

Ahmad, Jamilah; Ali, Imran; Grigore, Georgiana Florentina; Stancu, Alin

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STUDYING CONSUMERS' ECOLOGICAL CONSCIOUSNESS – A COMPARATIVE ANALYSIS OF ROMANIA, MALAYSIA AND PAKISTAN

Jamilah Ahmad¹, Imran Ali², Georgiana Florentina Grigore^{3*}
and Alin Stancu⁴

¹⁾ School of Communication, University Sains Malaysia

²⁾ IQRA University Islamabad, Pakistan

^{3/4)} Academy of Economic Studies, Bucharest, Romania

Abstract

In the context of an increasing discourse on sustainability and environmental protection, the research on ecological consumer behavior becomes a necessity for companies. The extension in number of multinational companies determines an adaptation of their policies from one country to another. Based on a comparative approach of consumers in Romania, Malaysia and Pakistan, this paper analysis the dimensions of ecological consciousness, and highlights similarities and differences between the countries. In order to reach this objective, the research presents a structural equation model founded on primary data collected from an online survey. Religion and national culture are the main differences outlined by the analysis, in terms of ecological consciousness.

Keywords: ecology, ecological consciousness, consumers, consumer behavior

JEL Classification: O13, O57

Introduction

In the last years, environmental aspects are intensely debated internationally, both in highly industrialized countries, but also in developing countries. The rapid economic growth led to two contradictory elements: welfare and economic development and an aggravation of environmental health. One of the negative sequences of economic development is the greenhouse effect. The greenhouse effect causes the Earth's atmosphere to become warmer. According to the Intergovernmental Commission on Climate Change elaborated by UN and published in 2001, it is stated that "*very likely (90%) the human activity is causing global warming*" (Intergovernmental Commission on Climate Change, 2001). In congruence with this, greenhouse gas emissions that derive from companies' activities will cause serious climatic disturbances, boosting global warming and rising sea level. "Present and future

* Corresponding author, **Georgiana F. Grigore** - georgiana_gri@yahoo.com

CO₂ emissions contributes to global warming and the rise of sea level in the next 1000 years”, because of their higher resistance in atmosphere.

Excessive deforestation is another element that contributes to global warming. According to Butler (2008), Brazil lost almost 150 000 square kilometers of the Amazon rainforest between May 2000 and August 2006. For the last three decades, scientists have been warning that global warming is not only an environmental threat, but also a determinant factor of the way people will live on Earth. In this context, natural disasters such as drought or floods are even more present on the agenda of environmentalists. The effects on population are reflected in the increasing number of deaths caused by excessive heat or malnutrition (Narain, 2009). Therefore, actions to minimize the air, land and water pollution are necessary in order to conserve biodiversity and natural heritage (Minciu et al., 2010).

Given these scenarios, governments and various non-profit organizations are enhancing their efforts to conserve natural environment through elaboration of ecological policies. At the same time, they recognize and emphasize the importance of ecological education in the spirit of ecological consumption principles. Palmer and Neal (1994) maintain that an improvement of the present ecological problems can be achieved through a better education on environment. In their opinion, environmental education will increase the awareness of the impact of human activities on the environment and will also offer a model to harmonize economic development with maintaining the quality of life of each individual. As a result, advances in the knowledge society can be achieved through generating new information and disseminating it in educational programs and integrating it in industrial processes and services (Nistoreanu et al., 2010).

This study is a comparative analysis carried out in three developing countries, Malaysia, Pakistan and Romania, in order to highlight the determinant factors of consumers' ecological consciousness. The chosen countries have relatively different profiles in terms of culture, religion and the socio-economic model, but, at the same time, are effective and potential beneficiaries of the large companies' relocation of production. Hereby, the article presents the main similarities and differences between the three investigated countries. In order to achieve this objective, eight hypotheses will be tested, out of which six relate to consumer profile, while the other two reveal the influences that the country profile (religion and culture) has on them. By understanding these issues in the three analyzed countries, the study offers companies and researchers a starting point in identifying the instruments and products/services that could change consumers' lifestyle to benefit the environment.

1. Theoretical Foundations of Research Hypotheses

In order to design the methodology research and to develop the hypotheses, a rigorous analysis of the literature is necessary. In the first part, the dimensions of consumers profile in terms of ecological consciousness will be presented (ecological behaviour, ecological knowledge, man-nature orientation, spheres of control, willingness to pay a higher price); while in the second part the authors discuss how the culture and religion influence the environmental consciousness.

1.1 Ecological Consumer Behaviour

Ecological consciousness focuses on a specific dimension of consumer behaviour. This dimension refers to consumers' purchase intention and their willingness to pay a higher price for ecological products (Laroche et al., 2001). Ecological behaviour can be generated by factors such as the desire to save money (manifested by the reduction in consumption of energy and water), and other psychological factors (when consumers feel this is the right way to behave). This features two categories of ecological consumers: (1) the ones who are constraint to adopt an ecological behaviour (example: an increase in prices determines a decrease in consumption), and (2) the ones who are willing to pay more for ecological products. Empirical studies suggest that women are more sensitive to environmental issues and they tend to give a greater importance to them, compared with men, and they are likely to choose products or services based on ecological criteria (Rahman and Haque, 2011). Some researches show that there are categories of consumers who prefer to companies that are dedicated to social causes, as long as there are not major differences in terms of their quality (Anghel et al., 2011).

1.2 Ecological Knowledge

Several studies (Dispoto, 1977; Hoch and Deighton, 1989; Park et al., 1994) confirmed the positive relation between the degree of understanding and knowledge of ecology and responsible behavior towards the environment. Grunert's study (1993) cited in Schlegelmilch et al. (1996) shows that those categories of consumers who are preoccupied by environment are more likely to buy "green products". Davies (1993) added a new idea to previous researches, stating that ecological knowledge leads to positive ecological attitudes. According to Souza et al. (2007) and Jamilah et al. (2010), consumers with higher incomes are more responsive to environmental issues, compared with those who have lower incomes. In the same time, young consumers are more sensitive to environmental aspects (Jamilah et al., 2010).

1.3 Man-nature Orientation

The natural environment is defined as: "all living beings and the interaction between nature and strategies of individuals, organizations and companies." (McAllister et al., 2006, pp. 317) The most significant problems that both society and companies face with are related to the impact of economic activities on the soil, water and atmosphere, this resulting in air pollution, acid rain, global warming, creation of waste, water pollution, abusive deforestation and deterioration of human health caused by the consumption of genetically modified food.

Man-nature orientation describes the relationship between human beings and natural environment. Chinese believe that the relationship between human being and nature should be guided by a win-win principle. Environment may ensure individuals a long-term survival, when utilized responsibly (Chan, 1963; Miles, 1992). Therefore, people should regard nature as a strategic partner that will help them continue their daily activities (Chan and Lau, 2000).

1.4 Spheres of Control

“Locus of control” is the original concept from which the “spheres of control” scale emerged (Paulhus, 1983). According to the initial notion, the way people assign control in their lives is based on internal factors (personal decisions, skills, abilities etc.) or external factors (other people, various events, fate etc.). After a while, Paulhus and Selst (1990) developed the spheres of control scale that consist of three dimensions: individual control, interpersonal control and socio-politic control. This instrument discerns in a finer way how control is attached to different spheres, areas and domains of life. In congruence with this, most people have a more prominent locus of control in the individual sphere, a weaker locus of control in interpersonal area and the weakest locus on control in socio-politic domain. Paulhus and Selst (1990) shows that consumers with a higher degree of locus of control in individual spheres are more likely to buy products made from recycled paper.

1.5 Willingness to pay a higher price

Consumers start to buy and consume ecological products. A research regarding Romanians ecological behaviour (Roşca, 2007) outlines that ecological products are better viewed in terms of their quality, but having a higher price than traditional products. Another finding is that there is no correlation between consumers' income and consumption of ecological product, which are bought by all categories of people. Aryal et al. (2009) shows in a case study of the Kathmandu Valley that consumers are willing to pay a higher price for ecological products, but the level of acceptance varies considerably with the information asymmetry, price and availability.

In the case of Malaysian market, a study on wood products that are ecologically certified, highlights that only 38% of consumers would be willing to pay a higher price for them (Mohamed and Ibrahim, 2007). Also, studies in UK and Norway point out that a price increased with 2% is justified for wood products that are ecologically certified, while American consumers would be willing to accept an increase in their price with 4.4% to 18.7%, depending on the quality of the product (Ozanne and Vlosky, 1997).

Romania is a country with great potential in the segment of ecological products. However, due to the lack of information regarding the benefits of consuming green products and their higher price compared with traditional products, consumption remains low (Răbonţu and Todoruţ, 2010). Rahman and Hague (2011) research show that consumers who have a higher level of knowledge about ecological products are willing to pay a higher price for them. Researches in Pakistan suggest that people with higher education have a positive attitude towards ecological products and it is more likely for them to buy these products more often. In terms of price and quality, expectations from ecological products are similar to the ones associated with traditional products (Ali et al., 2011). The higher price and the unavailability of ecological products are the main factors which determine consumers to buy traditional products (Jamilah et al., 2010). The relationship between ecological consciousness and willingness to pay a higher price for green products is sustained by Kotchen and Moore (2008) and also Yesawich (2007). A survey conducted in India and Vietnam show similar findings, according to which consumers are willing to pay 10% more for ecological products (Browman, 2007). This demonstrates that the determinants of ecological behaviour are related to dimensions of ecological consciousness.

1.6 Consumers' Ecological Consciousness and Ecological Behaviour

According to Laroche et al. (2001), married women exhibit more of environmental-friendly behaviour in comparison with single women. Age is among demographic factors that influence consumer ecological behaviour. Diamantopoulos et al. (2003) state that young consumers tend to possess higher environmental knowledge compared to older consumers. Another finding is that there is no relation between the component of a family and construct of environmental knowledge, attitudes or ecological behaviour (Diamantopoulos et al. 2003); although Schlegelmilch et al. (1996) claim that there is an increased probability in developing a positive attitude towards ecological knowledge in larger families compared to smaller ones.

According to the Swedish Institute of Statistics (2009), the sales with ecological food increased from 1.9% to 3.4% from 2004 to 2008. The results show that 55% of the Swedish population prefer ecological products, and this affects their sales in comparison with traditional products. Davies et al. (1995) identified three reasons why consumers prefer ecological products: the taste, care for nature and the health benefits.

Special roles in consumers' education have the non-profit organizations. Most of the times, they form partnerships with socially responsible organizations. This partnership represents a tool of communicating about social or environmental concerns. Thus, beyond obtaining profit, by partnering with non-profit organizations, companies promote a socially responsible behaviour and in the same time encourage social involvement (Șerban, 2011).

1.7 National Culture

According to DEX (Coteanu et al., 1998, p. 249), culture represents "all material and spiritual values created by mankind and institutions, necessary to communicate these values". National culture has its essence in the people deeply rooted values. From this point of view, the adaptation to the cultural specific represents a real challenge for managers of multinational companies.

Starting with the industrial revolution, economies in different countries have undergone significant changes. Actual environmental problems pointed out by the current warnings about global warming, UN and other non-governmental organizations efforts to increase awareness on the ecology, have made the transition from "industrial revolution" towards "green revolution". The government is a powerful promoter of ecological behaviour. The government offers several important and efficient levers. The most important of all is the legislation.

In Malaysia, the government is taking efforts in order to educate population with regards to ecology. In April 2009 the *Ministry of Energy, Green Technology and Water* (KeTTHA) was established. The primary objective of the ministry is to promote high impact research and development of green technologies in Malaysia. *The National Green Technology Policy* (NGTP) was launched to address the following four main areas of concern: energy, environment, economy and social aspects.

In Romania we can observe a steady increase of interest in ecology, featured in a number of trends. One of these trends is given by the growth of information on ecology in the public debate. A series of laws regarding environmental protection and ecology have been

promoted in Romania. In 1990 the National Environmental Program was established and, in 1995 the Law Framework for Environment Protection was developed. Studies on corporate social responsibility of Romanian companies show that firms focus their attention on activities which create or improve organizational reputation (Băleanu et al., 2011).

In Pakistan, the environment situation is different from the one in Malaysia and Romania. This situation is due to the weak government and NGOs involvement in promoting friendly environmentally practices and products. Natural environment and resources in Pakistan are threatened. For example, water resources which were once in abundance are decreasing as drought and consumption are strongly manifesting. Effects such as soil erosion and deterioration of ecosystems are caused by the poor management of forest floor; Pakistan currently holds just 4% from the total surface of forest (Vaughn et al., 2010).

1.8 Religious Beliefs

Religious beliefs are another factor that influences ecological consciousness in consumer behaviour. According to Ellickson's (1991) social norms theory, the choices of individuals are affected by their belief that someone will reward or sanction them depending on their actions. Social norms may explain why individuals behave in a different ways that economists cannot predict in the traditional economic models. "*This is because religion has had, and continues to have a significant influence on common morals*" (Callahan, 1998, p.336), and the more religion is present in the individuals' life, the greater its role as a standard against law and social behaviour is.

There are various opinions and debates regarding the relationship between religious beliefs and environmental concern. According to Kalland (2002), some religions have no relation with environmentally ethical behaviour and go on to suggest that some religions actually encourage humans towards environmental destruction. On the other hand, some authors (Dwevedi, 1990; Fowler, 2003; Letcher, 2003; Vesilind and Gunn, 1999) believe that it is the interpretation of religion that determines positive or negative environmental behaviour. These authors believe that the sacred texts and teachings of religions are inoffensive and do not encourage negative attitudes or behaviours towards the environment, but rather positive ones.

Kalland (2002) believes that the answers to environmental problems are not within religious context, but within the social context. He offers the example of Japan which is one of the most industrialized countries that achieved the largest forest covering reported to its land area. After periods of deforestation, Japan changed Tokyo from one of the most polluted major cities to one of the most cleanest in the world. These achievements were accomplished not by "searching for religious clues but via painful experience, confrontation and political pressure" (Kalland, 2002, p. 155).

2. Research Methodology

The purpose of this exploratory research is to identify the determinant factors of consumers' ecological consciousness. Two specific objectives are associated to this purpose: (1) to determine ecological behaviour in each of the three analysed countries and to (1) highlight similarities and differences between consumers of the three countries.

Based on the literature presented above, eight hypotheses are developed in order to be tested.

- H1: Ecological consciousness is influenced by consumers' ecological behaviour.
- H2: Ecological consciousness is positively influences by consumers' knowledge of ecology.
- H3: Ecological consciousness is positively influenced by the man-nature orientation.
- H4: Ecological consciousness is positively influenced by consumers' spheres of control.
- H5: Ecological consciousness is positively influenced by consumers' religious beliefs.
- H6: Ecological consciousness is positively influenced by consumers' willingness to pay a higher price.
- H7: Ecological consciousness is positively influenced by various dimensions of national culture.
- H8: Ecological buying behaviour is positively influenced by consumers' ecological consciousness.

The dependant variable of this study is the consumers' ecological consciousness, whereas the independent variables include: ecological knowledge, man-nature orientation, spheres of control, religious beliefs, willingness to pay higher price and national culture (table no. 1). The instrument to measure consumer ecological consciousness is adopted from the literature. Environmental behaviour is measured on a scale containing five items and it is adopted from Allen and Feerand (1996). The ecological knowledge measurement instrument is adopted from Maloney and Ward (1973) and Maloney et al., (1975). The instrument consists of seven items. The instrument to measure spheres of control is adopted from Paulhus (1983) and consists of 10 items. The instrument to measure man-nature orientation is adopted from Churchill (1979). The instrument contains five items measured on a 5 point Likert scale. The national culture was measured on a 5 point Likert scale and the instrument was adopted from Shrum and McCarty (1994).

Table no. 1: Variables of the study

No.	Variables	Authors	No of items
1	Consumer ecological behaviour	Allen and Freerand (1996); Stanley et al. (1996)	5 items
2	Ecological knowledge	Maloney and Ward (1973); Maloney et al. (1975)	7 items
3	Man-nature orientation	Churchill (1979)	5 items
4	Spheres of control	Paulhus (1983)	10 items
5	Willingness to pay a higher price	Laroche et al. (2001)	3 items
6	Ecological consciousness	Stanley et al. (1996)	10 items
7	National culture	Shrum and McCarty (1994)	3 items
8	Religious beliefs	Plante and Boccaccini (2002); McDaniel and Burnett (1990)	6 items

Data was collected using a questionnaire with 55 questions, out of which 49 were used to develop the structural equation model and 6 were demographic questions. To offer equal importance to each country in the study, the same number of questionnaires was collected for each country. Data collection was realized online through Google Docs platform, from June to July 2011. The reason for choosing the online questionnaire relates to the speed of data collection and the fact that respondents feel more comfortable when completing the questions. Research sample consists of 300 respondents with demographic characteristics presented in table no. 2.

Table no. 2: Structure of the sample

Variable		Romania	Malaysia	Pakistan	Total
Sex	Male	47	64	87	66%
	Female	53	36	13	34%
TOTAL		100	100	100	100%
Marital status	Married	23	45	37	35%
	Single	72	52	61	62%
	Divorced	5	3	2	03%
TOTAL		100	100	100	100%
Age	<20 years	13	9	7	10%
	21-30 years	51	47	55	51%
	31-40 years	25	32	21	26%
	>40 years	11	12	17	13%
TOTAL		100	100	100	100%
Occupation	Employed	47	42	34	40%
	Self-employed	11	17	10	14%
	Unemployed	8	11	15	11%
	Student	34	30	41	35%
TOTAL		100	100	100	100%
Income	<300 EURO	17	23	29	23%
	300-599 EURO	29	40	33	34%
	600-899 EURO	33	24	23	27%
	>900 EURO	21	13	15	16%
TOTAL		100	100	100	100%
Education	High school	35	22	17	23%
	University	41	53	36	43%
	Masters	17	21	43	27%
	PhD	7	4	4	7%
TOTAL		100	100	100	100%

Data analysis and processing was performed using SPSS program. Data collected was analyzed to verify its validity and reliability. Also, the correlation matrix was performed in order to determine the nature of the relationship between variables. Confirmatory Factor Analysis tests the validity of data and the utilized scales. To test previous identified hypotheses the structural equation model was performed.

3. Results and Discussions

In the Confirmatory Factor Analysis (CFA), Cronbach alpha of each scale was performed to check the internal validity and reliability. Item statements with significant loading ($\geq .40$) were retained in the respective scales and insignificant and negatively significant/insignificant statements ($< .40$) were removed. Out of the 49 items that were used to develop the model, after the reliability analysis 45 were kept for further analysis. Cronbach alpha greater than 0.5 indicates acceptable reliability of the data in social sciences (Nunnally and Bernstein, 1978). The overall value of Cronbach alpha is 0.84, which shows satisfactory reliability of data from all countries. The variable wise reliability of data is also satisfactory for all variables across three countries. The criterion to accept any hypothesis is that estimated value should be < 0.05 .

In Romania, the structural equation model based on the responses obtained indicates several aspects (Annex no. 1). Ecological behavior is significantly correlated with ecological consciousness, therefore we accept hypothesis 1. Ecological knowledge, man nature orientation, spheres of control, and consumer willingness to pay higher price are also having significant relationship with consumers' ecological consciousness we therefore, accept H2, H3, H4 and H6 as well. Consumer religious beliefs and national culture are not having significant relationship with consumers' ecological consciousness, leaving H5 and H7 rejected. Finally, consumer ecological behavior is also positively and significantly influenced by consumers' ecological consciousness. In Romania, consumers' ecological behavior, ecological knowledge, man nature orientation, spheres of control, and consumer willingness to pay higher price are the strongest determinants of consumers' ecological consciousness behavior.

In Malaysia, the structural equation model indicate that all variables including ecological behavior, consumer ecological knowledge, man nature orientation, spheres of control, consumer willingness to pay higher price, consumer religious beliefs and national culture are having significant relationship with consumers' ecological consciousness, so therefore, we accept H1, H2, H3, H4, H5, H6 and H7 for the case of Malaysia. In Pakistan, the results maintain that ecological behavior, consumer ecological knowledge, man nature orientation, spheres of control and collectivism are having positive and significant relationship with consumer ecological consciousness. Consumer willingness to pay higher price is having no influence on consumer ecological consciousness. Furthermore, consumer ecological consciousness is also having significantly positive influence on consumer ecological behavior.

To complete the study, ANOVA and descriptive statistics are explored. The objective is to discover similarities and differences regarding consumers' ecological consciousness of the three analyzed countries. Results show that women are more ecologically aware than men.

Married respondents have more tendency of ecological conscious behavior than single and divorced respondents. Ecological consciousness is found more in young consumers as compared to older respondents. Similarly, self-employed consumers are having a higher level of ecological consciousness as compared other categories of consumers (employed, unemployed, students) Ecological consciousness is also found higher among high income consumers in all three countries. Finally, consumers with high level of education also have a high level of ecological consciousness in all three countries. (table no. 3)

Table no. 3: Variance analysis

Demographics	Groups	Mean			Standard deviation		
		RO	MY	PK	RO	MY	PK
Sex	Male	2.59	2.32	2.04	.68	.68	.66
	Female	3.12	3.78	3.47	.75	.75	.74
Marital Status	Single	2.78	2.70	2.71	.51	.63	.62
	Married	3.84	2.94	2.42	.71	.75	.71
	Divorced	2.02	2.51	2.18	.62	.60	.61
Age	<20 years	3.20	3.01	3.02	.69	.63	.65
	21-30 years	3.40	3.85	3.92	.77	.85	.82
	31-40 years	2.84	2.46	2.92	.70	.65	.61
	>40 years	2.20	2.19	2.70	.61	.61	.60
Occupation	Employed	2.23	2.32	2.31	.62	.67	.68
	Self-employed	3.45	3.25	3.57	.83	.79	.82
	Unemployed	2.10	2.10	2.19	.52	.61	.63
	Student	2.54	2.54	2.41	.68	.67	.65
Income	<300 Euro	2.11	2.10	2.71	.53	.51	.50
	300-599 Euro	2.87	2.34	2.92	.69	.57	.55
	600-899 Euro	3.10	3.29	3.21	.71	.71	.75
	>900 Euro	3.64	3.80	3.72	.82	.88	.90
Education	High school	2.11	2.03	2.15	.53	.52	.56
	University	2.36	2.10	2.61	.58	.66	.68
	Masters	2.78	2.228	2.71	.63	.69	.70
	PhD	3.55	3.67	3.75	.78	.74	.78

Conclusion and limitations

The objective of this study was to investigate the determinants of consumer ecological consciousness in Romania, Malaysia and Pakistan. This study also intended to find out the similarities and differences among the consumers of these countries regarding their ecological behavior. This is an important study as (1) it provides useful information to corporations that want to produce environment friendly products and (2) highlights the dimensions of ecological consciousness and how consumers' can be informed or educated in this regard.

First of all, knowing the factors that shape ecological behavior, corporations can use the findings of this study in their policies and strategies in all three countries. The study concludes that in the context of Romania factors like environment friendly behavior, ecological knowledge, spheres of control, man nature orientation, and willingness to pay higher prices are having significant relationship with consumers' environmental consciousness. On the other hand, religious beliefs and national culture have no influence on consumers' environmental consciousness. Furthermore, consumers' environmental consciousness has significantly positive influence on consumer's ecological behavior. In the case of Malaysia, all factors including environment friendly behavior, ecological knowledge, spheres of control, man nature orientation, and willingness to pay high prices, religious beliefs and national culture are having significant relationship with consumers' environmental consciousness. Consumers' ecological behavior is also influenced positively and significantly by consumers' environmental consciousness in Malaysia. Regarding

Pakistan, environmental friendly behavior, ecological knowledge, spheres of control, man nature orientation, religious beliefs and national culture influence significantly consumers' environmental consciousness. However, consumers' willingness to pay high prices does not have significant correlation with consumers' environmental consciousness. Therefore, this study suggests that companies should develop tools to increase awareness on environmental problems. Education in the spirit of ecology is a central factor in shaping consumers' environmental consciousness. Consumers will pay a higher price if they are convinced about the benefits of and necessity for ecological products.

Education on ecology is one of the basic needs required to better understand and develop strong links with the environment. The problems that society is facing can be solved through an active involvement of citizens. As we highlighted in this study, age, income and education are determinant factors of behavior towards environment, therefore consumers ought to be educated, formal or informal, regarding the basic principles of ecology, from the primary school.

The study presents some limitations. One of these refers to method of choosing the three analyzed countries for the comparative analysis. Although one can say that these countries have heterogeneous characteristics, the paper identified similarities between them in terms of ecological consciousness. The sample structure and data collection can also be considered limits of the study. Organizational restrictions have had an important impact on the sample structure. Although online researches have many limitations, these are more and more employed by researches. Data collection using the same online instrument in the same time in three different countries, ensure a real-time monitoring of the research progress. Further research should deepen the results of this study by creating ecological consumers profiles and by identifying specific segments of consumers from different countries. Also, an analysis of similarities and differences between these segments is required.

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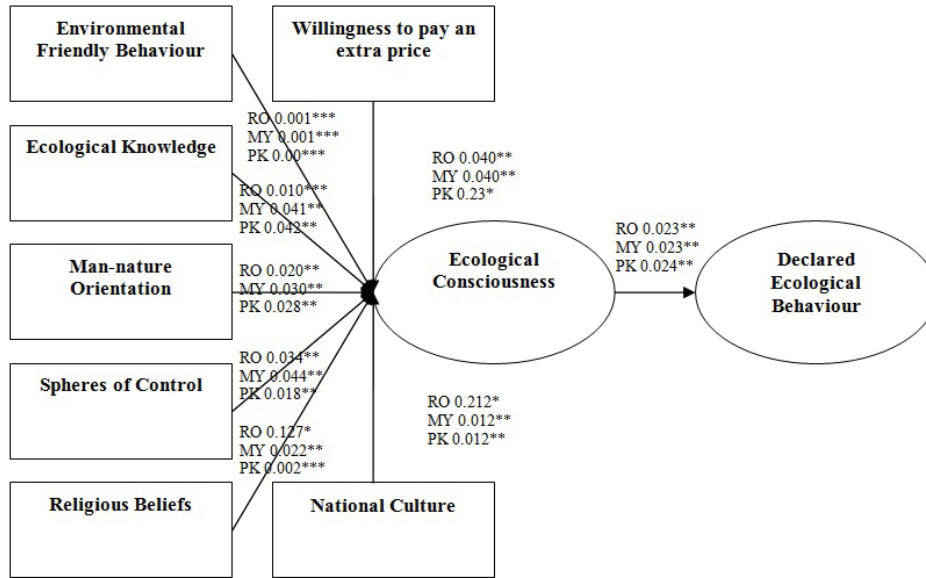
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Annex no 1: Structural Equation Model (SEM) for Romania (RO), Malaysia (MY) and Pakistan (PK)



***. Significant at 0.01 levels
 **. Significant at 0.05 levels
 *. Significant at 0.10 levels