 434). Considering that the experimental settings are not generable to large group behavior, the need of a cross-national study that offers insight into the large group interactions is apparent.

Research pertinent to altruism did not originate from a biological or cultural evolutionary point of view but mostly focused on the scrutiny of other-benefiting versus self-benefiting behaviors on non-profit, charitable donations (e.g. Bekkers & Wiepking, 2011; Strahilevitz & Myers, 1998; Reed, Aquino, & Levy, 2007; White & Peloza, 2009). Although additional research also examined the effect of altruism in a consumer context in various cultures (Ger & Belk, 1996; Mathur, 2013), these studies have ignored the societal evolution and the mechanisms through which altruism may be affected.

The scrutiny of altruism that is often studied in laboratory settings in the area of behavioral economics has been neglected by social scientists employing survey data analysis. To illustrate, Sethi & Somanathan (2000) argue that when the interaction is purely random or nonassortative, as they are in real life situations as opposed to laboratory conditions, the reciprocators are likely to find themselves among materialists. This leads the reciprocators to act as if they had spiteful preferences by refraining from altruism. The scarcity hypothesis of postmaterialism suggests that as the bulk of advanced industrial societies’ populations do not live under conditions of hunger and economic insecurity they would be more likely to adopt Postmaterialist values (Inglehart, 1981).

The purpose of this study is therefore twofold. First it aims to reinstate the importance of cultural evolution into human evolution and evolution of larger groups and attempts to hand back the merit that the culture deserves via the examination of postmaterialism-altruism

association. Second, by employing Structural Equation Modeling techniques, this study intends to investigate the mechanisms through which postmaterialism-altruism association may be affected when the study is not conducted in laboratory conditions and when the distribution of the research sample is random and non-assortative. For this particular reason the moderating effects of reciprocity and the importance assigned to an omniscient and omnipotent being on the postmaterialism-altruism association are examined. This will help researchers understand whether Postmaterialist values adopted in affluent countries (Scarborough, 1995) sways the *postmaterial man* from selfishness to engage in altruism without an expectation of reciprocity and the way reciprocal expectations and the importance assigned to God affect the postmaterialism-altruism association. Also the examination of the mediating role of autonomy on the postmaterialism-altruism association will permit this study to understand the role of a concept that is thought to be mutually exclusive of postmaterialism (Janmaat & Braun, 2009) on the postmaterialism-altruism relationship. The proposed model is tested on a large data set consisting of 12,388 individuals from 7 European member countries and the United States. The data were derived from the latest (sixth) wave of the World Values Survey (WVS).

1. Theoretical Framework & Hypotheses

Modernization theory suggests that the shift from pre-industrial to industrial and then to post-industrial society created profound changes in individuals' daily experiences and worldviews (Inglehart, 1977; Spier, 1996). With the industrial revolution and countries becoming more industrialized, the game against nature where individuals' worldviews were conditioned by the nature itself ended (Bell, 1976). As humans' ability to control the environment increased, advanced industrial economies created an unprecedented wealth which led increasing percentages of their populations growing up taking survival for granted (Inglehart & Baker, 2000). Once the survival is ascertained, the value orientations shifted from a strong focus on

economic and physical security towards an emphasis on subjective well-being, belonging, self-expression and quality of life (Inglehart, 1977; 1990; 1997). The changes of value orientations refer to a shift from Material to postmaterial values. A material orientation denotes a higher place attached to worldly possessions and the ways that these possessions assume a central place in individuals' lives (Belk, 1984). Postmaterialism is defined as attributing top priority to belonging, self-expression and the quality of life (Inglehart, 1981). Additionally, Postmaterialism represents values such as senses of community, social equality, and belongingness (Mathur, 2013).

The rise of Postmaterialist values, according to Inglehart (1990) diminishes the salience of economic self-interest as it relates to social solidarity. According to this those who prioritize postmaterial values over Materialist counterparts, would be more likely to be "genuinely concerned about the well-being of fellow citizens or mankind as a whole and express feelings of solidarity and commitment towards them" (Janmaat & Braun, 52: 2009). In this vein, Postmaterialist values are best described as moral orientations where the interest of the societies as a whole is valued more than the interest of a particular group. This quality determines the degree of unconditionality and the prescriptiveness of moral evaluations (Fuchs and Klingemann, 1995). Although scholars (Delener, 1994; Essoo & Dibb, 2004; Hirschman, 1982; Huntington, 1996; Weber, 1998) suggest that traditional religious values have an enduring place on the institutions of a society, Inglehart & Baker (2000) suggest that the role ascribed to religion and God dwindled. Therefore, the moral evaluations of postmaterial societies do not originate from religious values but from postmaterialism itself. In this vein Karacuka and Zaman (2019) document the results of various experimental studies in the behavioral economics domain show that internalized morals lead people to sacrifice their benefits to increase the welfare of the society

The moral orientation which reflects Inglehart's Postmaterialist values differs from the instrumental orientation which is dominated by longer-term cost-benefit calculations (Fuchs & Klindgemann, 1995). To put it

differently, the unconditionality aspect of favouring the society's interest over a particular group's implies that Postmaterialists will consistently behave in a way that may be against their economic self-interests without expecting any reciprocity (Gouldner, 1960) from the benefactors. This state is often named pure altruism. Pure altruism is when the altruist does not expect a reward while giving to another individual. The unconditionality granted by the adoption of Postmaterialist values implies pure altruism and no expectation of reciprocity. Reciprocity is defined as conditional fairness (Diekmann, 2004) and is argued to exist in every culture (Schroeder, Steel, Woodell, Bembenek, 2003). The following hypothesis is, therefore, constructed:

H1: There will be a positive, direct effect of postmaterialism on altruism.

The unconditionality component of Postmaterialist values implicates altruistic acts to unconditional altruism. The social solidarity and unconditional commitment towards the interest of the society of Postmaterialist values suggest that those who adopt Postmaterialist values do not expect any reciprocity in their altruistic acts. All the same, recent behavioral and experimental studies (e.g. Gintis, Bowles, Boyd & Fehr, 2003) provide empirical evidence that suggests that strong reciprocity (cooperating with others and punishing those violating cooperation) is important in explaining altruism. The evidence pertinent to the experimental studies, therefore, suggests that strong reciprocity is essential in reciprocal altruism defined as individuals exchanging altruistic acts based on the belief that the altruistic act offered in one occurrence will be paid back to the altruist at a later time so that both the beneficiary and the benefactor ensue a net benefit (Trivers, 1971). Additionally the large study conducted by Henrich, Boyd, Bowles, Camerer, Fehr, Gintis & McElreath (2001) suggests that human beings rarely voluntarily sacrifice their material self-interests and that evidence for unselfish-motivated behavior being quite rare. Considering that postmaterialists unconditionally care for the well-being of

the mankind as a whole, they would be more invested in altruism if reciprocated.

H2: Reciprocity will positively moderate the relationship between postmaterialism and altruism.

The understanding of the neoclassical autonomous, economic man is being changed with increasing studies in the area of behavioral economics. The research interest shifts from trying to understand what abstract axiom-obeying would do to what real embodied human beings would do (Nelson, 2010). Although, Kahneman (2003) suggests that human decision making does not follow strict rules of logic, Henrich et al. (2001) (based on experimental studies) argue that humans rarely voluntarily break their autonomous, "economic man" decision making patterns. Considering that the rational agent would always choose to perform in a way that optimizes his/her expected outcomes and that the literature suggests that Postmaterialists perform altruistic acts without any expectations of reciprocity; and considering that without any expected reciprocity the *homo economicus* would not act altruistically; the following hypotheses were constructed:

H3: Autonomy will positively mediate the relationship between postmaterialism and altruism.

Boyd & Richerson (2005) suggest that human altruism represents a huge outlier in the animal world. Despite that the inclusive fitness theory and reciprocal altruism (Hamilton, 1964; Trivers, 1971; Williams, 1966) denote that altruism is simply about the long-run self-interest; recent controlled economic experiments (Fehr & Fischbacher, 2003; Fehr, Gächter & Kirchsteiger, 1997; Gächter & Fehr, 1999; Gintis et al. 2003; Guth & Tietz, 1990) repeatedly showed that altruistic behaviors exist even in the absence of any prospective repeated interaction with benefactors or reputation incentives based on the altruistic behaviors. Another stream of research in the field of evolutionary theories suggests that strong reciprocity plays an important role in the explanation of altruistic behavior even in cooperation

among strangers (Bowles & Gintis, 2004; Gintis, 2000). To enable the explanation of altruistic behavior that contradicts the self-interest argument, it has been argued that the evolution process enabled humans to receive subtle messages which inform them about the likelihood of profitability of cooperation in a given situation. To assess whether humans are receptive of subtle cues scholars (e.g. Burnham & Hare, 2007; Haley & Fessler, 2005) conducted anonymous experimental games where eyes were staring at the subjects during their decision-making process. This, they have concluded, caused an increase in subjects' altruistic behaviors in anonymous games.

The literature pertinent to the scrutiny of altruistic behavior and the bystander effect is not limited to human bystanders watching the altruist making decisions. Theorists that suggest that the cognitive availability of an omniscient and omnipotent supernatural agent has had an impact on the development of large-scale societies (e.g. Shariff & Norenzayan, 2007) as this availability leads humans to interact cooperatively with genetically unrelated individuals (e.g., Atran & Norenzayan, 2004; Sosis & Ruffle, 2004). Although, Inglehart & Baker (2000) propound the decrease to the role assigned to religion in Postmaterialist cultures, there is a separate stream of research that suggest as explained previously. Considering that people attribute humanlike characteristics to God and that evidence shows that the God concept positively triggers unconditional altruism (Bering, McLeod & Shackelford, 2005; Shariff & Norenzayan, 2007) the following hypothesis is constructed.

H4: The importance of an omniscient and omnipotent being in one's life will positively moderate the relationship between postmaterialism and altruism.

2. Research Methodology

2.1 Sample and Data

The present research empirically tested the moderating effect of reciprocity and importance of God on the relationship of (1) postmaterialism to altruism. The data employed in this study were obtained from the latest wave of World Values Survey (WVS). The WVS, which first started in 1981 and continued with five following waves of data collection, is a compilation of national surveys that examine societal values and norms. The sixth wave of WVS which encapsulates data pertinent to 57 countries provides the opportunity to analyse data from 7 European Union (EU) member countries and the United States. These countries and their respective sample sizes are: Cyprus (n = 1000), Estonia (n = 1533), Germany (n = 2046), the Netherlands (n = 1902), Poland (n = 966), Romania (n = 1503), Sweden (n = 1206), and the United States (n = 2232).

The WVS employs stratified random sampling techniques from the entire population aged over 18 to draw the individual country samples. Although the WVS assign the random sampling areas according to each country's jurisdictional divisions; additional effort is paid to certify the representativeness of the sample via paying further attention to population size and the degree of urbanization of each area. Most often, structured questionnaires are administered face to face interviews. In rare cases where the access to subjects is limited, however, telephone interviews are employed.

2.2 Measures

The scales that were employed to assess the hypothesized relationships were based on the relevant literature and drawn from the WVS. The items that were employed to measure importance of God, materialist/postmaterialist values, life satisfaction, altruism, reciprocity, autonomy, income, age, and sex are presented in Table 1. Likert-type scales vary as revealed in Table 1.

Table 1: Measures Employed

	Items	Scale
Importance of God	How important is God in your life?	1=not at all important 10=very important
Materialism / Postmaterialism	Inglehart's 12-item materialism/postmaterialism index	1=very much like me 6=not at all like me
Altruism	It is important to this person to do something for the good of society.	1=very much like me 6=not at all like me
Fairness (Reciprocity)	Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?	1=people would try to take advantage of you 10=people would try to be fair
Autonomy	I see myself as an autonomous individual	1=strongly agree 4=strongly disagree
Income	On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in.	1=lowest group 10=highest group
Age	You are ____ years old	_____
Sex	By observation	1=male 2=female

Inglehart (1990) conceptualizes *postmaterialism* as interplay between lower-order and higher-order needs. According to his conceptualization materialism-postmaterialism is a continuum where an emphasis on lower order needs signals materialistic values where a focus on higher order needs signify postmaterialistic feelings. *Importance of God in one's life* is defined as the cognitive availability of an omniscient and omnipresent supernatural agent (Shariff & Norenzayan, 2007). *Altruism* is defined as helping another at a cost to oneself (Sober, 2000, 17). *Reciprocity* is defined as rewarding kindness with kindness and punishing unkindness with unkindness (Fehr and Gächter, 2000; Ostrom and Walker, 2003) and as fairness (Diekmann, 2004). Autonomy is defined as the inclination to act independently of others or of social values and expectations (Markus, 1977).

2.3 Method of Analysis

The relationship between the variables discussed in previous sections was analysed with a combination of moderation (Frazier, Barron, & Tix, 2004) and mediation (Zhao, Lynch, & Chen, 2010) analysis techniques. Kenny, Kanikson, & McCoach (2014) argue that the model fit indices should not be calculated for models with small degrees of freedom in contrast to the sample sizes. Therefore the model fit indices were not reported. The variables, as suggested by Aiken and West (1991), were centered.

To calculate the, direct, indirect and total effects of postmaterialism on altruism the empirically derived bootstrapping sampling distribution and the bias-corrected confidence intervals were employed as suggest by Preacher & Hayes (2008). As bootstrapping does not make any assumptions regarding the shape of the distribution of the variables (Efron & Tibshirani, 1994), the employment of this method eliminates the power problem which may have been caused by asymmetries and other forms of distribution non-normalities (Shrout & Bolger, 2002).

3. Results

Table 5 which may be found in the Appendix presents the results of all relationships tested in the analysis. The hypothesized relationship between postmaterialism and altruism (H1) was found to be significant for the samples from Estonia ($\beta = -.172, p < .05$), the Netherlands ($\beta = -.094, p < .05$), Sweden ($\beta = -.147, p < .05$), and the United States ($\beta = -.139, p < .05$). H1 was, therefore, rejected for Estonia, the Netherlands, Sweden, and the United States. This indicates that the assertions regarding the association between postmaterialism and altruism discussed in the theoretical background are not warranted for these countries. None of the remaining countries (Cyprus, Germany, Poland, and Romania) showed statistically significant results at $p < .05$.

The scrutiny of the moderation effect of reciprocity on postmaterialism-altruism association (H2) showed that there is enhancing

interactions (Cohen et al., 2003) between postmaterialism and reciprocity in the samples from Cyprus ($\beta = .034$, $p < .05$) and buffering interactions in the samples from Poland ($\beta = -.026$, $p < .05$). H2 supported in Cyprus and rejected in Poland. There were no significant relationships at the cut-off of $p < .05$ in the remaining countries.

The analysis that tested H4 supported the hypothesis in the Netherlands ($\beta = .022$, $p < .05$), Poland ($\beta = .024$, $p < .05$) and the United States ($\beta = .174$, $p < .05$). None of the remaining countries had statistically significant results at the standard cut-off of $p < .05$). These results provided evidence to suggest that the importance assigned to an omniscient and omnipotent being in one's life may act as the bystander effect and increase the likelihood of Postmaterialists having altruistic inclinations. The scrutiny of H4 also permitted the examination of the two-way interactions plots for high and low levels of the independent variable: Postmaterialism. As the independent variable has a significant effect on the dependent variable (autonomy) only in the Netherlands and the United States, two-way interactions effects were prepared only for the two countries as seen below in Table 2 and Table 3.

Table 2: Two-Way Interactions: The Netherlands

	Low Postmaterialism	High Postmaterialism
Low Importance of God	3,271	3,039
High Importance of God	3,089	2,945

Table 3: Two-Way Interactions: The United States

	Low Postmaterialism	High Postmaterialism
Low Importance of God	2,988	2,668
High Importance of God	2,788	2,552

The sample for both the Netherlands and the United States showed that individuals with low postmaterialism and importance given to God have the highest altruism scores. The results are interesting as they

contradict what have been argued in the literature regarding religiosity-altruism and Postmaterialist values-altruism associations.

The testing of the mediating role of autonomy showed that autonomy mediates the postmaterialism-altruism association in Estonia, the Netherlands, Sweden and the United States. The samples from Estonia, the Netherlands, and the United States provided evidence of complementary (negative direction) mediation. In the sample from Sweden, evidence showed positive direct and negative indirect associations which indicated to a competitive mediation. None of the remaining countries had statistically significant results at the standard cut-off of $p < .05$. Table 4 below shows the results pertinent to the direct and indirect effects as well as the mediation types proposed by Zhao, Lynch, & Chen (2010). Data supported H3 in the samples from Estonia, the Netherlands, and the United States with negative indirect effects. The sample from Sweden, however, showed a positive indirect effect of postmaterialism to altruism. The samples from the remaining countries (Cyprus, Germany, Poland, and Romania) did not produce statistically significant results at the standard cut-off of $p < .05$.

Table 4: Mediation Results

		Cyprus	Estonia	Germany	Netherlands	Poland	Romania	Sweden	United States
Direct Effects	PMAT → ALT	-0.10** (0.831) ***	-0.065 (0.021)	-0.037 (0.109)	-0.102 (0.006)	-0.006 (0.845)	0.000 (0.932)	-0.143 (0.021)	-0.147 (0.015)
	*PMAT → ALT								
Indirect Effects	PMAT → ALT	0.003 (0.303)	-0.008 (0.009)	-0.037 (0.109)	-0.002 (0.037)	0.000 (0.458)	0.001 (0.721)	0.007 (0.006)	-0.009 (0.018)
	PMAT → ALT								
Mediation Types		None	Complementary	None	Complementary	None	None	Competitive	Complementary

*PMAT: Postmaterialism, ALT: Altruism, **Regression weights, ***Significance level

4. Discussion

4.1 Theoretical Implications

This study reveals the altruistic attitudes of individuals in real life situations on a cross-national basis. Considering that the literature pertinent to the scrutiny of altruism often examined the phenomenon in laboratory conditions where the interactions are mostly dyadic or non-random, the need for a study where the sampling distribution is random and non-assortative is evident. The examination of this phenomenon employing a large data set with a self-report survey research produces results that can be generalizable to large group behavior which the method of repeated interaction in laboratory conditions cannot.

The results indicated that Postmaterialist values are negatively related to altruism in Estonia, the Netherlands, Sweden, and the United States. Diekmann (2004) suggests that the social norms that promote cooperation would erode if not stabilized by sanctions. Although it requires further examination, empirical evidence from the samples of Estonia, the Netherlands, Sweden, and the United States provided preliminary findings to make a suggestion in this direction. The finding that those who adopt Postmaterialist values would not engage in altruistic acts is important. The knowledge, however, should be extended to whether Postmaterialists who do not adopt altruistic values because they find themselves among materialists would act altruistically if they perceived a benefit of doing so as per suggested by Sethi & Somanathan (2000). The results of the moderating effect of reciprocity on postmaterialism-altruism association showed that the Cypriots increase their altruistic attitudes if they are among other reciprocators. This provided evidence to argue that the rewards (in the form of fairness from benefactors) are effective in sustaining public cooperation in Cyprus as argued by Milinski, Semmann, & Krambeck, (2002).

The sample from Poland however showed that the Polish further refrain from altruism even when they believe that people around them would treat them fairly and not take advantage of them. This spiteful

attitude may be explained by the fact that punishment is argued to be more efficient than reward in sustaining public cooperation (Sigmund, 2007). To put it differently, the rewards may not suffice for Polish to adopt altruistic attitudes and that they may require punishment to act altruistically. As the WWS does not include a scale to measure punishment this remains as a puzzling finding that deserves further inquiry.

Inglehart and Baker (2000) argue that the role of religion is lower for those who adopt Postmaterialist values and that the moral evaluations do not originate from religion but from Postmaterialist values. Considering the slowly changing nature of religion in evolving societies in comparison with the other subcomponents of culture (Geertz, 1993; Khraim, 2010), the hypothesis regarding the dwindling importance of God in life as it relates to altruism was tested at a cross-national level. The results showed that the importance ascribed to God in life positively moderated the postmaterialism-altruism association in the Netherlands, Poland, and the United States. This provided evidence to suggest that the moral evaluations of those who adopt Postmaterialist values do not necessarily originate from postmaterialism alone and proved the importance of God in life on altruistic attitudes. This finding is in line with Shariff & Norenzayan (2007) which suggests that God concepts increase prosocial behavior even when the behavior is directed towards stranger, at a cross-national level.

The mediating role of autonomy on postmaterialism-altruism association showed that autonomy diminishes this relationship in Estonia, the Netherlands, and the United States while augmenting it in Sweden. The results from the Swedish sample contradicts the homo economicus assumption and may relate to a higher felt oneness (Cialdini et al., 1997) in Sweden, which may point to a state of locating more of oneself in the other to whom one feels attached. The explanation of the finding from the Swedish sample merits further scrutiny to recognize whether the enhancing effect of autonomy originates from felt oneness.

4.2 Public Policy Implications

The findings of this research can be extended to discuss certain public policies regarding the adoption of pro-environmental behavior (PEB) and green products and services. It has been well understood that environmental issues have strong impact on international marketing (e.g. Leonidou, Katsikeas, Fotiadis, & Christodoulides, 2013). However, research on the understanding of the adoption of PEB at the consumer level on a cross-national basis is lacking. This research fills this gap in the literature by taking the cultural evolution of societies into consideration.

Psychologists that have examined the antecedents of PEB approached the phenomenon by making attempts to link internal or psychological variables to behavior (Clark, Kotchen, & Moore, 2003). According to Stern, Dietz, & Kalof (1993), for instance, the motives for PEB originate from, by the rank of importance, biocentrism, altruism and egoism. The results showed that people who embrace Postmaterialist orientations from Estonia, the Netherlands, Sweden and the United States are not adopting altruistic values. The enhancing moderation effect of reciprocity (in Cyprus) and importance of God (the Netherlands, Poland, & the United States) showed that these two phenomena are important concepts to be used in the efforts of dissemination and marketing of pro-environmental behavior.

One should consider the cross-national differences proposed by this study in devising appropriate strategies for the diffusion of PEB and the use of green products and services. This article explores the mechanisms through which altruistic attitudes are affected in Cyprus, Estonia, Germany, the Netherlands, Poland, Romania, Sweden, and the United States. Results provided evidence that the adoption of Postmaterialist values does not necessarily equate to an antecedent of PEB: altruism. The results indicated empirical evidence regarding the phenomena that may be useful to marketing green products and services. For instance, Cypriots that adopted postmaterial values, if felt rewarded, are likely to adopt altruistic values.

People from the Netherlands, Poland, & the United States with postmaterial values and high importance assigned to God are inclined to adopt altruism. In Sweden, autonomous and postmaterialist individuals are more likely to be altruists. These results implied the necessity of specialized marketing programs of green products and services in these countries.

References

- Aiken, L.S. ve West, S. G. (1991), *Multiple Regression: Testing and interpreting interactions*: Sage.
- Atran, S. ve Norenzayan, A. (2004), "Religion's Evolutionary Landscape: Counterintuition, Commitment, Compassion, Communion", *Behavioral and Brain Sciences*, S. 27(6), s. 713-730.
- Bekkers, R. ve Wiepking, P. (2010), "A Literature Review of Empirical Studies of Philanthropy: Eight Mechanisms That Drive Charitable Giving", *Nonprofit and Voluntary Sector Quarterly*, S. 40(5), s. 1-50.
- Belk, R. W. (1984), "Three Scales to Measure Constructs Related to Materialism: Reliability, Validity, and Relationships to Measures of Happiness", *Advances in Consumer Research*, S. 11(1), s. 291-297.
- Bell, D. (1976), *The Coming of the Post-Industrial Society*. Paper presented at The Educational Forum.
- Bering, J. M., McLeod, K. ve Shackelford, T. K. (2005), "Reasoning about Dead Agents Reveals Possible Adaptive Trends", *Human Nature*, S. 16(4), s. 360-381.
- Bowles, S. ve Gintis, H. (2003), "Origins of Human Cooperation. In: Genetic and Cultural Evolution Of Cooperation", ed. P. Hammerstein, s. 429-43. MIT Press
- Bowles, S. ve Gintis, H. (2004), "The Evolution of Strong Reciprocity: Cooperation in Heterogeneous Populations", *Theoretical Population Biology*, S. 65(1), s.17-28.
- Boyd R. ve Richerson PJ. (2006), "Solving the Puzzle of Human Cooperation. In Evolution and Culture, ed. S Levinson", S. 105-32. Cambridge, MA: MIT Press
- Burnham, T. C. ve Hare, B. (2007), "Engineering Human Cooperation.", *Human Nature*, S. 18(2), s. 88-108.
- Camerer, C. F. ve Fehr, E. (2006), "When Does "Economic Man" Dominate Social Behavior?", *Science*, S. 311(5757), s. 47-52.
- Chaudhuri, A. (2011), "Sustaining Cooperation in Laboratory Public Goods Experiments: A Selective Survey of the Literature", *Experimental Economics*, S. 14(1), s. 47-83.
- Clark, C. F., Kotchen, M. J. ve Moore, M. R. (2003), "Internal and External Influences on Pro-Environmental Behavior: Participation In A Green Electricity Program", *Journal of Environmental Psychology*, S. 23(3), s. 237-246.

Delener, N. (1994), "Religious Contrasts in Consumer Decision Behaviour Patterns: Their Dimensions And Marketing Implications", *European Journal of Marketing*, S. 28(5), s. 36-53.

Diekmann, A. (2004), "The Power Of Reciprocity Fairness, Reciprocity, and Stakes in Variants Of The Dictator Game", *Journal of Conflict Resolution*, S. 48(4), s. 487-505.

Efron, B. ve Tibshirani, R. J. (1994), *An Introduction to the Bootstrap*, CRC Press.

Essoo, N. ve Dibb, S. (2004), "Religious Influences on Shopping Behaviour: An Exploratory Study", *Journal of Marketing Management*, S. 20(7-8), s. 683-712.

Fehr, E. ve Fischbacher, U. (2003), "The Nature of Human Altruism", *Nature*, S. 425(6960), s. 785-791.

Fehr, E. ve Gächter, S. (2000), "Fairness and Retaliation: The Economics of Reciprocity", *The Journal of Economic Perspectives*, S. 14(3), s. 159-181.

Fehr, E., Gächter, S. ve Kirchsteiger, G. (1997), "Reciprocity as a Contract Enforcement Device: Experimental Evidence", *Journal of the Econometric Society*, S. 65(4), s. 833-860.

Frazier, P. A., Tix, A. P. ve Barron, K. E. (2004), "Testing Moderator And Mediator Effects in Counseling Psychology Research", *Journal of Counseling Psychology*, S. 51(1), s. 115.

Fuchs, D. ve Klingemann, H.D. (1995), Citizens and the State: A Changing Relationship? In H.D. Klingemann & D. Fuchs (eds), *Citizens and the State*. New York: Oxford University Press

Gächter, S. ve Fehr, E. (1999), "Collective Action as a Social Exchange", *Journal of Economic Behavior & Organization*, S. 39(4), s. 341-369.

Ger, G. ve Belk, R. W. (1996), "Cross-Cultural Differences in Materialism", *Journal of Economic Psychology*, S. 17(1), s. 55-77.

Gintis, H. (2000), "Strong Reciprocity and Human Sociality", *Journal of Theoretical Biology*, S. 206(2), s. 169-179.

Gintis, H., Bowles, S., Boyd, R. ve Fehr, E. (2003), "Explaining Altruistic Behavior in Humans", *Evolution and Human Behavior*, 24(3), 153-172.

Gouldner, A. W. (1960), "The norm of Reciprocity: A preliminary Statement", *American Sociological Review*, S. 25(2), s. 161-178.

Güth, W. ve Tietz, R. (1990), "Ultimatum Bargaining Behavior: A Survey and Comparison of Experimental Results", *Journal of Economic Psychology*, S. 11(3), s. 417-449.

Haley, K. J. ve Fessler, D. M. (2005), "Nobody's Watching?: Subtle Cues Affect in an Anonymous Economic Game", *Evolution and Human Behavior*, S. 26(3), s. 245-256.

Hamilton, W. D. (1964), "The Genetical Evolution of Social Behaviour", *Journal of Theoretical Biology*, S. 7(1), s. 1-16.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., et al. (2001), "In Search Of Homo Economicus: Behavioral Experiments In 15 Small-Scale Societies", *American Economic Review*, S. 91(2), s.73-78.

Hirschman, E. C. (1982), "Religious Differences in Cognitions Regarding Novelty Seeking And Information Transfer", *Advances in Consumer Research*, S. (10), s. 228-233.

Hu, L. ve Bentler, P. M. (1998), "Fit Indices in Covariance Structure Modeling: Sensitivity to Underparameterized Model Misspecification", *Psychological Methods*, S. 3(4), s. 424.

Huntington, S. P. (1996), *The Clash of Civilizations and the Remaking of World Order*, Penguin Books.

Inglehart, R. (1977), *The Silent Revolution*, Princeton, Princeton University Press.

Inglehart, R. (1981), "Post-Materialism in an Environment of Insecurity", *The American Political Science Review*, S. 75(4), s. 880-900.

Inglehart, R. (1990), *Culture Shift in Advanced Industrial Society*, Princeton University Press.

Inglehart, R. (1997), *Modernization and Postmodernization: Cultural, Economic, and Political Change In 43 Societies*, Cambridge University Press.

Inglehart, R. ve Baker, W. E. (2000), "Modernization, Cultural Change, and the Persistence of Traditional Values", *American Sociological Review*, S. 65(1), s. 19-51.

Janmaat, J. G. ve Braun, R. (2009), "Diversity and Postmaterialism as Rival Perspectives in Accounting for Social Solidarity Evidence from International Surveys", *International Journal of Comparative Sociology*, S. 50(1), s. 39-68.

Kahneman, D. (2003), "A Perspective on Judgment and Choice: Mapping Bounded Rationality", *American Psychologist*, S. 58(9), s. 697-720.

Karacuka, M. ve Zaman, A. (2012), "The Empirical Evidence Against Neoclassical Utility Theory: A Review of the Literature", *International Journal of Pluralism and Economics Education*, S. 3(4), s. 366-414.

Kelloway, E. K. (1998), *Using LISREL for Structural Equation Modeling: A Researcher's Guide*: Sage.

Kenny, D.A., Kaniskan, B. ve McCoach, D.B. (2014), "The Performance of RMSEA in Models with Small Degrees of Freedom", *Sociological Methods & Research*, S. (24), s.1-22.

Khraim, H. (2010), "Measuring Religiosity in Consumer Research from an Islamic Perspective", *Journal of Economic and Administrative Sciences*, S. 26(1), s. 52-78.

Markus, H. (1977), "Self-Schemata and Processing Information about the Self", *Journal of Personality and Social psychology*, S. 35(2), s. 63-78.

Mathur, A. (2013), "Materialism and Charitable Giving: Can They Co-Exist?", *Journal of Consumer Behaviour*, S. 12(3), s. 149-158.

Milinski, M., Semmann, D. ve Krambeck, H. J. (2002), "Reputation Helps Solve the 'Tragedy of the Commons'", *Nature*, S. 415(6870), s. 424-426.

Ostrom, E. ve Walker, J. (2003), *Trust and Reciprocity: Interdisciplinary Lessons for Experimental Research*, Russell Sage Foundation.

Preacher, K. J. ve Hayes, A. F. (2008), "Asymptotic and Resampling Strategies for Assessing And Comparing Indirect Effects In Multiple Mediator Models", *Behavior Research Methods*, S. 40(3), s. 879-891.

Reed, A., Aquino, K. ve Levy, E. (2007), "Moral Identity and Judgments of Charitable Behaviors", *Journal of Marketing*, S. 71(1), s. 178-193.

Scarborough, E. (1995), "Materialist-Postmaterialist Value Orientations", *The Impact of Values*, S. 4, s. 123-159.

Schroeder, D. A., Steel, J. E., Woodell, A. J. ve Bembenek, A. F. (2003), "Justice within Social Dilemmas", *Personality and Social Psychology Review*, S. 7(4), s. 374-387.

Sethi, R. ve Somanathan, E. (2001), "Preference Evolution and Reciprocity", *Journal of Economic Theory*, S. 97(2), s. 273-297.

Shariff, A. F. ve Norenzayan, A. (2007), "God is Watching You Priming God Concepts Increases Prosocial Behavior in an Anonymous Economic Game", *Psychological Science*, S. 18(9), s. 803-809.

Shrout, P. E. ve Bolger, N. (2002), "Mediation in Experimental and Nonexperimental Studies: New Procedures and Recommendations", *Psychological Methods*, S. 7(4), s. 422-445.

Sigmund, K. (2007), "Punish or Perish? Retaliation and Collaboration Among Humans", *Trends in Ecology & Evolution*, S. 22(11), s. 593-600.

Sober, E. (2002), The ABCs of altruism. In: *Post SG, Underwood LG, Schloss JP WB, editors, Altruism and Altruistic Love*, Oxford: Oxford University Press.

Sosis, R. ve Ruffle, B. J. (2004), "Ideology, Religion, and the Evolution of Cooperation: Field experiments on Israeli Kibbutzim", *Research in Economic Anthropology*, S. 23, s. 89-117.

Spier, F. (1996), *The Structure of Big History from the Big Bang Until Today*: Amsterdam University Press.

Stern, P. C., Dietz, T. ve Kalof, L. (1993), "Value Orientations, Gender, And Environmental Concern", *Environment and Behavior*, S. 25(5), s. 322-348.

Strahilevitz, M. ve Myers, J. G. (1998), "Donations to Charity as Purchase Incentives: How Well They Work May Depend on what You Are Trying to Sell", *Journal of Consumer Research*, S. 24(4), s. 434-446.

Trivers, R. L. (1971), "The Evolution of Reciprocal Altruism", *Quarterly Review of Biology*, S. 46(1), s. 35-57.

Weber, M. ve Parsons, T. (1998), *The Protestant Ethic and the Spirit of Capitalism*, Roxbury Pub.

White, K. ve Peloza, J. (2009), "Self-Benefit Versus Other-Benefit Marketing Appeals: Their Effectiveness in Generating Charitable Support", *Journal of Marketing*, S. 73(4), s. 109-124.

Williams, G. C. (1966), "Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thoughts", *New Jersey, Princeton*

Zhao, X., Lynch jr, J. G. ve Chen, Q. (2001), "Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis", *Journal of Consumer Research*, S. 37(2), s. 197-206.

Appendix

Table 5: All Findings

	Cyprus	Estonia	Germany	Netherlands	Poland	Romania	Sweden	United States
Postmaterialism → Altruism	-0.010** (0.724)***	-0.072 (0.010)	-0.028 (0.089)	-0.094 (0.001)	-0.005 (0.850)	0.000 (0.995)	-0.147 (0.001)	-0.139 (0.001)
Reciprocity → Altruism	0.026 (0.050)	-0.077 (0.001)	-0.031 (0.001)	-0.038 (0.018)	-0.002 (0.849)	-0.006 (0.595)	-0.022 (0.201)	-0.050 (0.001)
Importance of God → Altruism	-0.033 (0.039)	-0.025 (0.008)	-0.032 (0.001)	-0.069 (0.001)	-0.074 (0.001)	-0.055 (0.001)	-0.056 (0.001)	0.021 (0.001)
Postmaterialism*Reciprocity → Altruism	0.034 (0.003)	-0.007 (0.589)	-0.002 (0.769)	0.009 (0.498)	-0.026 (0.028)	-0.004 (0.691)	0.010 (0.485)	-0.004 (0.654)
Postmaterialism*Importance of God → Altruism	0.020 (0.066)	0.001 (0.918)	0.007 (0.162)	0.022 (0.001)	0.024 (0.024)	-0.004 (0.790)	0.012 (0.209)	0.021 (0.001)
Autonomy → Altruism	0.128 (0.001)	0.126 (0.001)	0.038 (0.099)	0.069 (0.042)	0.027 (0.498)	0.165 (0.001)	0.160 (0.003)	0.174 (0.001)

* Regression weight
** Significance level (2-tailed)