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MASTER'S THESIS

ENVIRONMENTAL CONCERN AND SUSTAINABLE CONSUMER BEHAVIOR AMONG MACEDONIAN CONSUMERS

Ljubljana, September 2016 JULIJANA SERAFIMOVA

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INTRODUCTION

Nowadays, due to the globally consumption-oriented societies and therise in population, the environmental resources which support our lives and our sustained existence on the planet are in decline.Environmental problems areever more present, especially the threat of climate changeas a result of the increased carbon emissions. Since high consumption levels are promoted as ways to enhance our well-being, development, and economic growth, these misconceptions increase the environmental problems (Assadourian, 2013, p.115). With the present trend, the required concept of combining environmental concern (which traditionally involves encouraging conservation) with marketing management (which aims to stimulate and facilitate consumption) might seem to be a somewhat contradictory solution to the problem. Therefore, sustainability is seen as the key stone which will resolve this apparent paradox (Tantawi, O'Shaughnessy, Gad & Salam, 2009) and consumption as a key lever for achieving more sustainable development.

Ever since the United Nations Conference on Environment and Development was held in Rio de Janeiro 1992, unsustainable consumption patterns are internationally recognized as one of the major causes of global environmental deterioration (Brohmann, Heinzle, Rennings, Schleich & Wüstenhagen, 2009). Thus, environmental protection, and sustainability as a social goal requires consumers, as citizens of the planet earth, to play an important role to change the behaviour and consumption habits of everyone (Van Dam & Apeldoorn, 1996). Thus, we all need to start living today by protecting our tomorrow (Mount, 2009) and by failing to achieve sustainability we risk our self-destruction (Engelman, 2013).

Understanding consumer behaviour is important for any marketer and it is especially critical for environmental products (Widger, 2007). There is a general belief among researchers and environmental activists that by purchasing environmentally friendly products consumers can contribute significantly to improve the quality of the environment (Muhmim, 2007). Thus, if consumers reveal a high degree of environmental concern and channel it into some pro-environmental purchasing behaviour, it is likely that profit-driven enterprises would be strongly motivated to adopt the concept of sustainability in their operations (Anand, 2013). Therefore, determining what people know about the environment, how they feel about it, and what actions they take is essential to establish the sustainability of a society (Bodur & Sarigöllü, 2005). In general, sustainable awareness and behavior are more common among environmentally concerned consumers who are often more aware of the bigger picture. Previous empirical evidence emphasized that environmental concern has been found to be a useful predictor of environmental conscious behaviour (Donaton & Fitzgerald, 1992; Kerr, 1990; Ottman, 1992; Schlossberg, 1992) and a major factor in the consumer decision making (Beckford, Jacobs, Williams & Nahdee, 2010; Cornelissen, Pandelaere, Warlop & Dewitte, 2008; Zimmer, Stafford &

Stafford, 1994). Moreover consumers with a stronger environmental concern are more likely to purchase products as a result of their environmental claims (Mainieri, Barnett, Valdero, Unipan & Oskamp, 1997).

Energy use has beenstrongly connected with economic and populationgrowth and it is inextricably linked to the consumption of goods and services. Climate change engages the energy sector particularly closely because energy-related emissions account for more than two thirds of anthropogenic greenhouse gas (hereinafter: GHG) emissions. For that reason, energy consumption and the climate change together are top priority in the European and global agenda for achieving sustainability. One of the cheapest options to decrease the CO_2 concentrations in the atmosphere is to improve the energy efficiency of the continually growing energy sector (Pacala & Socolow, 2004). In that context, based on the 2030 Agenda on Sustainable Development which was presented at the Paris Conference 2015, energy efficiency was pointed out as one of the primary objectives of the EU's path towards low carbon economy in order to contribute to a significant decrease of the risky climate changes (European Commission, 2016).

A broad overview of recent literature in this field indicates that energy efficiency is considered an important attribute in the product choice of the consumers. Consumer behaviour is based on individual decisions, but it depends largely on supply-side measures and proper infrastructure (e.g. the availability of energy-efficient household equipment) and socio-political factors (e.g. existence of energy efficiency standard or eco-labeling). Energy efficiency standards and eco-labels for household and electric appliances are among the most popular strategies to save energy and educate consumers to use energy more wisely (Mahlia & Saidur, 2010). Providing information for the environmental impact of the product through labels has been proposed as one of the ways to promote more sustainable consumption and this can be used as an effective tool to generate environmental consciousness and drive positive behaviour towards labelled products (Sharma & Gupta, 2013). With the presence of energy rating labels as a specific form of eco-labels, energy conscious consumers are more likely to select energy saving products than less conscious consumers. In other words, environmental consciousness as an environment attitude can be further strengthened with the presence of energy rating labels**.**

Household consumption expenditure accounts for more than half of the GDP in Republic of Macedonia, so the individual consumer can potentially be a powerful player in the economy of the country (Angelovska, Sotiroska & Angelovska, 2012). Individuals are at the very core of sustainable development and only aware, well-informed and trained people could contribute to the achievement of a strong balance between the core sustainability pillars of economic growth, social prosperity and a healthy environment.The limited awareness about sustainable development imposes the need to take actions in order to increase awareness.

The Republic of Macedonia, as a developing country aiming to join the European Union, and a country where sustainable development is at the core according to the European model of society, is obligated to respect and implement the international agreements related to sustainable development and to strengthen and preserve that model for better life quality for future generations. So, in accordance to the Strategy for Sustainable Development in Europe, the National Strategy for Sustainable Development identifies the prospects of energy consumption and climate change as one of the key challenges in the Macedonian community. The main environmental pollution in Macedonia can be attributed to the energy sector which contributes 76% of the total emissions of GHG (State statistical office, 2016). On the other hand, Macedonia has become strongly dependant on electricity imports during recent times. To illustrate this, electricity imports in 2012 accounted for 29.9% of total domestic electricity consumption (State Statistical Office, 2013). The percentage of electricity consumption from the final energy consumption in Macedonia was 32.4% in 2006 (Ministry of economy, 2010), where the share of the residential sector was 36.5% in 2012 (State Statistical Office, 2013). Having this in mind, it is necessary to reduce the energy consumption to the greatest possible extent and improving energy efficiency is one of the possible options in that process.

The main purpose of this master thesis is to add to the body of knowledge on environmental concern and sustainable consumer behaviour, especially in the context of transition economies. It will give a better understanding how environmental concern affects purchase behaviours in general and how strong this relation sustains in the Macedonian community. Additionally it will shed light onthe idea concerning awareness of product eco labels and more specifically energy labels and how it can influence the product preference of consumers, especially those with strong concern for the environment.

Past studies on the attitudes of consumers toward the environment and sustainable consumer behaviour has been conducted mostly in developed countries. Since similar research is lacking in many developing countries and has not yet been performed in Macedonia, this study aims to fill this gap. It will demonstrate usefulness not only for the academic purpose but also in every day practice of marketers and policy makers in Macedonia.

The main goal of this research is to determine attitudes toward general environmental issues on Macedonian consumers and to see whether they are willing to change some of their attitudes and purchasing behaviours to help to achieve a small part of the very big and global agenda of sustainability. In order to understand the relationship between consumptionand sustainability the study should provide answers to the following core research questions:

- Is there awareness for the importance of environmental issues among Macedonian consumers?
- Does environmental concern predict environmentally sustainable purchase behavior?
- Are there differences in sustainable purchase behavior in relation to some of the demographic characteristics of Macedonian consumers?
- Does information about environmental outcomes provided by eco-labels (in general and energy manner) influence product preference?
- Is saving energy through purchase of energy efficient and labelled products important in order to minimizenegative environmental impacts, or other personal reasons?

This master thesis is structured into three main chapters. The first chapter presents the main idea of sustainability concept and is focused on theoretical background of sustainable consumer behaviour and some of the factors influencing it which are based on the Theory of Reasoned Action(hereinafter: TRA) and the Theory of Planned Behavior(hereinafter: TPB). Buying behavior is primarily determined by the environmental concern as a general attitude and the willingness to behave. Additionally the current attitudes regarding the eco labels and their relation with sustainable purchase behaviour are examinedtogether with some of the demographic factors including gender, age and educational level. Chapter two gives an insight into the literature concerning the role of consumer energy use and sustainability, with a special focus on energy efficiency. Furthermore, motivations influencing the decision making of respondents, during purchasing of energy efficient products are studied with the particular focus on awareness of energy labelling in general. Finally, chapter three presents a theoretical framework together with the formed hypothesis, followed by the methodology used for empirical part of the study and presenting of the findings. Discussion of the results is added to this chapter together with recommendations for further improvements in the current topic.

1 CONSUMER SUSTAINABILITY

1.1Definition and Broadness of Sustainability and Sustainable Development

1.1.1 Definition and broadness of sustainability

Today, the use of the word sustainability is very common, and the concept of sustainability has become an important aspect of the lives of many. Sustainable city, sustainable corporation, sustainable restaurant menu or even a sustainable cup of coffee to go, are only some of the phrases we hear on a daily basis. Per se it is a complex and vague concept but the vagueness of it makes it more adaptable with so many different interpretations and meanings to different people (Heinen, 1994). The great number of different definitions

and interpretations can cause much confusion, since some of their meanings are similar or only somewhat different. As such, the term was named as one of the top "jargoniest jargon" words (Advertising Age, 2010), but still its meaning is clear enough that its core refers to systems that are able to operate and persist on their own over long periods of time.

A helpful point to understand the meaning of sustainability is to start with etymology which says that both words **sustainability** and **sustainable** originate from Latin word *sustinēre* which means to hold up (Morwood, 2005, p.214), or maintain, support or endure. In Ancient Roman times the adjective was defined as something that is capable of being maintained in existence without interruption or reduction (Engelman, 2013, p.22). The term of sustainability date back from the late seventeenth century when it was used in forestry literature. However, the concept got broad attention in environmental literature in the early 1970s when there was an explosion of literature. The Oxford English Dictionarydescribes the environmental meaning of the term sustainability which relates to forms of human economic and cultural activities that do not cause environmental degradation specifically in order to avoid the long-term depletion of natural resources (Simpson & Weiner, 2009).

Table1. Summary of Definitions and Interpretations of Sustainability

Definitions of sustainability
It is an effort to provide the best outcomes for the human and natural environment both now and into the indefinite future. (EPA in Haydn, 2015, p.2)
Future generations remain at least as well off as current generations. (Tietenberg & Lewis , 2016)
It is improving the quality of human life while living within the carrying capacity of supporting eco-systems. (IUCN/UNEP/WWF, 1991, p.54)
Forms of human activity and culture that do not lead to environmental degradation. (Adams, 2006)
Interpretations of sustainability
One of most widely used *buzzwords* in the past two decades. (Scoones, 2007)
Assessment using fuzzy logic; vague, uncertain and polymorphous concept. (Yannis & Luc, 2001)
One of the top "jargoniest jargon" words, calling it " a good concept gone bad by mis- and over- use" . (Advertising Age, 2010, p.1)
If sustainability is everything, maybe it's nothing? (Naess , 2001)
A meaningless buzz word or even worse "sustainababble". (Engelman 2013, p.3)

The confusion regarding the variety ofvague definitions and interpretations given by different authors and disciplines, stress the difficulty in the giving of a coherent and comprehensive definition of sustainability. The most common definitions of sustainability

are focused on the heart of the concept and its vision of achieving human and ecological welfare. Some of them are summarized in Table 1.

There are over 300 definitions and descriptions of sustainability (Harris &Throsby, 1998) in relation to the relevant subject. That expanding number of definitions and interpretations, MacNeil (2006) as one of the authors of Our Common Future (WCED, 1987) pointed out, can be used as a new way to define **infinity**. Nowadaysmany people use the word sustainability to push their own agendaswhich has turned the word into a form of tokenism or a jargon which the layperson can hardly understand. Thus the concept of sustainability comes close to meaning "all things to all people". So it is argued that it has come to mean nothing since any concept that has to encompass almost everything loses its own meaning (Ott & Doringin Haydn, 2015, p.3).

In general, sustainabilitycould be defined narrowly or broadly. Narrowly it is related to environmental issues, system maintenance, and in terms of our actions impacting the Earth. In a broader sense, sustainability is related to balancing economic, environmental, and social goals and consequences (Elkington, 1998; Shaefer & Crane, 2005, p.77).

1.1.2 The concept of sustainability

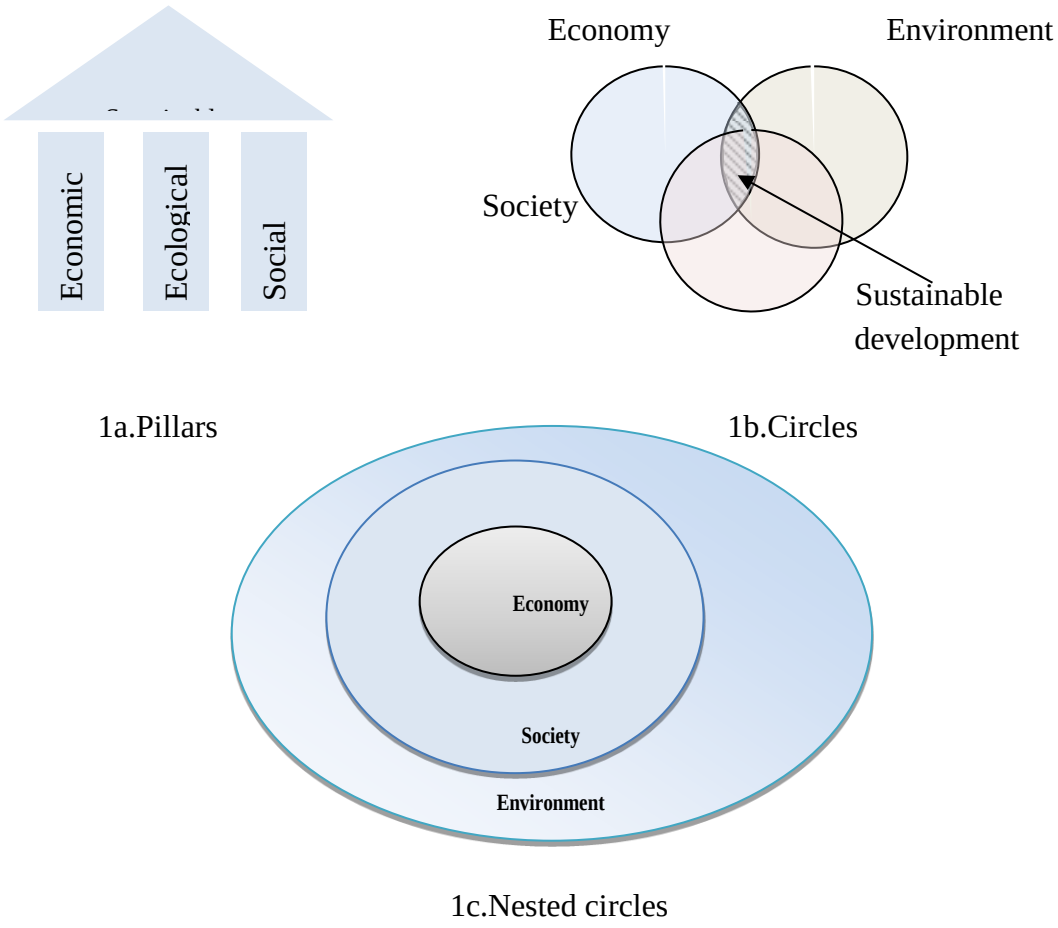
The concept of sustainability combines strategies for achieving environmental, economic and social equity goals (Hume, 2010; Vermier & Verbeke, 2008). Likewise, the model refers to planet, people, and profit balance (Elkingtonin Robertson, 2014).The idea about sustainable thinking is often called three "E's"or "triple bottom line" (hereinafter: TBL). This concept can be seen in the various illustrations presented in Figure 1: three pillars of sustainability, interlocking circles, or concentric circles.

The most common model of sustainability appeared in recent years is a triple Venn diagram (Figure 1b) that illustrates the interconnection of the three "E's". It symbolizes the need for better integration of the three objectives in a way to achieve balance between the dimensions of sustainability. This model was authorized by UN World Summit in 2005 and then has appeared in a variety of literature. Sometimes educationis added to the diagram as a fourth "E" in order to reflect the importance of education in getting closer to sustainable society.

Based onsustainability critiques by Peter and Herman (in Caradonna, 2014, p. 9) the Venn diagram is re-conceptualized in a form of concentric circles, in which the environment is seen as the base of sustainability, with the society and the economy nested inside (Figure 1c). Namely, the society and the economy are supported by and could not exist without the environment. Therefore, the environment takes up conceptual priority in any sustainability model. In that way, nearly all of the definitions of sustainability that have circulated in

recent years emphasize an environmental point of view- the idea that human society and economy are intimately connected to the natural environment.

Figure 1. Three Visual Representations of Sustainability Concept



Source: J. L. Caraddona, *Sustainability: A history*, 2014, pp. 13-14, Figure 3.

1.1.3 Are sustainability and sustainable development the same thing?

The phrases sustainability and sustainable development are often used interchangeably in literature (Cavagnaro & Curiel, 2012). Hence, many people still tend to associate sustainability with sustainable development without really considering if the two terms have the same meaning. With the term sustainable development the focus is on development, while with the term sustainability the focus is on being sustainable-paying no attention to the development (Haydn, 2015). Therefore, there is a deep uncertainty of the essential meaning of the two terms. Hayden sees sustainability as a much broader concept than sustainable development. To this day academics are divided on the issue. It is debated that sustainability is the goal or destination and sustainable development is transitional process, path or the journey through which the achieving of sustainability would become closer. The assumption that they are related but separate terms is seen as the main reason

why sustainability has been said to be a contested concept (Haydn, 2015). In relation to the abovementioned opinions, it can be concluded that sustainability and sustainable development are somewhat different but not mutually exclusive.

1.1.4 Sustainable development concept

Similarly, to the term sustainability, the concept of sustainable development is interpreted in many different ways, and many of them are entirely self-explanatory (MacNeill, 2006). The idea of sustainable development is not new, but it has enteredeveryday public use in the 21st century. The adjective sustainable is explained as being able to continue without interruption or able to endure without failing for a longer time (Robertson, 2014). Thus, the term sustainability semantically has a meaning of continuity, balance and stability, while the term development indicates dynamism and change (Giddens, 2009). As a whole, the term sustainable development addresses the maintenance of the development over a longer time (Elliot, 2013).

Nowadays, there are definitions of sustainable development to suite everyone's taste (Victor, 2008). Even though numerous definitions of sustainability and sustainable development have been given,one of the earliest and the most recognized ones defined by the World Commission on Environment and Development in 1987 in Our Common Future stating that sustainable development is a development that meets the needs of the present without compromising the ability of next generations to meet their needs.The abundant definitions and interpretations of sustainable development cannot be precisely defined since in literature both terms sustainability and sustainable development are mutually exchangeable. Table 2 presents a few of the interpretations that can beconsidered interesting in relation to the current study.

Table 2. Interpretations of Sustainable Development

Interpretations of sustainable development
Sustainable development is possibility. (Orr, 2003)
Sustainable development is a process of change. (WCED, 1987, p. 43)
It is a strategy for global stability. (the UN, in Caradonna, 2014, p.1)
"A creatively ambiguous phrase…an intuitively attractive but slippery concept ".(Mitchell, p.28 in Elliot, 2013)
The concept is holistic, attractive, elastic but imprecise. (Adams, 2006, p.3)
Concept used as a basis for overcoming the environmental challenges. (Ibrahim, 2010)

However, the global challenge of sustainable development lies in the complex interdependence of environment, social and economic development (Elliot, 2013). The

heart of its objective is to maximize the goals across all three systems illustrated by intersection of the three layers.

1.1.5 Sustainable development-oxymoron

As previously stated, semantically the term sustainability means continuity, balance and stability, while the term development implies dynamism and change (Giddens, 2009). Some claim that sustainable development is actually an oxymoron-contradiction in terms meaning that development cannot be sustainable at the same time (Haydn, 2015; Kopnina, 2012). Along that line, some claim that it depends on what is meant by development. It can have the meaning of qualitative development that does not use any resources, growth in GDP or other numbers (Dalyin Haydn, 2015, p.35), but not quantitative growth. Perception of the term development has changed over time (Elliott, 2013) but often it is associated with economic growth (Barlett, 1996). Many authors consider development to be aqualitative subject, but that is not its general meaning in the global society (Haydn, 2015). In response to that, Bartlett argues that the term "sustainable growth" is an oxymoron- a belief shared by many economists.

1.2 Nature of Sustainable Consumer Behavior

Consumption is the main reason for the existence of production (Heiskanen & Pantzar, 1997), and it is an essential path towards economic growth (Abeliotis, Koniari & Sardianou, 2010). On the other hand, consumer behavior is regarded as one of the main sources of direct and indirect impact on the environment, social equity, as well as personal (and collective) welfare (Jackson, 2005). Unsustainable consumption puts a threefold of environmental burdens to the environment: firstly via the natural resource depletion, secondly, pollution and lastly biodiversity reduction. Additionally, consumption is directly related to global climate change, identified as the major environmental issue of modern life. Hence, one of the main responsibilities for environmental degradation lies with the consumer and its consumption choices (Berglund & Matti, 2006). That's why the importance of consumption in attaining sustainable development is well recognized, and sustainable consumer behavior has become a vital point in many national and international policies over the last decade (Jackson & Michaelis, 2003).The essence of these policies lies within the changing ofindividual purchasing behaviours and the modification of their choices, since they are seen as a main obstacle on the way to sustainable future (Berglund & Matti, 2006).

Sustainable consumption is one aspect of sustainable development and one of the main ways of implementing a sustainable strategy. It is a concept that goes away with the traditional understanding of consumption and which takes the consumer's social responsibility into account in addition to his individual needs and desires (Vermeir & Verbeke, 2008). The first working definition of sustainable consumption was provided at

Oslo Symposium on Sustainable Production and Consumption (1994) as the use of goods and services which respond to basic needs and bring a better quality of life, while minimizing the use of natural resources and toxic materials as well as the emission of waste and pollutants over the life cycle, so as to not jeopardize the needs of future generations (OECD, 2002, p. 9). Accordingly, it is a broad concept with a wide variety of meanings and forms, such as the use of less resource-intensive products; energy conservation, use of higher-quality products with longer life spans (Lebel & Lorek, 2008) and so on. What all of these definitionshave in common is that they all imply that there is no additional damage done to the environment.Sustainable consumer behaviour is related to general sustainable development and it aims for a balance of environmental, social and economic sustainability. According to Beltz and Peattie (2009), it is a behavior that meets the needs of the consumer and improves environmental and social performance. Due to the complexity of the three dimensions of sustainable development and their interconnection, as well for practical reasons, this research is mainly focused on environmental dimension of sustainability of consumer behavior. This is in line with the majority of the current academic literature on sustainable consumer behaviour assuming that environmentally sustainable consumer behavior might also be sustainable in general.

There are various single ways for consumer behavior to be more sustainable. Individuals and households can use less energy and be more energy-efficient, or replace environmentally damaging products with more environmentally friendly ones. Along that line,the aim of the concept is to ensure that the basic needs of the entire global society are accomplished without compromising the ability of people, either now or in the future (Martin& Schouten, 2014, p.58). Then, the consumption of energy and materials is reduced; and environmental deterioration is avoided or reduced. Additionally, here it is interesting to note that in that process of achieving sustainability,households and individual consumers are not required to consume less, but to change the way of their consumption in order to improve efficiency and to have an improved quality of life (de Larderel in UNEP 2001, p. 12).

A basic way to approach sustainable consumption and productionis “3R” concept which essentially aims to minimize the consumption of natural resources and to reduce environmental loads as much as possible by focusing on the three R’s or reduce, reuse and recycle.Here **reduce** means reduction in resources and energy used as well reduction the amount of waste generated directly or indirectly from consumption. For example, by reducing the electricitywe use, the amount of carbon dioxide emissions generated via the combustion of fossil fuels is reduced. **Reuse** stands for the use of products repeatedly, which extends their lifespan. **Recycle** explains the conversion of post-consumption waste to either material resources or energy. It is underlined that the primary focus should always be placed first on reducing, then reusing and recycling (Abeliotis et al., 2010).

1.3 Constructs Related to Sustainable Consumer Behavior and Its Antecedents

One of the mostly used and leading theoretical models studying environmentally sustainable consumer behavior is TRA initially created and modified by Ajzen and Fishbein, 1975 and 1980 respectively, whose main goal was the studying of conscious behavior and its relation with attitudes. Based on the authors' suggestion that attitudes could give explanation for individual action, the model combines attitudes with the subjective norms and determines intention which in turn has been found to justify and predict actual consumer behavior (Ajzen & Fishbein, 1980). Similar to that, TPB as an extension of TRA has suggested that behavior is triggered by behavioral intention in focus as its most important determinant, and adds up to the attitudes and social norms the perceived behavioral control of the individual in the given situation (Ajzen, 2005, p.117). In developing societies where not all of the general prerequisites for environmentally friendly behaviors exist, it is suggested that the willingness to behave as less definite plan for action is more useful predictor than the intention (Muhmin, 2007; Žabkar & Hosta, 2013).

The main assumption from these theories is that individuals are generally quite rational and use the available information in their purchasing decisions, emphasizing the fact that they usually consider the implications of their actions before they engage in certain behavior (Ajzen & Fishbein, 1980).In that line, it is suggested that environmental labels as ever more present and available information for consumers nowadays, are successfully used instruments if the individual could gain a personal benefit from using them (Hemmelskamp & Brockmann, 1997). Therefore, the TRA is recognized as a theoretical basis for the use of energy labels (Gu, Morrison & Yu, 2009), and in fact the emergence of environmental product labels in general.

Although these theoretical frameworks have their own limitations, they are broadly used because of their clarity and simplicity (Regis in Kollmuss & Agyeman, 2002). This is why, the subject of this current study is the examination of the purchasing behavior of consumers in a sustainable manner which may serve as dependent variable and the relation with consumers' demographic characteristics, their environmental concern and willingness to behave, as well the influence of the sustainable labeling of products.

1.3.1 Demographic characteristics

A broad overview of the latest sustainable consumption literature has illustrated the primary focus on identifying the profile of the consumers (Abeliotis et al., 2010; Anić, Jelenc & Šebetić, 2015; Banyte, Brazionienė & Gadeikienė, 2010; Diamantopoulos,

Schlegelmilch, Sincovics & Bohlen, 2003; D'Souza,Taghian, Lamb & Pretiatko, 2007; Jain&Kaur, 2006; Mostafa, 2007a;Pinto, Herter, Rossi & Borges, 2014; Roberts, 1996a), including the demographic characteristics of sustanable consumers such as: age, gender, education, income etc, analyzed by various authors (for example in recent yearsBanyté et al., 2010; Diamantopoulos et al., 2003). It is noteworthy to mention the review of empirical papers undertaken in US and Europe given by Diamantopoulos et al.(2003) describing the relation between demographic variables and some environmental consciousness dimensions including concern and awareness about environmental quality. Previous studies have shown that demographic characteristics have both positive and negative significant relation to sustainable purchase behavior. So, due to the mixed evidence by 1990s (for overview see Roberts, 1996a; Diamantopoulos et al., 2003), the profile of environmentally conscious consumers couldn't be narrowly defined (Roberts, 1996a). Similarly in the overview of the studies given by Verain et al. (2012) regarding sustainable food consumption, it can be seen that gender, age and education are more frequently included socio-demographic variables but results are somehow ambiguous. The inconsistency of results in variety of studies, perhaps has shown how complicated it is to accurately identify the demographic profile of a pro-sustainable consumer. Even though these results provide insufficient data for profiling sustainable consumers (Blackwell et al., in D'Souza et al., 2007), they can be an useful tool to marketers in describing sustainable market segments (D'Souza et al., 2007).

In general, there appears to be a significant relationship between demographic characteristics such as education, gender, age and income and environmentally friendly purchase behavior (Zhao, Wu,Wang& Zhu, 2014). After the broad overview of the conducted research it can be concluded that mainly women who are middle aged (between 30 and 44 years old), well-educated and with monthly income which is above the averageare more likely to be involved in some type of sustainable purchase behavior (Banyté et al., 2010).

1.3.1.1 Gender

The research on the antecedents of sustainable consumer behavior regarding the demographics investigated the gender effect on sustainable consumption decision making (Pinto et al., 2014; Roberts, 1996b). One important, well-established finding in the research on sustainable consumer behavior is that, women are more environmentally sensitive about general environmental issues than men (Davidson & Freudenburg, 1996; Koos,2011;Schultz, 2001; Zeleznu, Chua & Aldrich, 2000), and more likely to express concern about the social and environmental impacts of their consumption. So, they consider the environmental issues in the purchase decisions (Mainieri et al., 1997; Zeleznu et al., 2000), and are more willing to engage in sustainable consumption than men (Diamantopoulos et al., 2003; Luchs & Mooradian, 2012). For example, Koos (2011) in his

study which analyses the role country differences have in the purchase of environmentally labeled products in 18 European countries has stated that women are more likely to consider the environmental issues when they do their shopping. Similarly, Zelezny et al. (2000) evaluated 13 studies on environmentally responsible consumption and stated that in nine of them women appeared to have a higher level of pro-environmental attitudes and behaviors, three reported no significant differences between sexes, but only one has shown that males were more environmentally concerned than females. Moreover, Berenguer, Corraliza and Martín (2005) have stated that women put greater importance to responsible consumption, and similarly Roberts (1996b) has argued before that they are also more likely to engage in sustainable consumption behaviors than men are. Similarly, Banyté et al. (2010), who were studying sustainable food consumer profile in Lithuania, summarized that females possess recognizably similar demographic characteristics in all aspects, as it was also concluded from the results of other research, except in the aspect of monthly income which was not found to be above the average standard.

On the other hand, the studies have proved that men possess a deeper knowledge on environmental issues, while female respondents are more careful about the quality of the environment (D'Souza et al., 2007; Mostafa, 2007a) as well the impact of their actions (Dietz, Kalof&Stern, 2002) and consumption of others (Grønhøj &Olander 2007; Mainieri et al., 1997; Roberts, 1996a) due to the results of social development and differences in the sex roles. Furthermore, women have shown more willingness to buy and pay a premium price for environmentally benign products, which was shown in the study conducted in Canada by Laroche, Bergeron and Barbaro-Forleo (2001). Overall, gender has emerged as an important and positive socio-demographic predictor of sustainable consumption: women appear to be consistently more concerned about environment and sustainable development and are more likely to act in accordance to those concerns when making purchase decision.

1.3.1.2 Age

Age is another demographic variable that has been widely examined in past studies. Findings about the age of the individuals can be useful variable in market segmentation however results in relation to this demographic variable have been inconsistent. Research analysis has shown a slight change in the environmental concern of the respondents during the years and among different ages. However, when recent trends were analyzed, it was shown that younger individuals in general are likely to be more sensitive and concerned about environmental issues (Chen & Peng, 2012; Diamantopoulos et al., 2003; Memery, Megicks & Williamsin Banyté et al., 2010; Schults, 2001; Straughan & Roberts, 1999). However, illustrating a completely different result, Aminrad, Zakaria and Hadi (2011) found that aging resulted in higher level ofenvironmental awareness in Malaysia, and similar results were revealed in the US by Liu, Vedlitzand Shi (2014).

When talking about consumer behavior the results are somewhat different. For instance, Roberts (1996a) found that age was significantly related to environmentally conscious consumer behavior and had a positive effect on it, as seen in his research, concluding that middle aged consumers are more prone to sustainable consumption activities.These results might be due to the fact that younger individuals mostly consist of students without jobs who have a lower purchasing power, who can't afford environmentally friendly products or more expensive alternatives (Jain & Kaur, 2006). On the other hand, others have found that differences between age and sustainable consumption are significant and negative (Zimmer et al., in do Paço, Raposo & Filho, 2009). On the other hand, Banyté et al. (2010) stated that younger consumers tend to buy eco-friendly food products more often. In relation to thesemixed findings, Chan (1996) in his two-country study, argued that the respondents' age has a significant influence on the environmentally sustainable purchases in Canada (i.e., younger respondents more frequently purchase recyclable products), while association between these two variables was not found between respondents in Hong Kong. In general, it is argued that the average age of a sustainable consumer is lower than the age of a typical consumer (Banyté et al., 2010).

According to do Paço et al. (2009), sustainable consumers usually belong to the middle age group. Likewise, Anić et al. (2015) in their study for organic food consumption in Croatia, and Mohr and Schich (2016) for sustainable food and meet consumption in Germany illustrated that middle aged respondents have shown the highest level of sustainable consumption behavior, and awareness for sustainable food consumption respectively. From these studies, it can be seen that middle aged respondents are mostly inclined to sustainability in their purchase decisions.

1.3.1.3 Education

A consumer's level of education is considered in many studies as a demographic factor that affects sustainable practices of the consumer. In terms of education, most empirical studies have proventhat higher educated people tend to perceive environmental issues betterand are more sensitive and aware of sustainable issues (Banyté et al., 2010; D'Souza, et al., 2007; Yuan & Zuo, 2013). They show higher preferences for environmental protection and willingness to pay (Witzke & Urfei, 2001) leading to sustainable consumer behavior (Diamantopoulos et al., 2003; do Paço et al., 2009). For illustration, in Hungary for instance, Zsóka, Szerenyi, Szechy and Kocsis (2013) in comparative study on attitude and reported behavior of university and high school students have found that most of the university respondents have a higher environmental knowledge and awareness of needed change in their consumer behavior for the efforts in sustainable living. In addition to this finding, and in line with the results given by Diamantopoulos et al. (2003), Zhao et al. (2014) stated that better educated people in China are more likely to show high level of environmental knowledge, develop more positive environmental attitudes and concerns,

and consequently purchase environmentally friendly products. This is further explained by the fact that higher educated people in general are better informed and could understand environmental issues better. Therefore, they express higher concern about the quality of the environment and have strong desire to protect it (Torgler & Garcia-Valinas, 2007), so they are more willing to contribute to a sustainable development with their purchasing behavior (Zhao et al., 2014). Moreover, Koos (2011) in his study on sustainable consumption across Europe focusing on labeled organic food and ecological durables, has stated that people with secondary and tertiary educational level are more likely to buy environmentally – labeled products than respondents with primary education.

Consequently, the demographic profile of a sustainable consumer based on academic literature review indicates that well-educated middle aged women arelikely to be involved into sustainable consumer behavior. This is undoubtedly the most clear-cut demographic profile emerging globally in relation to the characteristics included in the current study.

1.3.2 Psychographic characteristics

Since it is widely believed that the demographic data for consumers doesn't seem to fully explain the environmentally friendly consumer behavior (Mainieri et al., 1997; Schlegelmilch, Bohlen & Diamantopoulos, 1996; Straughan & Roberts, 1999), psychographic variables were found to have more explanatory power and consistency over time (Straughan & Roberts, 1999). This is why they are frequently employed in the consumer behavior analysis for finding additional information about the consumer behaviour. In relation to past findings, the current study employs some of the most broadly used psychographic characteristics regarding sustainable consumer behaviour: environmental concern as general consumer attitude and willingness to behave environmentally friendly, explained in the next section.

1.3.2.1 Environmental concern and recent research related to sustainable consumer behavior

Concern over environmental degradation has increased over the past few decades (Mainieri et al., 1997), and has become one of the major worldwide public issues (Bush, 2008; Chan & Lam, 2002). As evidenced, European consumers are more sensitive to environmental issues, and according to Eurobarometer study held in 2007/2008, 96% of Europeans consider environmental protection to be one of their own personal interests. Ecological problems, such as climate chage, are very important to them, and 57% of the respondents are seriously worried about it (Eurobarometer, 2008). By recognizing the severityof environmental problems, people in general have become more environmentally aware (Han, Hsu & Lee, 2009), and their sensitivity and consciousness toward environmental issues has had an effect on their purchase behavior (Laroche et al., 2001) which is actually

recognized as one of the first steps toward sustainable consumption (Zsóka in Hofmeister, Kelemen & Piskóti, 2011).

One of the most essential concepts in environmental research is the concern for the environment of the individual (Hines, Herald & Audrey, 1987), defined as a general attitude toward protecting the environment (Crosby, Gill & Taylor, 1981). Similarly, it is described as general attitude which reflects the degree of concern for environmental threats and their consequences to the environment (Muhmin, 2007; Bohlen, Schlegelmilch & Diamantopoulos, 1993; Diamantopolous et al., 2003; Mostafa, 2007a; Mostafa, 2007b). Attitudes are established as strong antecedents of behavior and intentions that have a lasting positive or negative feeling about an issue or a person (Kaufmann, Ali Khan & Orphanidou, 2012; Kotchen & Reiling, 2000).

An abundant number of studies have focused on the relationship between the variety of environmental attitudes and behaviors describing a strong association between them. For instance, Mostafa (2009) presented evidence of the use of consumer attitudes to predict energy conservation and environmentally friendly purchasing, and the use of the products. Then, Lynne and Rola (1988) argued that stronger conservation attitude together with higher income increased the probability of improved soil conservation behavior. Additionally, some authors confirmed that the attitude toward the environment is considered to be one of the most important predictor of consumers' green consciousness and purchase behaviour (Bohlen et al., 1993; Diamantopolous et al., 2003; Schlegelmilch et al., 1996; Yamini, 2003). Similarly, Beckford et al. (2010) and Cornelissen et al. (2008) in their studies stated that environmental attitude has a significant impact on the environmental purchasing behavior of the consumers. Laroche et al. (2001) also emphasised that attitudes are most significant predictors of consumers' willingness to pay more for environmentally friendly products. In general, there has been consistent empirical evidence supporting a positive relationship among environmental attitude and behavior.

As previously emphasised, the environmental concerns of the consumer are one of the most noticeable issues which have emerged in the last years, with an increase in the amount of devoted research (Grunert,1993). The environmental concern is causing the positive contribution to the environment from the consumers, which could be a reason for their engagement in environmentally sustainable consumption (Ishaswini & Datta, 2011**)**. Marketers and researchers seek to find if sustainable consumer behaviors are predictable from their environmental concerns, as they could easily target environmentally conscious consumers (Mostafa, 2007a).

Environmental concerns refer to person's general evaluation of the environmental issues. Determining the people environmental knowledge, feelings and actions they take in order to help or harm the environment is critical for establishing sustainability of a community.

Academic studies which examine environmental concerns are broad with regards to the issue of their studies. A noteworthy mention can be made to the connection between environmental concerns and purchase decisions which were included in the studies byFrietzche and Duecher with regards to the choosing of the deodorant container (in Kaufmann , Ali Khan Panni & Orphanidou, 2012), as well as the study related to buying green food (Grunert, 1993).

An abundant number of previous studies emphasized the usefulness of environmental concernsas a predictor of environmentally conscious behaviour in general (Donaton & Fitzgerald, 1992; Hineset al., 1987), and a major factor in the purchasing decision of the consumers (Beckford et al., 2010; Chan, 1996; Jain & Kaur, 2004; Kim & Choi, 2005; Mostafa, 2009; Zimmer et al., 1994). Additionally, the relation between environmental concern and green purchasing was indicated in the previous study of Roberts and Bacon (1997), and more recently the study conducted by Ishaswini and Datta (2011) who confirmed this positive relation between overall environmental concern and green purchasing behavior in general context.Various studies have shown that when consumers have a high environmental concern, they are more likely to evaluate the effect of their purchasing on the environment(Follows & Jobber, 2000; Nath, Kumar, Agrawal, Gautam & Sharma, 2013), and by strengthening their environmental concern they can increase their environmentally friendly purchasing behavior (Dagher, Itani &Kassar, 2015**;** Laroche et al., 2001; Schwepker & Cornwell, 1991). For instance, Kim and Choi (2005) from the study conducted at the Midwestern University, as well Dagher and Itani (2012) in Lebanon, stated that environmentally concerned consumers are more likely to buy environmentally friendly products than those who are less concerned. Similarly, Chan (1996) stated the same for respondents in Canada and Hong Kong. Additionally, here it is interesting to stress that Dagher et al. (2015) in their study found that when both males and females in Lebanon share higher levels of environmental concern and attitudes, they might exhibit similar green behaviors. It means that a difference in green purchasing behavior between males and females that usually occurs is minimized at higher levels of environmental attitude and concern of consumers. Another remarkable finding is that of Mainieri et al.(1997) who stated that consumers with a stronger concern for environmental issues are more likely to buy products as a result of their pro-environmental opinion than those who are less concerned about the environmental issues.

However, despite the large evidence of environmentally concerned consumers the relevant consumer behavior and marketing literature also has reported an insignificant correlation between the general concern and purchase behavior of the consumers (Schwepker & Cornwell, 1991). This is explained mainly with the prioritizing of economic consideration over the concern about environmental issues meaning that many of consumers are only willing to act if they can avoid any personal expenses (Laroche, Tomiuk, Bergeron & Barbaro-Forleo, 2002). The effect environmental concerns have on sustainable consumer

behavior is mediated by other variables such as attitudes, behavior intention, normative variables, etc.In contradiction, additionally to previously stated, Balderjahn (1988) argued that individuals who have positive attitudes and concerns about environmental issues tended to purchase environmentally sustainable products.

From the conducted research it can be concluded that due to the progressive environmental degradation and widespread pollution, environmental concerns have become a global trend. Despite traditional beliefs that environmental concerns are a luxury that only the wealthy can afford (Tantawiet al., 2009) it is not restricted only to the developed world. People in poor and developing countries have shown as much concern about environmental issues as those in developed countries (Dunlap, Gallup & Gallup, 1993), which is confirmed in Macedonia as well (Angelovska et al., 2012; Hosta, Žabkar & Vida, 2012).

In line with these findings we believe that consumers in the selected country are environmentally concerned with positive influence on their purchase behavior based on sustainability. Some of the most recent selected studies examining relations between environmental concerns and sustainable consumer behavior are presented in Table 3.

1.3.2.2 Willingness to behave

Today, in order to fulfill their own needs and personal satisfaction, consumers are becoming highly aware and sophisticated in their purchasing behavioral intentions. Based on TRA/TPB, the relation between environmentally conscious behavior and a variety of factors that determine it are mediated by behavioral intention (Ajzen, 1991). Several theoretical models developed in order to study determinants of buying behavior include behavior intention as a single best predictor of actual behavior, defined as a plan to perform a specific behavior in order to achieve a certain goal (Peter & Olson, 2010, pp.147, 149, 530).

A large number of studies on the manner of sustainable consumption have used purchase intention as a dependent variable and its relation with variety of constructs such as environmental concern is an interesting one for the current study with regards to knowledge, values, beliefs, etc (Ali & Ahmad, 2012; Hedlund, 2011; Mobrezi & Khoshtinant, 2016; Pagiaslis & Kystallis, 2014; Yazdanpanah & Forouzani, 2015). As a small illustration, Pagiaslis and Kystallis (2014) has revealed a positive relationship between environmental concern, knowledge, beliefs and behavioral intention in recent years, such as the willingness to use and purchase bio-fuels.

Table 3. Selection of Previous Studies on Environmental Concern and Sustainable Consumer Behaviour

Research	Objectives	Main findings
Alsmadi, 2007.	Investigate the attitudes of Jordanian consumers regarding their environmental consciousness and willingness to adopt their environmentally friendly behaviour.	Confirmed that Jordanian consumers are generally concerned about the environment demonstrating high level of environmental consciousness, but this positive attitude did not reflect in their buying behavior. Recommendations are given in order to improve the situation and to come closer to environmentally sustainable consumption.
Dagher &Itani, 2015.	Social influence along with environmental attitude and concern are tested to see how they affect green purchase behavior among individual consumers in Lebanon.	Lebanese consumers are environmentally concerned and the increase in their green purchase behaviour is achieved, thus sustaining the environment. Social influence affects green purchase behaviour, while environmental attitude is negatively correlated to it.
Ishaswini &Datta, 2011.	To see if environmental concern is predictive of purchase decision for consumers in India.	Consumers which are highly involved and concerned with the environmental issues prefer to purchase eco-friendly products and are willing to pay higher prices for them.
Kaufman, Ali Khan& Orphanidou, 2012.	Try to close the gap between different aspects and various approaches on green consumer behavior based on extensive analysis of existing literaturefrom previous studies.	From the proposed framework, there is a total of eight vital factors in relation toenvironmental issues (environmental knowledge and awareness, environmental concern and attitude, altruism, availability of product and relevant information, along with the expectancy of safety in the use of products, collectivism and transparency) all of which are likely to impact consumer green purchase behavior, where demographic variables play a mediating role.
Khaola, Potiane & Mokhethi, 2014.	The relationships between environmental concern, attitudes towards green products, and green purchase intention.	Environmental concern is weakly related to purchase intentions of buying environmentally friendly products and strongly related to the attitude towards them. When concern for environmental issues and attitude towards green products are entered simultaneously to predict purchase intention, the influence of environmental concern became insignificant.

Kim& Choi, 2005.	Identifying key antecedents on green purchase behavior and explaining their influence on ecological consumption, applying value-attitude-behavior relationship.	Results suggest that collectivism influences green purchase behavior through PCE, while environmental concern directly influences green purchase behaviour.

(table continues)

(continued)

Research	Objectives	Main findings
Niza, Rajiani, Mansor & Yahaya, 2014.	Contribute to the TRA model by examining the factors that influence green purchasing behaviours of Generation Y in Malaysia.	Results show that one's social influence and environmental concern are significant factors in explaining purchase behavior of Gen Y then followed by environmental attitude, the role of the government and eco-label awareness.
Peattie & Collins, 2009.	Sustainable consumption behavior is in the focus of various scholar papers which tackle the subject of behaviour.	It is very difficult to generalize sustainable consumption findings within extremely distinct segments within societies and it is difficult to achieve consistency in a particular market segment.
Shadymanova, Wahlen & van der Horst, 2014.	Give insight in sustainable consumption in Kyrgyzstan, its perception, and how sustainability awareness is integrated in practice.	In general, consumers care little about sustainability issues. However, theytend to associate sustainability issues with locally existing issues such as health benefits rather than environmental benefits.Spreading eco-awareness is necessary to many consumers and official institutions as a prerequisite for higher level of sustainable consumption in the transition society.
Tantawi, O'Shaughessy, Gad & Ragheb, 2009.	Empirically investigate the attitude of consumers in Egypt towards the environment in general.	Results contradict the traditional perception that only wealthy people can afford environmental concern and they shed a light on the possibility of raising awareness and green consciousnessamong Egyptian consumers. However, respondents rank their economic concernabove environmental concern. The study reveals the importance of exploring the role of the government on consumers' green consciousness.
Zabkar &Hosta,	Study the key drivers of	Confirms the positive association between environmental concern

2013.	environmentally conscious behavior: environmental concern, willingness to act, information about environmental impact, and moderate role of pro-social status perception.	and ’willingness’, ‘information’ and ‘tendency’ of environmentally conscious behavior, while, pro-social status perceptions can help reduce the gap between willingness to act in an environmentally conscious way and environmentally conscious consumer behaviour and increases the chances for taking the action.

Similarly, in her study, Hedlund (2011) examined the impact of environmental concern, values, and the willingness to accept economic sacrifice on intention to buy environmentally sustainable alternatives in tourism market. She had found significant and positive relation between environmental concern and the intention to buy environmentally sustainable tourist alternatives.Additionally, Mobrezi and Khoshtinant (2016) whoinvestigated the factors influencing female consumers' willingness to buy environmentally friendly products in Iran, confirmed that the willingness to buy green products increases with the increase of theenvironmental concern of the consumers.

On the other hand, similarly to examinations that were done decades ago, recent studies in general have proven the validity of the predictive characteristics of intention for variety of environmentally friendly purchase behaviors (Chan & Lau, 2000; Follows & Jobber, 2000; Lee, 2008; Liu, Wang, Shishime & Fujitsuka, 2012; Rashid, 2009). Generally, they are based on the assumption that if a person intends to behave in some way, then it is likely that she/he will do it. For instance, Liu et al. (2012) using TRA proved that involvement in green purchasing plays an important part of sustainable consumption and its relation with environmental attitudes and behavioral intention for Chinese population from urban areas. Even though the study has shown that the current level of green purchasing of respondentswas marginal, it still confirmed the relation found in most previous studies (Mostafa, 2007b; Sihombing, 2007) that environmental concerns and attitudes significantly influence the intention for environmental purchasing that in turn affect actual purchasing behavior.

Since the current study is set in a developing country context, as previously explained the focus is on the willingness to engage in sustainable behavior instead of consumer intention. One of the definitions explaining willingness to behave sustainably defined it as a consumer's readiness to act in an environmentally friendly way (Muhmin, 2007). The scarce number of studies analyzed the willingness to behave in general sustainable manner in relation to sustainable consumer behavior (Žabkar & Hosta, 2013; Santos, Klimeck, Schimith & Weise, 2015). They had shown positive relation between the willingness to behave pro-environmentally and environmental concern as well an environmentally sustainable consumer behaviour that is actually used as assumption in the current study.

1.3.3 Sustainability product labeling

One of the relevant topics of rising importance in an environmentally sustainable field is the role of eco-labels and their effectiveness to guide consumers (Testa**,** Iraldo, Vaccari & Ferrari, 2015). Eco-labels as a product, are specific environmental knowledge tools which provide appropriate and accurate information and are an important prerequisite that assists consumers in their environmentally conscious decision making (Polonsky, Vocino, Grau, Garma & Ferdous, 2012; Taufique, Siwar, Chamhuri& Sarah, 2016; Testa et al., 2015;

Thøgersen, Haugaard& Olesen, 2010), andin their understanding of the significance of sustainable development (Testa et al., 2015). Namely, sustainable label information helps consumers to recognize products that harm the environment less than other products (Gallastegui, 2002), and foster their differentiation, affect the consumers' product preference (Grankvist, Dahlstrand& Biel, 2004). Thus, consumers are encouraged to change their consumption patterns, to make wiser use of resources and energy in sustainable development support (Erskine & Collins, 1997) and as such are generally associated with the concepts of sustainability (Edser, 2009).

1.3.3.1 Eco labels in brief

The words "sustainable label" and "environmental label", or the shorter version "eco-label" are so often used interchangeably in literature. Although the definition of eco-label may vary, the concept of eco-labeling is defined as "synonymous descriptor that refers to information for a product that provides the environmental impacts associated with the production or use of the product" (Mei, Ling& Piew, 2012).

An increasing amount of different forms of eco labels have been developed by companies, industrial sectors and non-governmental organizations (NGOs) on national and international level (EU, 2001). Eco-label Index directory currently identifies 465 eco-labels in 199 countries and 25 industry sectors (Ecolabel Index, 2016). Environmental labels can be classified and categorized in many ways such as based on whether the scheme is mandatory or voluntary, or based on the information presented: for example, a label may focus on the product's energy efficiency, its carbon footprint, lifecycle as a whole, etc.

Labeling programs are used by a variety of stakeholders, policymakers, consumers, sellers and other groups. In brief, the policymakers of eco-labelling programs create incentives so that the business directioncan change the market in a more sustainable direction. In the same time, environmental standards of products become higher which reflectsinto pressure to the producers (Gallastegui, 2002; Morris, 1997). Onthe other hand, producers can use them as a clever instrument in order to improve their market shares through the competitive advantage of product differentiation (Horne, 2009; de Boer, 2003). Simply, labels are used to put pressure on producers and consumers to make progress towards sustainability.

An increasing number of empirical studies deal with different aspects of eco-labels nowadays. Most studies focus on the market impact of eco-labeled products (Hornibrook, May & Fearne, 2015; Sammer & Wüstenhagen, 2006; Thøgersen et al., 2010), theperception of the consumers, the understanding and misperception of the labels (Bohdanowicz, 2006; Fairweather, Maslin & Simmons, 2005; Rashid, 2009; Steinhart, Ayalon & Puterman , 2013; Thøgersen, 2000), their understanding of the meaning and

trust of the message of the label (Rex & Baumann, 2006), as well an evaluation and purchase of eco labeled products (Burnet, 2007; Sammer & Wűstenhagen, 2006; Steinhart et al., 2013; Teisl, Roe & Hicks, 2002). Another area of interest is factors that affect the decision of consumers to buy products with eco-labels, as well their willingness to-pay for them (Loureiro & Lotade, 2005; Yau, 2012).

1.3.3.2 Eco labelling as a consumer decision tool

From consumers' perspective eco labelling is important because with it, the uncertainty of environmental performance of products is reduced and we as consumers are enabled to choose products that cause less damage to the environment (Pedersen & Neergaard, 2006) with regards totheir production, consumption or disposal phase. As previously mentioned, there is evidence that an appropriate label information can change the purchasing decisions of the consumers to more sustainable ones (Horne, 2009), and might make them more aware of their environment and what they could do to protect it (Morris, 1997, pp. 22-24).On the other hand, the lack of information can be one of the most critical obstacles that prevents consumers from understanding the relationship between their buying decisions and a variety of environmental consequences that would make the consumers more environmentally conscious about product purchasing (Leire & Thidell, 2005; Rokka & Uusitalo, 2008). Furthermore, one of the reasons why consumers in Nordic countries are generally aware of the fact that products are associated with the complex environmental problems is because they have been exposed to eco labels long before the concept of sustainable development became common knowledge (Leire & Thidell, 2005).For that reason, consumers must know about the existence of eco-labels, they must understand the meaning, and trust the information presented (Thøgersen, 2000).

Moreover, since the social and environmental impact of a product cannot be identified by consumers either before or after the purchase (Beltz & Schmidt-Riediger, 2010), labelling is frequently used as means to overcome information asymmetry throughout the supply chain (Sammer & Wüstenhagen, 2006; Thompson, Anderson, Hansen & Kahle, 2010; van Amstel & Driessen, 2008). Additionally, labels reduce the costs of information search and effort which means that consumers are more likely to use the information provided to them (Grunert & Wills, 2007).

There is a clear inconsistency in the determining of the impact eco-labels have on environmentally sustainable consumer behavior other than demand and/or purchasing of eco-labeled products. The investigation of this issue is crucial because the purpose of eco-labels is not just promoting the relevant products, but also to promote other aspects of environment friendly behaviors leading to sustainability such as reducing energy consumption and protecting our environment (Taufique et al., 2016).This means that a considerable attention should be paid to this overlooked issuewith regards to whether the

awareness and knowledge of eco-labels helps consumers to adapt to environmentally conscious consumer behavior (Taufique et al., 2016; Testa et al., 2015). This research aims to contribute in filling this gap concerning the relevant research issue by taking a fresh look at the role of environmental concern and general awareness of eco–labels in attitude-behavior relationship of sustainable consumer behavior.

1.3.3.3 Consumer Eco-Label Awareness

Sustainability product labelling as an information strategy concerning the environmental impact of products usually serves the goal of raising consumer awareness in order to influence a change of attitude (Leire & Thidell, 2005), and later to assist them in their purchase decision (Gallastegui, 2002; Thøgersen et al., 2010). According to Thøgersen (2000), eco-labels could be involved in the decision process if they are available and if consumers have paid attention to them, in addition to the assumption that prior to the purchase consumers have formed a personal goal of protecting the environment and thus, recognize buying environmentally friendly products as an effective means to achieve this goal, and perceive the label's information as useful for this purpose (Olander & Thøgersen, 1995; Stern, Dietz, Abel, Guagnano & Kalof, 1999). Some claim that the more environmentally aware consumers are, the more they make use of and appreciate environmental information on a higher level (Niva & Timonen, 2001; Thøgersen, 2000).

In general, consumers show a positive attitude towards eco-labels, and their awareness and knowledge of eco-labels influences their purchasing decisions (Testa et al., 2015). Thiscurrent research aims to assess whether the awareness of available product eco label information stimulates sustainable consumer behavior. Contrary to most western studies which use eco-label as part of the augmented product, this current research introduces the eco label as a separate moderator, similarly to Rashid's study (2009). This is explained by the relatively advanced stage of environmental awareness in western societies and common availability of eco-labelled products which is not the case in developing countries where the awareness of current issues is still on much lower level (Rashid, 2009). Thus, this study focuses on the independent role of eco-label awareness which moderates the relationship between predictor variables and its sustainable purchase decisions.

2 ROLE OF ENERGY USE AND SUSTAINABILITY

2.1 Energy and the Consumer

The awareness of the destruction of natural resources has raised the issue of environmental sustainability, in turn creating an environmentally sustainable consumption (Moisander, 2007). Due to growing concerns about energy use worldwide and the recognized environmental impact of it, debates about consumer decisions regarding energy use and

energy efficiency are spreading intensively. In general terms saving energy and energy efficiency measures have been of interest to researchers for over 35 years with focus on the need to use less energy, whether for economic, security or environmental reasons.

Nowadays, the increased use of services that make use of energy sources has become evident, especially considering the fact that the use of home appliances and other electrical gadgets has become very common.Even though the studies in general show that people are environmentally concerned and aware of threats posed by global warming and the needs for CO_2 reduction, they rarely link the energy used with increased emissions and climate change (Martiskainen, 2007). Similarly, the findings were confirmed by Winward, Schiellerup and Boardman (1998), who were studying the first three years after the implementation of European Energy label. They found that even European consumers were aware of the importance of energy use in a pro-environmental manner, however far fewer of them linked the environmental issues with their personal behaviour. A decade later, the public opinion study held in the UK by Future Foundation (2006), has found that even people who are highly environmentally aware, generally lack awareness of their energy use and its impact on the environment. In addition, the research findings by Yamamoto, Suzuki, FuwaandSato (2008) have shown little awareness of energy efficient home appliances by Japanese consumers.

2.2 Direct Energy Conservation Measures-Energy Efficiency Behaviour

The continued growth in household energy consumption as a result of a growing economy requires a significant emphasis on energy efficiency as an important strategy toward achieving a sustainable development in relation to energy consumption (Ma, Andrews-Speed & Zhang, 2011; Zainudin, 2013). Major household appliancesand electronic gadgets take up about 30% of total residential end-use electricity consumptionin OECD countries, and due to global trends which have led to an increased amount and size of these devices in the average household, electrical demand is expected to grow significantly, contributing to CO_2 emissions (Bertoldi & Atanasiu, 2009). However, there is still potential of significant residential energy savings due to the noticeably evident reduced energy consumption per unit for the majority of home appliances over the past decades (Heinzle, 2011; IEA, 2015; Martiskainen, 2007). Energy efficient products are one of the responses to environmental concerns and they can help achieve goals which are part of the bigger agenda of sustainable development process. Namely, improved energy efficiency of household appliances is a cornerstone of the efforts to meet the EU's future target of a 20% decrease in energy consumption by 2020compared to the 2005 baseline levels (Council of the European Union, 2006; European Commission, 2008). In a broader view, energy efficiency improvements and investments have multiple benefits for societies, such as financial savings, improved energy security, higher productivity for businesses, as well as reduced GHG emissions (IEA, 2015).

Products which rate low in terms of energy efficiency are expected to push the preferences towards higher rated energy efficient products, thus making it possible for consumers to distinguish between the products which are less or more safe for the environment (Grankvist et al., 2004). As a result, the consumers' increased interest and need of energy efficient appliances in terms of energy use savings and cost savings is recognised and confirmed (Ma et al., 2010; McNeil, Iyer, Meyers, Letschert & McMahon, 2008; van Ruijven et al., 2011). In general, relating to the long lasting benefits of using energy efficient products, the higher purchase price of highly energy efficient products can be offset by their longer life. Additionally, their lower operating cost and substantial future savings in terms of reduced energy bills benefit consumers, also providing them with cleaner air as a result of the reduced pollution levels.

2.3 Sustainability Product Labelling

2.3.1 Energy label and consumer

A broad overview of research in the current field indicates that energy efficiency is considered to be an important attribute in the product choice of the consumers and the appliance energy labelling scheme is expected to have a majorcontribution through an enlarged distribution of energy efficient appliances. In a situation where the awareness and perceived knowledge of energy labels as a product stimuli would drive consumer choice, the information of the environmental impact of the product provided on labels might be used as an effective tool to, firstly, generate environmental consciousness, and secondly to drive positive behavior towards labelled products (Sharma & Gupta, 2013).

Energy efficiency standards and labels for household appliances are among the most popular strategies for saving energy and educating consumers to use energy cleverly (Mahlia & Saidur, 2010). It is very common for those who seek to buy new appliances to overvalue the higher purchase price of energy efficient products while heavily undervalue the product's long term energy cost and this is one of the main obstacles which prevent the purchasing more energy efficient products (Frederick, Loewenstein & O' Donoghue, 2002). One solution is to somehow limit this under-valuing of the products future energy operating cost by placing energy labels that actually present the information about the cost-benefit from future energy savings (Defra, 2010). Consumers are usually unable to identify the energy consumption before they buy and use the electricity products. In that way, similar to eco label solutions which were explained in Chapter 1.3.3, energy labels enable consumers to compare the appliance energy consumption or guide them in the analysis of appliance energy efficiency. Thus theyincrease the willingness to pay (hereafter: WTP) for highly energy efficient products, resulting in a competitive advantage of manufacturers, as well as a decreased greenhouse gas emission which will benefit society (Heinzle & Wüstenhagen, 2011; Mahlia, Masjuki & Choudhury, 2002).With the presence of energy

rating labels, energy conscious consumers are more likely to select energy saving products than less conscious consumers. In other words, environmental consciousness as environment attitude is found as further strengthened due to presence of energy rating labels.

Energy efficiency labels are recognized as one of the most successful product environmental labels directly attributed to the long-term financial benefits of reduced product energy costs for the consumers (UNEP, 2005). Moreover, significant environmental gains have been attributed to the energy savings from these labelling programs globally. For instance, in 2002, it was stated that the US Energy Star program avoided GHG emissions equivalent to the emissions of seven million vehicles and saved more than 50 billion kWh of electricity (OECD 2005a). Furthermore, the energy labels for household appliances took up about 35 TWh of final energy savings per year in 2010 (European Commission, 2008). Additionally, The European Commission in 2015 reported that the estimated potential for global energy savings from global harmonization of the current minimum energy performance standards would lower the energy cost of products with the highest consumption by 21% globally, which is equivalent to the closing of 165 coal-fired power plants, or 132 million cars taken off the road.

Appliance energy-efficiency-labels are a key element of EU efforts to reduce residential energy consumption. In the same time, energy efficiency labelling schemes are often promoted as cost-effective measures which can help overcome the incomplete information and decrease the cost for searching the energy efficiency data (Howarth, Haddad & Paton, 2000). Although salience of energy information during the purchase decision is relatively low compared to considerations of other purchase criteria, appliance energy labels may help introduce the energy consumption as an important purchasing criterion (Dyer & Maronick, 1988). When properly implemented, labelling schemes would shift the purchasing decisions of the consumers towards products with higher energy efficiency. Better consumer information on appliance energyperformance is also expected to create market incentives for manufactures to designmore energy-efficient products.

In brief, it can be noted that energy labels are one of the common measures that can influence the complex energy use behaviour and help make people more aware of their energy consumption, and subsequently influence their behaviours on the path to achieving sustainability.

2.3.2 Energy label awareness as decision purchase factor

Energy label schemes can be effective if the consumers are aware of the classification system and the label influences their purchase decision (Mills & Schleich, 2010). In other words, the awareness of the appliance energy labels and their content is a starting point

from which consumers consider the energy labels during their purchasing decisions (Huh, 1999). Namely, in the starting stage of the consumer purchase process, the consumer becomes aware of the energy label as a product stimulus by perceiving the physical existence of the label, and/or becoming familiar with its stated information. Furthermore, after assuming constant prices of electricity, consumers value the initial spending regarding the higher energy efficiency as more important as opposed to the discounted accumulated future energy saving. Thus, energy label awareness is a starting point which would teach consumers to value future benefits from buying high energy efficient appliances by discounting their future energy operating costs (Heinzle, 2011).

A series of studies have tried to analyse the role of energy labels in consumer purchase decision and evaluate the success of the energy label. Energy efficiency label information is considered as an important feature in consumers' choice of products (Sharma & Gupta, 2013), and energy label awareness is seen as a contributor to consumer awareness of energy efficient products and the relevant knowledge level (Zainudin, 2013).

Some factors such associoeconomic characteristics, financial incentives, and effective country labelling schemeimplementation have been found to raise label awareness. Moreover, awareness of energy use and energy-saving technologies can be related to energy label awareness in a way that the label may have little impact on consumers in southern countries and a larger effect on consumers in northern countries where there is a long history of concern about energy use (Winwardet al., 1998).

However, there is belief that the use of energy labels alone cannot ensure a positive purchase intention for energy efficient appliances, even for consumers who are highly supportive of the same. Past research has provided evidence of additional influence of other external factors such as the strength of environmental concern, inactivation of environmental attitudes, availability of labelled products and trust in the energy label (Grankvist et al., 2004; Rashid, 2009; Thøgerson, 2002). In the same time, these same factors have a limitedinfluence on actual energy-efficient appliance purchasing.

2.4 Cost Saving and Environmental Protection as Motivators

Latest research shows that the possibility of cost savings can be an important motivation for consumers to engage in sustainable consumer behaviour similarly to the consumer behavior in general (Barenergy, 2010). Brandon and Lewis (1999) previously stated that environmental attitudes are an important motivational factor but costs considerations are perhaps even more crucial. In that line, changes in the research terminology are reflected over the years as well. Namely, in the 1980's, due to the price oil shock, the term 'energy conservation' was generally used, while in the later period when the climate change was in

main focus, energy savings and energy efficiency were in general use from researchers and policy makers (Martiskainen, 2007).

2.4.1 Consumer motivations toward energy efficient purchase behavior

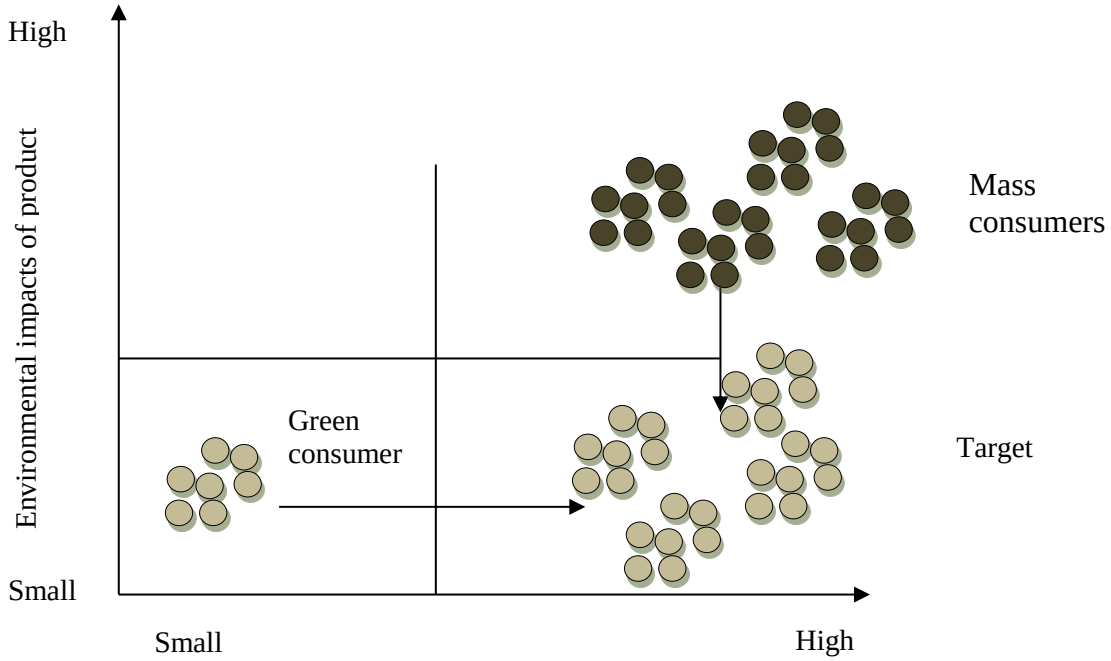
One of the ways sustainable consumer behavior can be brought closer to mass consumers including the less environmentally interested consumers is to increase the focus on efficiency measures. A clear understanding of consumer motivation regarding energy efficient products is of significant interest in the process of changing consumer energy use. Although cost savings in general come across as the strongest motivator, climate change still has a daily impact as another determinant in energy efficiency consumer behaviour. This was confirmed in the energy saving consumer behavior survey conducted in 2006 in the UK, where it was shown that for 52% of the people cost is the main purchase decision driver, and 31% stated both cost and environment as motivational factors (Future Foundation, 2006). Additionally, Poortinga, Steg, Vlek and Wiersma (2003) confirmed that energy efficiency measures which were applied in households proved to be an efficient strategy for reducing direct energy use at homes and were well accepted as energy-saving measures due to the fact that they seemed beneficial for the environment. These studies are in line with the main general findings for electricity saving. They are in response to the economic and value approach of energy consumer behavior which is linked to and has monetary and environmental impacts.

2.4.2 Green and efficiency-based positioning

A number of options providing win-win solutions on the path to sustainability exist (Csutora & Zsóka, 2011). One of the most important objectives of sustainable consumer policy is to find effective ways to motivate people to change their consumer behavior. The increase of environmental awareness or highlighting product energy efficiency measures are two possible approaches of sustainable consumer policy concerning home appliances buying and other similar electrical products. The first approach known as green positioning of sustainable products by using environmental argumentations is targeting mostly already environmentally aware consumers. On the other hand, the efficiency-focused positioning which promotes environmentally friendly products with economic perspectives has become widely spread to the whole society regardless of the level of environmental awareness or other interests. The two basic consumer policy approaches of reducing environmental impact of consumption are illustrated in Figure 2. In order to have a more efficient way to sustainability, consumer policies work on increasing the number of green consumers who are actually environmentally concerned, in turn making the products services which are bought by mass consumers more environmentally friendly. A substantial decrease of consumption environmental impact is possible if a broad part of consumers can be reached (Csutora & Zsóka, 2011).

In general, a majority of consumers are not enough environmentally aware about environmental protection in their consumption, and usually the products they tend to buy have a considerable environmental impact. One of the most effective ways to address the sustainability issues to mass consumers is more indirectly to urge non-environmentally aware consumers to buy products with reduced environmental impact. Heating, electrical products within housing including a broad variety of home appliances and household lighting, additionally to housing constructions, are one of the main house contributors with environmental impact (Tukker & Jansen, 2006).

Figure 2. Green and Efficiency Based Positioning



Source: M.Csutora and A. Zsóka, *Maximizing the efficiency of greenhouse gas related consumer policy.Journal of Consumer Policy, 2011, 34*(1), p.71, Fig.1.

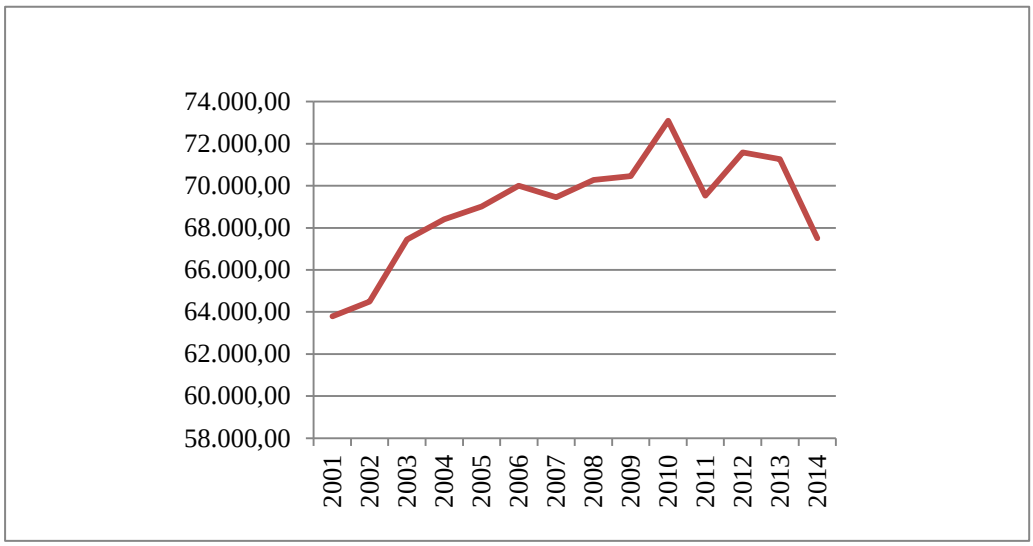
The residential sector in average is responsible for about 30% of the total energy demand in one country (Eurostat, 2016), thus energy saving methods are an area where significant changes could be realized for the sake of the environment. Energy efficient products used in homes as widely available solution nowadays help to save energy and reduce the environmental impact of households.

2.5 Overview of the Current Trends

2.5.1 Within Europe

The residential sector is a substantial consumer of energy with a share of 27% of total final energy consumption for the EU countries and in range of 28 to 32% for western Balkans. At the same time, the residential electricity consumption for western Balkan countries is around 50% from the share of total electricity consumption (except for Montenegro whose electrical consumption was calculated at 35%), with a continued trend of growth. This growth was 10.8% for the period between 1999 -2004 and 4.46% in the next three years (World Bank Group, 2014). It is predicted that the increase in residential electricity consumption (Figure 3 based on the data from Eurostat 2016) is seen due to numerous different factors linked to cultural changes and an increase in the standard of living, accompanied with intensive technological development. These include an increased quality of existing and new housing stock, with an increase in single family dwellings and the appearance of bigger apartments and houses; intensified use of ordinary and new types of appliances, together with broad variety of information and communication technology equipment; increased number of double or triple appliances in households, etc (Bertoldi & Atanasiu, 2007; 2009).

Figure 3. Electricity Consumption by Households in EU from Year 2001 to 2014 - 1000 tonnes of oil equivalent



Therefore, driven by energy conservation goals and the need of GHG reduction nations increasingly recognize the importance of energy efficient products for which adequate standards and labels were implemented. More than 57 countries have applied energy efficiency standards and /or labels to 46 products (Energy Charter Secreteriat, 2009).

Existing from 1992, the EU labelling scheme (directive 92/75/EEC) covers the main household appliances, lightning, heating and cooling equipment, other energy consuming products and even buildings. It is implemented as a mandatory label in all EU Member States and other Energy Charter countries (Iceland, Liechtenstein, Norway, Switzerland &Turkey) among which is Macedonia (Energy Charter Secreteriat, 2009). Similar to most of the labels worldwide, the European Union energy labels are based on a relative rating system which provides information about the appliances' energy efficiency in order to compare the energy efficiency of similar products in an easier way. The base of the label is a coloured seven-point alphabetical A-G rating scale where a red colour strip with the letter G illustrates the least energy efficiency and green coloured line with the letter A, the highest. Over the years standards and rating scale have been upgraded to higher grades labelled with additional "+"s of the grade "A".

The energy labels have been used as an important policy instrument for promoting energy efficiency measures resulting in significant market changes for appliances and a reduction of their energy consumption (Heinzle, 2011). To illustrate this, energy efficiency for washing machines has improved from class C/D in 1993; to energy efficiency class B in 1998 and further to class A/A+ in 2006, indicating 40% decrease in the specific energy consumption category. Similarly, energy performance of refrigerators has improved for about 60% from 1992 to 2006, represented with energy label class E in 1992 to energy efficiency class A+ in 2006 (Energy Charter Secreteriat, 2009).

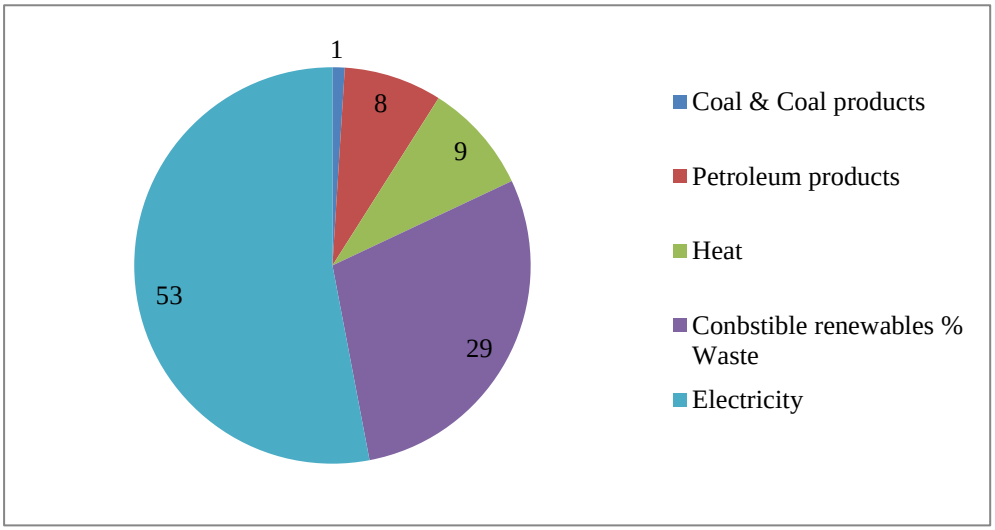
In relation to the usage of energy efficient products, European consumers have decreased the energy used and saved 100 billion Euros in the last few years. It was calculated that in average EU households save 45 Euros per year as a result of the new energy efficiency measures, and it is estimated that if European citizens used only highly energy efficient products in their households, about 465 Euros would be saved by 2020. Due to energy efficient products, fossil fuel import has been reduced and starting from 2010, EU has saved €100 billion (IEA, 2015).

Most recently, The European Energy Agency in 2015 found that more than 85% of consumers use the Energy Label in their decision making (European Commission, 2015). These results are in line with the findings that confirmed the significant positive impact of energy labels on products' purchase choices worldwide (Jeong& Kim 2015; Mahlia et al., 2002; Sammer &Wüstenhagen, 2006; Shen & Saijo, 2009; Ward, Clark, Jensen, Yen& Russell,2011). However, even with the increased use of energy labels, the lack of awareness for energy efficiency information is recently recognized in Western Balkan as one of the barriers that prevent energy efficiency measures from being successfully implemented (World Bank Group, 2014). Thus, the note is given for further necessity of active developing and implementation of programs concerning the utilisation of energy efficiency potential.

2.5.2 Macedonia

The Republic of Macedonia is strongly dependant on energy imports and the residential sector accounts for about 29% of final energy consumption with electricity as a major energy source with around 50% share (Figure 4). The total consumption of energy in the period between 2020 and 2030 is estimated to increase at an average annual rate of 2.5%, while the increase of electricity consumption is estimated at an average annual rate of 2.1% (Ministry of economy, 2010). Due to the increase in per capita income, similarly to other developing countries where changing consumption patterns reflect in an increase in energy demand, Macedonian household electricity consumption has continued to grow steadily. Additionally, the energy sector has the highest contribution with 76% of the total national emission of greenhouse gasses (State statistical office, 2016), thus having a significant impact on environmental pollution, bearing in mind that 90% of the energy is produced from fossil fuels (Ministry of economy, 2010). As an official EU candidate since 2005, The Republic of Macedonia follows the EU principles of cooperation related to the energy sector and related legislations are adopted, also paying close attention to the defined energy efficiency criteria which have to be met.

Figure 4. Final Consumption in % of the Residential Sector by Energy Source in 2005



Source: Energy Charter Secreteriat, *The In-Depth Review of the Energy Efficiency Policy of Macedonia*, 2007, pg.25, Figure 15.

Since the reduction of electrical usage through conservation is highly recognized and desirable, the need for energy efficiency improvements on a national level are one of the focus points in Macedonian National Strategy for sustainable development and Macedonian Energy strategy for the period between 2010 to 2030. Moreover, The National Energy Efficiency Strategy has put the emphasis on the importance of developing a proper institutional framework for the energy efficiency policy development and

implementation. Examples of this is seen when the Energy Efficiency Agency is established, the energy codes for new constructions are introduced along with the introduction of equipment energy standards and labels. Also, numerous campaigns for raising energy awareness on a national level are being organized, implemented and supported by different responsible government bodies, professionals and authorities.

Following the global trends in terms of energy consumption, in order to meet the international standards required, more attention has been paid to this area in recent years. Furthermore, energy efficiency labeling of household appliances is now officially regulated (Official Gazette no. 85/2007) and similar to the EU energy efficiency label, the following energy classes of home appliances have been determined: A ++, A+, and Ato G.

Since the presence of energy labeled appliances is relatively new on the national market, the scope of studies examining the energy label awareness and success are exceptionally scarce. In one recent noteworthy study which was conducted in 2015 The State Statistical office of Republic of Macedonia analyzed 3500 households, which is about 0.63% of all households in the country, in terms the energy consumption in 2014. According to the survey, the majority of households in the Republic of Macedonia use devices with lowest energy efficiency class (A-G) as opposed to those labeled with A+ and A++. Additionally, in relation to these results, it is important to add the broad daily use of electrical appliances and gadgets together with widen use of air conditioners. Also, electrical heating is very common (28.6% of all households use electricity for heating) and electrical heating appliances take up the biggest part (almost 40% of the surveyed households) in Skopje which is an area where derived heating is also frequently implemented (State statistical office, 2015).

These latest results show that even though it can be assumed that the higher awareness regarding the benefits of using energy efficient appliances was a result of the evidently increased involvement of energy efficient products in households, there is still room for additional efforts related to the raising of energy efficiency awareness in the country.

3 QUANTITATIVE RESEARCH OF SUSTAINABLE CONSUMER BEHAVIOR IN REPUBLIC OF MACEDONIA

3.1 Conceptual Model and Research Hypothesis

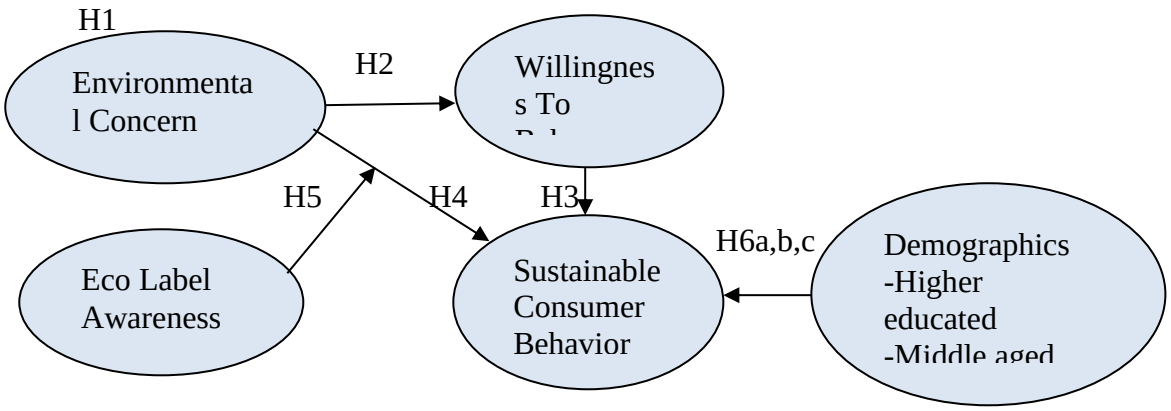
The overview of the literature presented in the previous chapters reveals a great number of studies that examined the concept of sustainable consumer behavior which is a basis for developing a study in the Republic of Macedonia. This model is created to examine sustainable consumer behavior in general and its relation with environmental concerns in the Macedonian market. The Evaluation of environmental concern, its relation to the

willingness to sustainable consumer behavior, along with label awareness and its influence on the relation between environmental concern and consumer behavior, and finally the differences among consumers based on their individual characteristics are the basis for the creation of the conceptual model. The basic conceptual model has a significant role in attaining the main goals of the research. Moreover, in order to examine general energy label awareness among consumers and its relation to adequate consumer attitude and purchase behavior, a simplified model has been added. More specifically, the model includes factors to be evaluated in their importance in consumer's purchase decision in relation to energy efficient products as a specific example for a sustainable product.

The theoretical background of the empirical research includes basic conceptual model together with narrowed and simplified model, along with some factors defined as hypothesis which have been explained in the literature already presented in the previous two sections of this work.

The model is mainly based on TPB and TRA which are employed in order to determine the basis for the relationship between attitudes and behavior in general and specific manners and its antecedents as well. According to these two models, attitude indirectly influences behavior through the intention to purchase, but due to the existing circumstances in developing countries, it is recognized as willingness for behaviour(Muhmin, 2007; Žabkar& Hosta, 2013), as it was previously explained in section 1.3.2. This means that the model is constructed mainly in respect to these factors where environmental concern as general attitude is an independent variable, similarly to the demographic characteristics of individual consumers which are included as well, shown in Figure 5. Additionally, eco-label awareness is added in order to examine its moderating role on the relation between environmental concern as independent and sustainable consumer behavior as a dependent variable.

Figure 5. The Basic Conceptual Model of Sustainable Consumer Behavior



In brief, the key idea of the current study is that the consumer behavior of Macedonian consumers in relation to sustainable development is influenced by their environmental concern, willingness to behave and their personal characteristics as well, moderated by eco label awareness.

The following first set of research hypothesis is raised in the current study.

The increased concern over the evident progressive degradation of the environment is becoming global public issue (Bush, 2008). The traditional understanding that environmental concern is a luxury afforded only by wealthy societies (Tantawi et al., 2009) is contradicted with the confirmed assertion that people in developing countries have shown just as much concern for protecting the environment and its resources as those in developing countries (Dunlap, Gallup & Gallup, 1993). Thus, the following hypothesis is proposed:

H1: Consumers are generally positive in terms of environmental concern.

According to the general assertion of the TRA and TPB, the relation between environmentally conscious behavior and its antecedents is mediated by behavior intention (Ajzen, 1991). This means that environmental concern as a general attitude has been confirmed to be positively related to purchase intention for a variety of environmentally sustainable alternatives (Hedlund, 2011; Mobrezi & Khoshtinant, 2016; Pagiaslis & Kystallis, 2014). Many recent studies have also proven the role of the intention as a predictor in a broad selection of environmentally sustainable purchase decisions (Lee, 2008; Liu et al., 2012; Ramli, 2009). Due to the fact that the current study examines this relation in a developing country where all prerequisites for certain environmentally sustainable purchase behavior might not be available, as Muhmin (2007) had suggested, the focus should be on willingness to engage in sustainable purchasing instead of on the intention. From that perspective, the positive relation between environmental concern and willingness to behave sustainably was confirmed (Hosta et al., 2012; Žabkar & Hosta, 2013) along with the positive influence of willingness to behave pro-environmentally in consumer purchase behavior (Santos et al., 2015; Žabkar & Hosta, 2013). Along with these findings, the following hypotheses are proposed:

H2: Environmental concern is positively related to willingness to behave in an environmentally conscious way.

H3: Willingness to behave is positively related to sustainable consumer behavior.

In spite of the main assertion of the indirect relationship between attitudes and purchase behavior, numerous studies explored and confirmed the direct and positive relation

between environmental concern of consumers and their sustainable purchase behavior (Dagher & Itani, 2012; Ishaswini & Datta, 2011; Kim & Choi, 2005). In addition, various studies reported that consumers with higher environmental concern are more likely to evaluate the environmental effect of their purchase behavior (Follows & Jobber, 2000; Nath et al., 2013), and namely are more prone to practicing it (Dagher et al., 2015; Laroche et al., 2001).Based on the previous research it is proposed that:

H4: Environmental concern positively influences sustainable consumer behavior.

Since the broadly recognized role of eco-labels in raising the importance of environmentally sustainable consumption, the effectiveness in guiding the consumers in their purchase decisions is a common topic in various studies. Some authors confirmed the successfulness of eco labels in assisting the purchase decisions of consumers on the way to sustainable consumption (Polonsky et al., 2012; Testa et al., 2015). Additionally, the use of eco labels is positively related to environmental concern of consumers. Namely, highly environmental consumers frequently recognize and use eco labels in their purchase decisions (Niva & Timonen, 2001; Thøgersen, 2000) and the awareness of eco labels influence their purchase decisions (Testa et al., 2015). Based on these finding, in order to examine the moderating role of eco label awareness on purchase decision the following hypothesis has been proposed:

H5: The positive relation between environmental concern and sustainable consumer behavior is greater as eco label awareness increases.

Various authors noted that demographic factors of an individual influence consumer behaviour. Even though the relationships between demographic variables and consumer behavior were found to be inconsistent and ambiguous (Diamantopoulos et al., 2003; Roberts, 1996a; Verain et al., 2012) they are commonly used by marketers (D'Souza et al., 2007). The age, gender, education, and income are commonly recognized demographic characteristics that are in significant relationship with environmentally purchase behavior (Banyté et al., 2010; Zhao et al., 2014). Looking over the broad overview of literature regarding the relationship between sustainable consumer behavior and demographic characteristics of the consumers and the findings presented in chapter 1.3.1, it can be summarized that mainly middle aged and well educated women are more likely to demonstrate sustainable consumer behaviour.

Even contradicting results related to the relationship between the age of consumers and their consumer behavior, Roberts (1996a) and later on do Paço et al. (2009) revealed that middle aged consumers are more prone to sustainable consumption. Similarly, Anić et al. (2015) together with Mohr and Schich (2016) confirmed the similar findings related to

sustainable food consumption and awareness about the related issue. Therefore the flowing hypothesis is proposed:

H6a: Middle aged consumers score higher in sustainable consumer behavior than other consumers.

When gender is considered, it is found that women consider environmental issues more frequently in their purchase decisions (Zeleznu et al., 2000; Koos, 2011) and are more willing to purchase sustainably (Diamantopoulos et al., 2003; Laroche et al., 2001; Luchs & Mooradian, 2012). Thus, it is hypothesized that:

H6b: Women demonstrate more sustainable consumer behavior than men.

Various authors noted that the level of education has also been proven as an important demographic factor that affects sustainable consumer behavior. Since highly educated people in general are better informed and tend to understand environmental issues better, it is generally proven that they are more aware of sustainability issues (Banyté et al., 2010; D'Souza et al., 2007; Togler & Garcia-Valinas, 2007; Yuan & Zuo, 2013). Thus, they show higher preferences and willingness for environmental protection (Witzke & Ufrei, 2001) leading to more emphasized sustainable consumption (Diamantopolous et al., 2003; do Paço et al., 2009; Zhao et al., 2014). Based on these findings, it is hypothesised that:

H6c: Higher educated peoplescore higher in sustainable consumer behavior.

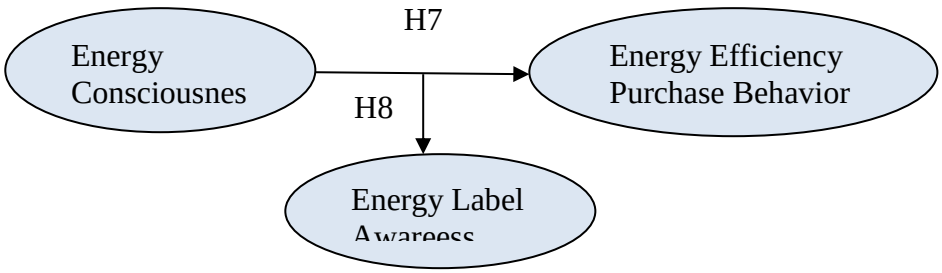
The interrelation between these hypotheses related to general sustainable consumer behavior is shown in Figure 5. Moreover, in order to shed light on energy efficiency purchase behavior as a specific sustainable purchasing and having in mind the assumption that in order to predict specific behavior, the attitudes should also be specified within the same context (Alwitt & Pitts, 1996), the basic conceptual model illustrated in Figure 5 is simplified and narrowed. Namely, the relations proposed with the hypothesis H4 and H5 as basic models are interpreted to the specific energy context to examine the relation between energy consciousness of consumers and their purchase behavior together with the moderating role of energy label awareness in this relationship. Various authors (European Commission, 2008; 2015; OECD, 2005a) have noted the importance of energy efficiency labels as instruments that ease the introduction of improvements of energy savings globally. One starting point for success of the energy labels is the consumer awareness of the classification system and how the label influences their purchase decisions (Heinzle, 2011; Mills & Schleich, 2010a).There is some evidence that energy efficiency label information is considered an important criteria in purchase decisions (Sharma & Gupta, 2013). Even though the salience of energy efficiency information in purchase decision is relatively low compared to other criteria, energy labels of appliances may help increase the

importance of energy consumption as important purchase criteria (Dyer & Maronik, 1988). Moreover, the association of energy label awareness and the successful influence of energy labels on purchase decision and the energy use consciousness of consumers (Winward et al., 1998) further support the following hypotheses proposed and illustrated in Figure 6:

H7: Energy Conscious consumers are more likely to select energy saving products.

H8: The positive relation between consumers' energy consciousness and their buying decisions is greater as the energy label awareness increases.

Figure 6. Simplified Conceptual Model of Sustainable Consumer Behaviour Related to Energy



Additionally, since energy efficient purchasing is recognized as one of the ways sustainable consumption can be brought closer to mass consumers (Csutora & Zsóka, 2011) motivational factors in the purchasing of energy efficient products are examined. Although cost savings are mainly recognized as the strongest motivator in purchase decision, environmental protection is acknowledged as another motivational factor that influences the buying of energy efficient products (Future Foundation, 2006). Moreover, energy efficient measures applied in households are found to be well accepted as energy saving measures which are recognized as environmentally beneficial in the same time (Poortinga et al., 2003). Hence, the folowing hypotheses are proposed:

H9: In terms of energy efficiency, cost savings are the most important motivation for mass consumers.

H10: Consumers who are higher in environmental concern have different motives in purchasing energy efficient products than those who are low in their environmental concern.

3.2 Research Design and Methodology

The master thesis is comprised of theoretical and empirical parts with primary and secondary sources respectively employed. The theoretical part serves as a background of the empirical part of the study and it gives an overview of contributions and the latest

findings from different authors. Different types of secondary data related to the topic are used, such as academic surveys, textbooks, research and governmental publication, acts of legislations and reports by different organizations, statistic and reports, web sites, etc.They are provided mainly by use of digital databases such as ScienceDirect, EbschoHost and ProQuest.

The second part of the thesis is an empirical research classified as descriptive, which is based on a quantitative method technique which uses primary data obtained from a survey with a structured questionnaire for Macedonian residents in the capital city of Skopje as a target population.

3.3 Questionnaire Design and Data Collection

3.3.1Questionnaire design

The original questionnaire applied for collecting the primary data in the empirical part of the current research consisted of six main sections and was compiled in Ljubljana at the Faculty of economics in order to measure environmentally conscious consumer behavior. The questionnaire was updated with a section for the general attitude in relation to energy efficiency. It was translated twice, from English into Macedonian and vice versa, to ensure that all difficulties due to language differences would be minimized and that the meanings of the statements were properly transferred. Then, the questionnaire was tested on a small sample of 15 respondents of different age, gender and educational level.

Questionnaire sections that are of interest to this research follow various considerations which range from measuring the concern of the consumers toward the environment as a general attitude to measuring their willingness to act for environmental protection. The next four questions address current attitudes regarding the information provided about eco products in Macedonia and then regarding general actions taken associated with the propensity of consumers to sustainable consumer behavior. Once the last is settled, the questionnaire goes a bit deeper into the energy efficiency product category as well energy efficiency consumer behavior. Furthermore, motivations which influence the buying decision for energy efficient products of the respondents were studied with an emphasis on energy awareness labelling in general.

The last set of questions is related to demographic characteristics of respondents. In the conceptual model the gender, educational level and age are included as variables. Additionally to these, marital and employment status have been included along with the income of the respondents, and data on personal and household average income compared with the average in Macedonia. In order to determine the level of income more accurately, additional questions were included. If the average personal or household income is below

or above the average, than they were followed by sub-questions in order to determine whether the income is in upper or in lower half for both income levels. The final questionnaire in English and Macedonian language can be found in Appendix B and C respectively.

In the original questionnaire the respondents were presented with a set of 53 statements and they were asked to evaluate the first 46 on a five point Likert scale (1=I entirely disagree, 5= I entirely agree), and on the last 7 statements respondents had to answer questions in the form of a 1 means 'Yes', 2 means 'No', and 3 has a meaning of 'do not know/do not applicable'. From the 53 statements in the original questionnaire, 25 statements were selected that are of interest to the current study (AppendixD).

3.3.2 Data collection

Quantitative data was gathered through a written questionnaire which was distributed mainly in a printed form. The first form of the questionnaire was pre-tested on a sample of fifteen people before the final data gathering. The questionnaire testing was made in order to identify possible problems related to questionnaire's clarity, bias and possible ambiguity. The participants were asked for their opinion regarding the wording, sequencing and timing as well. No difficulties in understanding the statements were indicated and it was not suggested that the time needed for answering the questions was too long.

The responses of the survey were collected basically using the non-probability sampling method which in the current case is a combination of judgmental and snowball sampling.Mainly, the questionnaire formats were administered to teachers in four primary schools in different areas in Skopje that were later forwarded through the students to their parents or grandparents. In addition, on the 23 of December 2010 they were delivered to the students in the first student year in private university "FON" during marketing class. Furthermore, using the snowball method the questionnaire format was distributed to additional known citizens with different demographic characteristics.In all cases, the reason for the survey and the way to complete the survey was explained verbally. Respondents were specifically informed that no any survey answer was either right or wrong, and the answer should contain their honest opinion. The responses were gathered between December 1st 2010 and December 26th 2010.The total sample size of collected questionnaire was 368, while the amount of fully filled questionnaires bearing the status of "completed" was 323 on which the final analysis which was done using SPSS for Windows.

Based on the data shown in the Table 4 the approximate response rate of the questionnaire was 81%.

Table 4. Scale of Administrated Questionnaires

	Interview	Completed	Un completed	Not back	In total
1	PS1 (primary school 1)	49	1	1	51
2	PS2 (primary school 2)	31	/	2	33
3	PS3 (primary school 3)	131	17	5	153
4	PS4 (primary school 4)	25	8	1	34
5	University FON	44	14	15	73
6	Snowball	43	5	7	55
	Total	323	45	31	399

3.4 Data Analysis and Findings

This chapter presents the results of the empirical research. First the characteristics of the sample were identified then the focus was placed on the analysis of the individual components of the model. Data was analysed using descriptive statistics (frequencies and means) together with crosstabs, independent t-tests, ANOVA and appropriate regression analysis.Additionally, the reliability of measurements for the individual constructs is evaluated before the hypotheses test. In order to improve the reliability of the analysis, single incomplete responses together with responses that contained answers at the extremes on the scale were identified and excluded from the analysis.

3.4.1 Sample characteristics

The research population is represented by persons over the age of 18years living in Skopje.In order to make sure sampling representatives reflect the gender characteristics of Macedonian population they were compared with official statistical data for Macedonian population. The demographic characteristics, regarding the gender groups of the actual sample and control characteristics based on demographic characteristics of Macedonian population are presented in Table 5, based on data presented in State statistical office, 2002, p.14, Table 1.

Table 5. Sample Frame of the Research Compiled on The Basis of Population Data by Gender

	Malein %	Female in %	Total in %
Population	50.2	49.8	100
Actual sample	46.7	53.3	100

Some of the respondents' demographic characteristics used in further analysis are presented in Table 6, and the rest are included in Appendix E. In total 53.3%respondents

are female and 46.7% of them male. In term of age, data was gathered considering birth date of the respondents, which was then turned into their actual age and then six response categories were formed which showed the distribution of age more clearly. However, for the purpose of further analysis the age was distributed in three groups, where of the total, the majority of the respondents (59.4%) belong to the middle age group (between 30 and 50 years old). The othertwo groups containing respondents aged less than 30 years, and respondents above 50 years old took up 19.5% and 17.3% respectively. Regarding the level of education, a substantial number (49%) of the respondents have completed at least a high degree of education.

Table 6. Demographic Characteristics of Respondents

Demographic characteristics		**Frequency**	**Relative frequency in %**
Age (years' groups)	Less than 20 years	1	0.3
	20 -29.9	62	19.2
	30 -39.9	76	23.5
	40 -49.9	116	35.9
	50 -59.9	34	10.5
	60 -69.9	22	6.8
	Missing	0	
Gender	Male	151	46.7
	Female	172	53.3
	Missing	0	
Education	Elementary school	11	3.4
	Secondary (high) school	37	11.5
	Vocational school	117	36.2
	Bachelor degree	139	43.0
	Master's degree	12	3.7
	PhD	7	2.3
	Total	323	

3.4.2 ReliabilityMeasurements

To assess the reliability of themainmeasurements used in this study, the method of internal consistency is applied to assess the Cronbach's Alpha Coefficient. The coefficient's value ranges between 0 and 1, indicatinga greater reliability when the value is closer to 1. The values of the coefficients calculated using the SPSS reliability procedure are presented in the Table 7. It can be seen that the value of reliability coefficients for sustainable consumer behaviour scale for six items is 0.73 whichshows good internal consistency of the scale. As

it can be seen in Table 7, Cronbach's Alpha coefficients for environmental concern (0.61) and willingness to behave (0.65)are slightly below recommended 0.7 threshold, but still reliable enough, since the value of over 0.60 for Cronbach alpha can be still considered acceptable (Kline, 2000, p.13).

In order to improve the reliability of environmental concern scale which is just slightly above the accepted threshold of 0.6, the SPSS option is used to calculate Cronbach's Alpha Coefficient by excluding one item at time andthe reliability of those scales was tested again. Since the reliability of the modified scales was worse than that of the original scale (Cronbach's Alpha Coefficients were in the range from 0.51 to 0.60 presented in Tables 2-7 in Appendix E), the accepted coefficient of Cronbach's Alpha used in further analysis is 0.61 for the scale measuring environmental concern for the abovementioned six items.

Table 7. Reliability of Scales

Construct	Number of items	Cronbach's Alpha
Environmental Concern	6	0.61
Willingness to behave	4	0.65
Sustainable Consumer Behaviour	5	0.73

3.4.3 Descriptive data analysis

The means and standard deviation scores of construct's variables adopted in the study are presented in the Tables 8 to Table 12. As it was explained in chapter 3.3.1 respondents were asked to rate each of the dimension on a five point Likert scale ranging from strongly disagree (1) to strongly agree (5).

Consumer **environmental concern** (hereinafter: EC) was measured by means of six items on a scale from 1 (strongly disagree) to 5 (strongly agree). As presented in the Table 8, all items have a mean value above the neutral/undecided response option in the range between 3.77 and 4.27. According to this, with the mean of all scale items of 4.01 and standard deviation of 0.92 Macedonian consumers are somewhat environmentally concerned. As shown in the Table 9, (and more detailed results are presented in Table 1 , Appendix E) there is a domination of statements of high agreement with a percentage ranging from 68.6% (EC1 and EC2) to 88.2% (EC3) in relation to environmental concerns of the respondents. The most dominant factor in measuring EC was influence of pollution on respondents' personal life (4.27).

Table 8. Descriptive Statistics of Consumer Environmental Concern

Scale item	Mean	SD
EC3 You feel that pollution affects your life personally	4.27	0.77
EC5 You think all the worried comments made about air and water pollution are all justified	4.11	0.90
EC6 You become incensed when you think about the harm being done to the plant and animal life by pollution	4.11	0.85
EC4 You have often thought that if we could just get by with a little less there would be more left for future generations	4.00	1.01
EC2 Natural resources must be preserved even if people must do without some products	3.81	0.94
EC1 Pollution is presently one of the most critical problems facing this nation	3.77	1.04
Overall average	4.01	0.92

Table 9. Frequency of Agreement-Environmental Concern

Statement	Disagreement in %	Neutral in %	Agreement in %
EC1	15.8	15.8	68.6
EC2	10.2	21.4	68.6
EC3	2.8	9.3	88.2
EC4	9.6	16.5	74.5
EC5	6.2	13.0	81.0
EC6	4.65	15.83	79.5

Mean values of four items measuring the **willingness to behave** (hereinafter: W2B) in environmental protection behaviour are presented in Table 10. The Average valueof four items (3.41) is higher than the neutral point indicatingthat somehow Macedonian respondents were willing to act in order to protect the environment. Frequency of agreement for each statement is presented in Table 11 (and more detailed results are presented in Table 8, Appendix E). High agreement dominates almost to all statements with a percentage varied from 52.63% (W2B3) and 58.30% (W2B2) to 72.13% (W2B1) on the respondents' willingness to behave, except for W2B4 (26.62%).

The most stronglysupported item from the selected in this section that are of further interest in the research was the first statement with a mean value of 3.89 (SD 0.86) showing the willingness of the consumers to sign a petition or demonstrate for an environmental cause. However, the lowest mean value of 2.73 (SD 1.21) which was

recorded for the last item suggests high sensitivity of respondents on tax load associated to greater governmental control support.

Table 10. Descriptive Statistics of Willingness to behave in environmentally conscious way

Scale item	Mean	SD
W2B1 You would be willing to sign a petition or demonstrate for an environmental cause	3.89	0.86
W2B2 You would donate a day's pay to a foundation to help improve the environment	3.54	1.09
W2B3 You would be willing to have your laundry less white or bright in order to be sure that you were using a non-polluting laundry product	3.48	1.06
W2B4 You would be willing to pay a 5 percent increase in your taxes to support greater governmental control	2.73	1.21
Overall average	3.41	1.06

Table 11. Frequency of Agreement-Willingness to Behave

Statement	Disagreement in %	Neutral in %	Agreement in %
W2B1	6.19	21.67	72.13
W2B2	17.95	23.83	58.20
W2B3	17.95	29.41	52.63
W2B4	44.58	28.79	26.62

Sustainable consumer behaviour (hereinafter: SCB) scale was measured on a 5-item scale. Descriptive statistics for individual scale items and the statements used are presented in Table 12.Since the mean value is 3.28 (SD=0.98) which is slightly higher than the scales mid-point, the overall conclusion is that in average the respondents are positive regarding of their SCB. Namely, as shown in the Table 13 as well in more details in Table 9 in Appendix E, the agreement dominates sustainable behaviour statements with a percentage varied from 39.93% (SCB2) to 61.91% (SCB3). This can be explained by the characteristics of the purchase behaviour of the respondents regarding sustainability which were generally favourable, except for the opinion for recycling of the products which showed a mean just below the scale's mid-point. This means that sustainable consumer behaviour is present to a certain extent in the Macedonian market, but we believe that additional efforts have to be done to turn the considerable agreement percentage to a higher level.

Table 12. Descriptive Statistics of Sustainable Consumer Behavior

Scale item	Mean	SD
SCB3 When there is a choice You always choose the productthat contributes to the least amount of pollution	3.66	0.98
SCB4 You have switched products for ecological reasons	3.46	1.03
SCB1 You normally make a conscious effort to limit my use of products that are made of or use scarce resources	3.27	0.85
SCB2 You do not buy products that have excessive packaging	3.18	0.99
SCB5 You try only to buy products that can be recycled	2.81	1.05
Overall average	3.28	0.98

Table 13. Frequency of Agreement- Sustainable Consumer Behavior

Statement	Disagreement in %	Neutral in %	Agreement in %
SCB 1	17.64	40.86	41.48
SCB 2	25.69	34.36	39.93
SCB 3	13.0	25.07	61.91
SCB 4	19.19	27.24	53.56
SCB 5	26.93	31.26	41.79

Eco label awareness (hereafter: ELA) in the study was measured on one- item scale. The mean of the statement was higher than the scales mid-point, represented with the value of 4.09 (SD=0.88) in Table 14.A large portion of participants 82.3% agreed to this statement (Table 15, and in more detailed presented in Table 10 in Appendix E).This indicates that the importance of Eco label is recognized and shows that the sustainability features of the product can be better identified in a way that supports sustainable development. The overall conclusion is that ELA is present in the country.

Table 14. Descriptive Statistics of Eco Label Information Awareness

Scale item	Mean	SD
ELA You feel that eco-labels are a good way to identify products that are ecologically sustainable	4.09	0.88

Table 15. Frequency of Agreement-Eco Label Awareness

Statement	Disagreement in %	Neutral in %	Agreement in %
ELA	6.19	11.45	82.35

Similar to the scale used for measuring eco label awareness, the scales related to **energy consciousness** (hereafter: EngC) and the adequate **purchase behavior of energy efficient products (**hereafter: EEPB) and **energy label awareness** (hereafter: EngLA) were measured on a one-item scale. Descriptive statistics for each individual scale item and the questions used are presented in Table 16. The mean of each statement separately was higher than the scales mid-point, represented with the value 3.54 (SD=0.84), and 3.99 (SD=0.86) respectively with high recorded percentages (83.54% and 79.81% respectively) of participants who agreed on this statements (Table 17), and lower percent of agreement for EngLA(45.82%) shown in Table 18. From the results, it can be stated that consumers recognized the importance of rationalizing their energy consumption and were reasonably aware of the energy efficiency when buying home appliances, but slightly with lower awareness for energy labels of products they are buying. However, still a lot of additional effort is needed in the consumer energy consumption area in order to improve energy sustainability level.

Table 16. Descriptive Statistics of Energy Relate Scales Consciousness

Scale item	Mean	SD
Energy Consciousness		
EngCYou always make real efforts to rationalize energy consumption	3.54	0.84
Energy Efficient Purchase Behavior		
EEPB When you buy home appliances their energy efficiency is important to you	3.99	0.86

Table 17. Frequency of Agreement- Energy Related Attitude and Behvior

Statement	Disagreement in %	Neutral in %	Agreement in %
EngC	4.96	11.80	83.54
EEPB	6.83	13.35	79.81

Table 18. Frequency of Agreement-Energy Label Awareness

Statements	Yes		No		Do not know/ not applicable	
	f	in %	*f*	in %	*f*	in %
EngLAYou recall seeing the EE label attached to the light bulbs/home appliance you have bought in last 24 months	148	45.82	96	29.72	79	24.45

Additionally, the study examines some general incentives related to energy efficiency intention and behavior and general knowledge of energy efficient labels. When analyzing the answers related to energy efficiency purchase intention and behavior, similarly to the results about sustainable consumer behavior in general,Macedonian consumers are more willing to reduce their energy than they actually do through purchasing simply the common light bulbs for their homes.Namely, respondents are willing to combat climate change by reducing their energy consumption (mean value of 4.02 and SD (0.97), shown in Table 19), but less were WTP extra for energy efficient products (mean of 3.69, and SD (0.90) presented in Table 19). Similarly, they are fairly conscious to relate their purchasing of energy efficient products with their direct involvement in environmental protection (mean value of 3.82, and SD (0.88), presented in Table 19).

Table 19. Descriptive Statistics of Energy Efficient attitudes

Scale item	Mean	SD
Buying EE labeled products makes you feel like you are helping to protect the environment for future generations	3.82	0.88
You would be willing to combat global climate change by reducing energyconsumption	4.02	0.97
You are willing to pay extra for highly energy efficient products	3.69	0.90

The percentage of those who changed the standard light bulbs with those which are energy efficient is not highly different than those who did not. Namely, 48.3% have changed, and 36.53% did not change their ordinary light bulbs at home with the energy efficient lightening. The rest of 15.2% of respondents were not defined precisely about that.A bit surprisingly, with a relatively high percent (68.73% in Table 20) Macedonian consumers had shown that their purchase decisions for home appliances were influenced at least ones by the energy labels on the products they buy.

Descriptive statistics of general energy efficient knowledgerelated to energy labels are presented in Table 21. In both casesincluded in the study, majority of respondents did not show enough knowledge about energy efficiency measures. Only 39.93% of respondents have shown general knowledge of energy efficiency label meaning. These results are showing that although respondents were environmentally concerned in general but this concern was not reflected in appropriate energy efficiency knowledge. This means additional effort has to be done for energy efficiency label awareness and knowledge that could be transferred in appropriate use of energy label information.

Table 20. Descriptive Statistics of Energy Efficiency Purchase withFrequency of Agreement

Scale item	Yes		No		Do not know/ do not applicable	
	f	in %	*f*	in %	*f*	in %
You have replaced light bulbs in your home with those of smaller wattage so that you will conserve on the electricity you use	156	48.30	118	36.53	49	15.17
The Energy efficiency label have influenced at least one of your home appliances purchase decisions	222	68.73	38	11.76	63	19.51

Table 21. Descriptive Statistics of Energy Efficiency Knowledge withFrequency of Agreement

Statements	Yes		No		Do not know/ not applicable	
	f	in %	*f*	in %	*f*	in %
"A " energy efficiency rate on EE label means "highest energy efficiency or energy savings"	129	39.93	31	9.59	163	50.46

3.5 Hypothesis Testing and Overview of the Results

The Hypotheses formulated in Chapter 3.1 are tested with all variables and the data analysis presented in the current chapter as well in the Appendix E. Regarding the two models, two sets of hypotheses were presented in order to test the relation between the variables in general consumer behaviour approach and energy efficiency manner. Each of the hypotheses was tested and a conclusion was given regarding their acceptance or rejection.

3.5.1 The first set of hypotheses

In the first set of hypotheses the relationship between SCB and its antecedents of EC and W2B are tested using simple linear regression analysis. One sample t-test is used toidentify whether Macedonian consumers are environmentaly concerned. Aditionally, in order to test the moderating role of eco label awareness on the relation between EC and SCB, three step hierarchical regression analysis is applied. Directional hupothesis regarding demographic characteristics of age, education and gender are tested. Using one-way

ANOVA with post hoc analysis the differences between age groups are examined in order to determine whether middle aged respondents are more prone to sustainable consumption. Thanthe differences between gender groups and educational level are tested using independent sample t-test.

Hypothesis 1: Consumers are generally positive in terms of environmental concern.

One-sample t-test has been used in order to identify whether Macedonian consumers are environmentally concerned. The average of the construct is tested as well. The results are presented in Table 22 whereEC represents the overall construct. Results show that the average inclination of 322 surveyed respondents to EC is 4.01, and standard deviation is 0.54. Since these results and the P-value (0.00) being less than the threshold value of 0.05, the hypothesis **H1 is supported** and can be concluded that Macedonian consumers have favorable attitude toward EC.

Table 22. One-Sample T-test, Hypothesis 1

	N	Mean	Std.Deviation	Std.Error Mean
EC	322	4.01	0.54	2.99E-02
EC1	323	3.77	1.04	5.78E-02
EC2	323	3.81	0.94	5.24E-02
EC3	323	4.27	0.77	4.27E-02
EC4	323	4.00	1.01	5.64E-02
EC5	323	4.11	0.90	4.98E-02
EC6	322	4.11	0.85	4.76E-02

Hypothesis 2: Environmental concern is positively related to willingness to behave in environmentally conscious way.

To test this hypothesis a simple linear regression analysis was applied with a summarization of the variable of EC as an independent variable and W2B as dependent variable. Since R = 0.402 (Table 23), is between 0.3 and 0.5 (Risteski & Tevdovski, 2010), a low positive linear relationship can be concluded, withp (0.000) < 0.05. Therefore, the research hypothesis **H2 is supported.**

Hypothesis 3: Willingness to behave is positively related to sustainable consumer behavior.

Similarly, to the previous hypothesis test, simple linear regression analysis was performed to test the relation between W2B and SCB where W2B is an independent variable and SCB is a dependent variable. According to the results interpreted in Table 24 with R=0.385, and

p value (0.000) < 0.05, the research **hypothesis H3 is supported** and it can be concluded that relation between consumer W2B and their SCB is positive, although weak.

Table 23. Simple Linear Regression Analysis for Hypothesis 2

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.402[a]	0.162	0.159	0.677
a. Predictors: (Constant), Environmental concern				

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.201	0.283		4.239	0.000
	Environmental concern	0.551	0.070	0.402	7.871	0.000
a. Dependent Variable: Willingness to behave						

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	28.372	1	28.372	61.945	0.000[b]
	Residual	147.024	321	0.458		
	Total	175.396	322			
a. Dependent Variable: Willingness to behave						
b. Predictors: (Constant), Environmental concern						

Hypothesis 4: Environmental concern is positively related to sustainable consumer behavior.

The hypothesis was tested using regression analysis to determine whether consumer EC influences consumer purchase behavior. Thus, consumer concern about environmental issues in general emerged as an independent variable and their purchase behavior related to sustainable issues appeared as a dependent variable. The results are presented in Table 25.With the levels of R =0.469, and p (0.000) which were lower than the threshold of 0.05, it was established that the relation between concern for environment of consumers and their purchase behaviour in sustainable manner is positive albeit weak. Therefore, the research hypothesis **H4 is supported.**

Table 24. Simple Linear Regression for Hypothesis 3

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.385[a]	0.149	0.146	0.629
a. Predictors**:** (Constant), Willingness to behave				

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.146	0.166		12.953	0.000
	Willingness to behave	0.355	0.047	0.385	7.484	0.000
a. Dependent Variable: Sustainable Consumer Behavior						

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	22.162	1	22.162	56.015	0.000[b]
	Residual	127.002	321	0.396		
	Total	149.164	322			
a. Dependent Variable: Sustainable Consumer Behavior						
b. Predictors: (Constant), Willingness to behave						

Hypothesis 5: The positive relation between environmental concern and sustainable consumer behavior is greater as eco label awareness increase.

To test the moderating effect of consumers' eco-label awareness in the relationship between their concerns about environmental issues in general and purchase behavior in sustainable manner, a hierarchical regression analysis was applied to determine the significance of the interaction effect.The analysis was performed in three steps. The EC as an independent variable was introduced in the first step, after that, ELA as a moderator variable was introduced in the second step, and finally, the interaction between the moderator and the independent variables was introduced. For the interaction effect, the results (R^2= 0.081 and p value of 0.789) presented in Table 26, indicate that awareness of consumers for eco labels as a moderator variable is not statistically significant. Thus, the current hypothesis **H5 is not supported**.

Table 25. Regression Analysis for Hypothesis 4

Model summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.469[a]	0.220	0.217	0.602
a. Predictors: (Constant), Environmental concern				

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	0.985	0.252		3.908	0.000
	Environmental concern	0.592	0.062	0.469	9.502	0.000
a. Dependent Variable: Sustainable Consumer Behavior						

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	32.746	1	32.746	90.291	0.000[b]
	Residual	116.418	321	0.363		
	Total	149.164	322			
a. Dependent Variable: Sustainable Consumer Behavior						
b. Predictors: (Constant), Environmental concern						

Hypothesis 6a: Middle aged consumers score higher in sustainable consumer behavior than other consumers.

In order to test differences One-Way ANOVA is used and differences between groups are analyzed using post-hoc analysis. Age as independent variable is grouped in 3 groups (1-30 years old, 31-50 years old, and above 51 years old). SCBis a dependent variable and is presented with six statements, where the average is computed for each. Since the p-value of 2.53e-11 is less than the threshold of 0.05 the null hypothesis is rejected and we can conclude that there is statistically significant difference between the three groups (Table 27). Differences between groups are analyzed using post hoc analysis and results presented in Table 27 show that younger consumers have different SCB than older and middle aged respondents, while there is no difference in SCB between older and middle aged respondents. Thus, there is sufficient evidence that hypothesis **H6a is not supported.**

Table 26. Hierarchical Regression Analysis - H5

Model summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.285[a]	0.081	0.073	0.655

a. Predictors: (Constant), ELA*EC, Eco Label Awareness, Environmental Concern

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	12.154	3	4.051	9.433	0.000[b]
	Residual	137.010	319	0.429		
	Total	149.164	322			
a. Dependent Variable: Sustainable Consumer Behavior						
b. Predictors: (Constant), Eco Label Awareness, Environmental Concern						

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.169	0.229		9.483	0.000
	Eco Label Awareness	0.112	0.042	0.145	2.657	0.008
	Environmental concern	0.179	0.045	0.222	4.021	0.000
	ELA*EC	-0.009	0.034	-0.015	-0.268	0.789
a. Dependent Variable: Sustainable Consumer Behavior						

Table 27. One Way ANOVA and Post Hoc Analysis– H6a

One way ANOVA					
	df	**Sum of Squares e**	**Mean Square**	**F**	**Sig.**
Age groups	2	21.1	10.55	26.36	2.53e-11
Residuals	320	128.1			

Post hoc analysis –H6a		
Age groups	**df**	**p adj**
2-1	0.604	0.000
3-1	0.720	0.000
3-2	0.115	0.399
95% wise confidence level		

Hypothesis 6b:Women demonstrate more sustainable consumer behavior than men.

Independent samples T-test is used to test the differences between the two groups of men and women. First the significance of F-test is applied and the correct Sig for the t-test is interpreted in the output Table 28.Similarly to the previous hypothesis, SCB as dependent variable is presented with the average value of its each statement. SCB results were split in two groups according to men and women and F-test is applied to see if the variances of both data samples are the same. Since the p-value is 0.078, the null hypothesis cannot be rejected, so it can be assumed that the two data samples have the same variance.

Table 28. F-test and T-test-H6b

F-test				
Men and women	**F**	**numdf**	**denomdf**	**p-value**
	1.321	150	171	0.077
Independent sample t-test				
Men and women	**t**	**df**	**p-value**	
	-1.964	321	0.050	
Mean of men		**Mean of women**		
3.279		3.428		
Two sample t-test-directional hypothesis				
Men and women	**t**	**df**	**p-value**	
	-1.964	321	0.025	

Then the independent t-test is applied in order to see if there is a difference between the two data samples and to test the direction. Since the p value (0.025) <0.05, so the null hypothesis is rejected. Therefore it can be assumed that women are more prone to SCB than men, thus **the H6b is supported.**

Hypothesis 6c: Higher educated peoplescore higher in sustainable consumer behavior.

In order to test the differences in SCB regarding the educational level of respondents, similarly to previous hypothesis independent sample t-test is used. Educational level of respondents as independent variable originally presented with six groups (1 elementary, 2 secondary, 3 vocational, 4 bachelor degree, 5 Master and 6 PhD) is regrouped in two groups (lower level educated and higher educated respondents).The average of SCB results were split in two groups according to thetwo levels of education and F-test is applied to see if the variances of both data samples are the same. Since the p-value is0.563 (Table 29) the null hypothesis cannot be rejected, so similarly to the previous hypothesis can be assumed that the two data samples have the same variance. Then the independent t-test is applied in

order to see if there is a difference between the two data samples, with the assumption that the both data samples have the same variance. Since the p-value is 0.400 and higher than the threshold, the null hypothesis is not rejected, so it can be assumed that there is no statistical significant difference between the SCB results according to the education, thus can be concluded that hypothesis **H6c is not supported.**

Table 29. F-test and Independent T-test-H6c

F-test				
Low and high educated	**F**	**numdf**	**denomdf**	**p-value**
	1.096	164	157	0.563
Independent sample t-test				
Low and high educated	**t**	**df**	**p-value**	
	-0.843	321	0.400	
Mean of low level educated		**Mean of high level educated**		
3.327		3.391		

3.5.2 The second set of hypothesis related to energy efficiency

In the second set of hypotheses the relation between attitudes and consumer behavior reflected in the specific energy content are examined. Regression analysis is used to test the relation between energy consciousness and specific sustainable purchasing concerning energy saving products. Similarly to the previous model where the moderating role of ELA is tested using hierarchical regression analysis, in this model the moderating effect of energy label awareness(hereafter: EngLA) is examined on the relation between energy consciousness of consumers and their specific purchase decision. Moreover, in case of energy efficiency buying, it is examined whether cost saving is most important motivator for all consumers regardless their level of EC, and cross tabs are applied to test whether highly concerned consumers have different motives in their purchasing decisions.

Hypothesis 7: Energy conscious consumers are more likely to select energy saving products.

Similarly to the hypothesis H4 in the first model, the current hypothesis was tested using regression analysis to determine whether consumer energy consciosness influences purchase behavior of energy efficient products. Thus, EngC emerged as independent variable and EEPB appeared as a dependent variable.Results from the analysis presented in Table 30 with R =0.218, and p (0.000), show weak (positive) linear relationship between EngC and EEPB. Therefore the research hypothesis **H7 is supported**.

Table 30. Regression Analysis H7

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.218[a]	0.047	0.044	0.838
a. Predictors: (Constant), Energy Consciousness				

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	11.184	1	11.184	15.927	0.000[b]
	Residual	224.704	320	0.702		
	Total	235.888	321			
a. Dependent Variable: Energy Efficient Purchase Behavior						
b. Predictors: (Constant), Energy Consciousness						

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	3.076	0.232		13.286	0.000
	EngC	0.221	0.055	0.218	3.991	0.000
a. Dependent Variable: Energy Efficient Purchase Behavior						

H8: The positive relation between consumers' energy consciousness and their buying decisions is greater as energy label awareness increases.

This hypothesis examines the influence of EngLA increase onthe relationship between EngC of consumers and energy efficient purchase behavior (hereinafter: EEPB). This means that the moderating role of EngLA is tested on the relationbetween the EngC of consumers and EEPB.For that purpose, similarly to the analysis of the hypothesis 5, three step hierarchical regression analyses is applied with results presented in Table 31. Since the variable of EngLA is categorical, it is recoded into two values, where the answers "do not know/ not applicable" are excluded. Since the moderator variable is statistically significant, (is less than 0.05) it can be concluded that EngLA increase is statistically significant to the model, but on the same time it barely describes the model (since the value of adjusted R square is 0.071). Thus, the Hypothesis **H8 is supported**.

Table 31. Three Step Hierarchical Regression Analysis - H8

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.286[a]	0.082	0.071	0.854
Predictors:(Constant), NewEngC*EngLA, NewEngC, Energy Label Awareness				
Dependent Variable: NewEEPB				

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	15.669	3	5.223	7.154	0.000[b]
	Residual	175.228	240	0.730		
	Total	190.898	243			
a. Dependent Variable: NewEEPB						
b.Predictors:(Constant),NewEngC,Energy Label Awareness						

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.421	0.347		6.973	0.000
	NewEngC	0.229	0.066	0.226	3.495	0.001
	Energy Label Awareness	0.149	0.065	0.150	2.301	0.022
	NewEngC*EngLA	0.075	0.038	0.129	1.982	0.049
Dependent Variable: NewEEPB						

.

Hypothesis 9: In case of energy efficiency, cost savings are the most important motivation for mass consumers.

In order to find whether cost saving is the most important motivational factor for mass consumers when they buy energy efficiency products frequency of agreement are analysied (Table 32). It is obvious that cost saving is heavily present motivational factor for respondents when buying energy efficient home appliances and light bulbs. For more than half of the respondents, energy efficiency is most important as a means of cost savings (M2), even to environmentally concerned people. Even though respondents are generally environmentally concerned (more than 70%), the percentage of those within the sample which agreed with the idea that environmental protection is the only reason for their

purchase (M1) is extremely low (3.71%). This means that those types of behavior are cost sensitive for almost all people, and the hypothesis **H9 is supported**.

It is important to note herethat in the screening of the results, there is huge overlap between answers of the second and third motivational factor which refer to the cost savings and environmental protection together with the cost saving.Almost the same percentage of all respondents answered positively to these two motivational factors.Detailed screen on all respondent's answers separately, had shown that half of the respondents who had stated that energy efficiency is important as a means only of cost savings (55.72%), also responded positively to the notion that environmental reason and cost savings are their motivational factor for energy efficiency purchasing. Therefore, people are not consistent in their responses which appear to be one of the limitations for the present results.

Table 32. Frequency of Agreement –Motivations for Energy Efficiency Purchase

Statements	Yes		No		Do not know/ not applicable	
	nmb	in %	nmb	in %	nmb	in %
M1Environmental protection is the only reason when you buy energy efficient appliances/light bulbs for your home	12	3.71	236	73.06	75	23.21
M2 Energy efficiency of appliances / light bulbs you have bought is only important as a means of cost saving	180	55.72	89	27.55	54	16.71
M3 Energy efficiency of appliances you have bought is important for environmental reason and cost saving	172	53.25	60	18.57	91	28.17

Hypotheis 10: Consumers who are high in environmental concern have different motives in purchasing energy efficient products than consumers who are low in environmental concern.

In order to examine the differencess in motivation for high and low environmentally concerned consumers when they buy energy efficiency products, cross tabs are applied. EC is used as an independent variable and its average score for each respondent is computedand recoded in two groups (environmentally not concerned presented as group1 and environmentally concerned marked with number 2) instead of five. Motivational

factors are applied separately as dependent variables and respondent with missing value is removed. According to the results presented in Table 33, is noticeable that relating to the environmental protection as a motivator in purchase decision, the level of EC of respondents does not have any influence. Namely they are strongly refusing that environmental protection is not the only motivational factor when buy energy efficient products. When taking in consideration the cost saving as motivation factor, the situation is almost similar. Namely, independently of consumer's level of concern, cost saving is favourable motivational factor for both groups of consumers when they buy energy efficient products, in slightly favour of highly environmental concerned consumers. For both motivational factors, the results are quite different. Namely higly environmental concerned consumers stress the importance of both factors more than low environmentaly concerned people, but due to the overlap of the results stated in the Hypothesis 9, clearly it can not be concluded that consumers who are high in EC have different motives in purchasing energy efficient products than consumers who are low in EC. Moreover, the p value in all three cases respectively is higher than the threshold value (p-value=0.6819> 0.05; p-value=0.1873 > 0.05; p-value =0.08099 > 0.05), showing the independence between the motivational factors with the level of environmental concern. Thus, the hypothesis **H10 is not supported.**

Table 33. Crosstab- Hypothesis 10-Environmental Protection as Motivation

EC vs. Environmental protection as motivation (M1**)**				
	Yes	**No**	**Do not know**	**Row Total**
1 (low EC)	0	12	3	15
	0.559	0.101	0.070	
	0.000	0.800	0.200	0.047
2 (highly EC)	12	223	72	307
	0.027	0.005	0.003	
	0.039	0.726	0.235	0.953
Column Total	12	235	75	322
	0.037	0.730	0.233	

Pearson's Chi-squared test
data: tab
X-squared =0.76571; df = 2; p-value = 0.6819

Table 34. Crosstab- Hypothesis 10- Cost Saving as Motivation

EC vs. Cost savings as motivation (M2)				
	Yes	**No**	**Do not know**	**Row Total**
1 (low EC)	7	7	1	15
	0.229	2.052	0.913	
	0.467	0.467	0.067	0.047
2 (highly EC)	173	81	53	307
	0.011	0.100	0.045	
	0.564	0.260	0.173	0.953
Column Total	180	88	54	322
	0.559	0.273	0.168	

Pearson's Chi-squared test
data: tab
X-squared = 3.3503; df = 2; p-value = 0.1873

Table 35. Crosstab- Hypothesis 10- Envioronmental Protection and Cost Saving as Motivation

EC vs. Environmental reason and cost savings as motivation M3				
	Yes	**No**	**Do not know**	**Row Total**
1 (low EC)	5	6	4	15
	1.104	3.675	0.013	
	0.333	0.400	0.267	0.047
2 (highly EC)	166	5	87	307
	0.054	0.180	0.001	
	0.541	0.176	0.283	0.953
Column Total	171	60	91	322
	0.531	0.186	0.283	

Pearson's Chi-squared test
data: tab
X-squared =5.0269; df = 2; p-value = 0.08099

The summary of the results from testing the hypothesis depicted in Table 36.

Table 36. Overview of the Results of Hypotheses Testing

Hypotheis	Supported (yes/no)
H1 Consumers are generally positive in terms of EC.	Yes
H2 EC is positively related to W2B in environmentally conscious way.	Yes
H3 W2B is positively related to SCB.	Yes
H4 EC is positively related to SCB.	Yes
H5 The positive relation between EC and SCB is greater as ELA increases.	No
H6a Middle aged consumers score higher in SCB than other consumers.	No
H6b Women demonstrate more SCB than men.	Yes
H6c Higher educated peoplescore higher in SCB.	No
H7 EngC consumers are more likely to select energy saving products.	Yes
H8 The positive relation between consumers' EngC and their buying decisions is greater as EngLA increases.	Yes
H9 In case of energy efficiency, cost savings are the most important motivation for mass consumers.	Yes
H10 Consumers who are high in EC have different motives in purchasing energy efficient products than consumers who are low in EC.	No

3.6 Discussion

The concept of sustainability and sustainable consumer behavior is relatively new in the developing world and in Macedonia as well which stresses the importance of examining the issue. The majority of results and findings obtained through data analysis are in accordance with previous research works.

Being one of the most important concepts in the study of consumer behavior (Peter & Olson, 2010, p.130), the environmental concern as a general environmental attitude is examined. The representatives of Macedonian consumers used in the study have demonstrated a positive environmental concern that is in accordance with the global trends (Han et al., 2009) as well as with the assumption that being environmentally concerned is not restricted only to the developed world. Namely, the results of the study confirmed the assertion that peoplein developing countries have shown as much concern about environmental issues as those in developed countries (Dunlap et al., 1993), which was confirmed in the Republic of Macedonia as well (Angelovska et al., 2012; Zabkar & Hosta, 2013) before the current research.

As the Theory of Reasoned Action and Theory of Planned Behavior (Ajzen, 1991) suggested, attitude is one of the determinants of purchase intention, which is in turn a determinant of a purchase behavior and the resultsfrom the current study reflect the same.

Namely, environmental concern as a general attitude has been proven to be positively related to the willingness of the consumers to behave sustainably, which is in line with the previous findings of Bamberg (2003) together with Žabkar and Hosta (2013) for developed and developing countries as well. Similarly, the positive relation between the willingness to behave and consumer behavior was confirmed as additional support to the previous findings of Žabkar and Hosta (2013) together withSantos et al. (2015). These studies were specifically related to developing countries where instead of the intention the focus was on the willingness to engage in sustainable purchase behavior. Both these relations observed were not strong, possibly suggesting that they are not the only determinants influencing sustainable purchasing decisions of consumers.

Despite the main general assertion about the indirect relation between attitudes and purchase behavior, environmental concern as a general attitude was proven to have a direct influence on purchasing behavior as well. This direct relation between environmental concern of consumers and their sustainable purchase behavior was significant and positive even weak in the current study, reflecting the findings by Balderjahn (1988), Ishaswini and Datta (2011) and Laroche et al. (2001). Additionally, this positive relation is in line with the findings by Choi (2005) together with Dagher and Itani (2012), which had supported the idea that environmentally concerned consumers are more prone to sustainable purchasing. However, the supportedpositive relation does not necessarily mean that environmental concern directly influences sustainable consumer behavior. Logically intention comes in between and the impact of concern would probably weaken during the process of implementing pro-environmental behavior that could be as one of the main explanations for the weak relation between environmental concern and sustainable consumer behavior proved with the current study.

Having been recognized as an important prerequisite which assists consumers in their sustainable buying (Polonsky et al., 2012; Testa et al., 2015; Thøgersen et al., 2010), the influence of eco labels on purchase decisions is examined. Appropriate label information can change the purchasing decisions of the consumers to choose products that cause less damage to the environment (Horne, 2009; Pedersen & Neergaard, 2006). Guided by the confirmed assumption that more environmentally concerned consumers use eco labels more frequently in their purchase decisions (Niva & Timonen, 2001; Thøgersen, 2000) and together with the findings of Testa et al. (2015) that eco label awareness influence their purchase choice, the current research tried to assess whether the eco label awareness as a moderator (Rashid, 2009) influences sustainable purchase decision. However, the moderating role of eco label awareness on positive relation between consumer's environmental concern and their sustainable purchasing behavior was not supported. The reason could be that Macedonian consumers do not seem to pay much attention to the eco labels in their decision making because of lack of knowledge of their existence and usefulness in helping them to make appropriate and faster decision. Also, they might not

see differences in quality of eco labelled products and ordinary ones, or they might perceive them with higher price. Simply, eco labelling might be a relatively new issue for Macedonian consumer that does not reflect in higher eco labelling practice awareness yet.

A broad literature overview emphasized that the demographic characteristics of an individual can act as determinants of one's behavior. Even though the results are quite mixed and ambiguous (Diamantopoulos et al., 2003; Verain et al., 2012), demographics are useful tool to marketers in describing sustainable market segments (D'Souza et al., 2007). In relation to the general findings for the significance of the relationship between demographic characteristics such as education, gender, age and income, and environmentally friendly purchase behavior (Zhao et al., 2014), the current study examined the influence of age, gender, and educational level on sustainable purchase behavior. Among these determinants, only gender was found to have a significant effect, with women being more prone to sustainable purchasing. The influence of gender was reported in previous findings on the way that women are more likely to consider environmental issues and engage in sustainable consumption behavior than men (Koos, 2011; Roberts, 1996b; Zelezny et al., 2000).
Educational level and age both had no significant effect on sustainable purchase behavior in the direction which was previously assumed. Namely, it hasn't been confirmed that highly educated people are more prone to sustainable consumption in developed (Diamantopolous et al., 2003; do Paço et al., 2009) and developing countries (Zhao et al., 2014; Zsoka et al., 2013) as well. Similarly, the findings which stated that middle aged consumers score higher in sustainable purchasing (do Paço et al., 2009; Mohr & Schich, 2016; Roberts, 1996a) were not supported for Macedonian consumers. The reasons might lie instronger effect of other situational factors on purchase decisions of consumers than demographics such as age and education level of consumers. Thus taking in consideration the age and educational level of consumers as factors influencing their sustainable purchase decision, through properly educating the youngest population in the country after years the effect of their higher awareness of sustainability issues could be visible.On that way the country could be on right way to develop more sustainable society by having active sustainable consumers and citizens.

Moreover, the idea of the relationship between environmental concern, sustainable consumer behavior and the moderating effect of eco label awareness in general context was replicated to serve the more specific perspective of energy efficient purchase behavior as an important strategy in order to achieve sustainable development in relation to energy consumption (Zainudin, 2013). The same relations were examined while taking into consideration the assumption that in order to predict specific behavior the attitudes should also be specified within the same context (Alwitt & Pitts, 1996). Moreover, the awareness of energy use is related to energy label awareness (Winward et al., 1998). Thus the positive relation between the energy consciousness of consumers and their purchase decision of

buying energy saving products was supported together with the moderating effect of energy label awareness in the context of this relation. Similarly, in the perspective of energy efficient purchase behavior, motivational factors were examined confirming that cost savings are most important motivation for majority of consumers, even for those who were environmentally concerned, reflecting the similar assertion of Csutora & Zsóka (2011). Moreover, the level of environmental concern does not influence the difference in motivational factors in the purchase decisions of consumers.The reason could be that consumers in Macedonia still are not highly aware of sustainability issues and hardly can relate their purchase decisions with pro-environmental sustainability. That's why it could be argued that there is a significant room for raising the awareness of sustainability issues among Macedonian consumers, to emphasize the environmental benefits of variety of available possibilities, and by performing them consumers on daily base can be actively involved in sustainable development process of the country.

3.7 Limitation of the Research and Recommendations for Further Research

Aswith any research, the present study has its own limitations. One of the main limitations considered is the use of general attitude when examining its relation with the specific behavior (Moisander & Uusitalo, in Rokka & Uusitalo 2008), resulting in weak relation between environmental concern and purchase behavior, which is common case in many consumer behavior studies. Another limitation is the use of nonprobability samples so findings cannot be generalizedto the population of Macedonian consumers as a whole. However still, the results at least give us an idea about the situation on the Macedonian market regarding the current issues of sustainable consumption. In order to achieve a more representative sample, larger samples and the use of probability sampling is one of the options suggested for further examinations. Additionally, the respondentsgave self-reported responses that might not be entirely accurate because they tended to show their perception of their own behavior, rather than their actual behavior. The data was collected outside of the actual purchasing situation that might give an inaccurate picture of real decision-making process. Thus, it is suggested that further data collection needs to be performed in real purchase situations in order to examine the relevant product categories effectively.

The current study can be seen as beginning of a long journey into further research of sustainable consumer behavior as part of sustainable development of the country. Since the issue with all of its relevant factors has not been comprehensively studied in Macedonia yet, there is a great opportunity for further research in the field by examining additional factors that may impact sustainable consumer behavior. One highly interesting topic which is recognized for further research could be a deeper examination of the influence of eco labels on the purchase decisions of consumers. Even though energy labels initially are

recognized as a good sign for recognizing energy efficient products, obviously there is room and need for further and deeper research in order to analyse the influence of energy labels on consumer behavior in different product categories such as home appliances and lightening and additionally energy labels of buildings as one of the products with the highest environmental impact, and compare the results with more European countries which have longer experiences and highly developed strategies for improvements. Other research with great potential can be the extensive examination of the knowledge of young people about sustainability issues in general, as well the energy saving issues, which could help find ways to implement appropriate educational strategies in order to motivate, enable and empower future consumers to engage in sustainable development process.

CONCLUSION

The main aim of this research was to explore the term sustainability and sustainable development in relation to consumption, and to examine how Macedonian consumers recognize general environmental issues and whether they are willing to protect the environment and act more sustainably through their purchasing. Moreover, it shed some light on the idea concerning awareness of product eco labels and more specifically energy labels and their influence to purchase decisions, with additional attention to energy efficiency as a win-win solution for sustainable development targeting a wide group of consumers.

When the first stated research question is approached in regards to the recognition of the importance of environmental issues among consumers, it can be said that Macedonian consumers seems to be quite concerned about the general issues related to environmental protection. The relations between the concepts of the environmental concern of consumers, their general willingness to act in order to protect environment and their purchase decisions in sustainable manner were positive, although somewhat weak. Similarly, the direct relation between environmental concern and sustainable purchase decisions has shown a positive and weak relation, suggesting that other factors could influence sustainable purchase decisions of consumers. One of the explanations for the lack of more purchasing actions can be attributed to the fact that although people seem to be highly concerned over the state of the environment, they do not see that their purchasing decisions are related to the issue of sustainability or in general, people are just not enough aware of the relatively new concept of sustainability.

Among the demographic characteristics, women demonstrated higher aspirations for consuming sustainably. Surprisingly, the study didn’t prove the assumption based on previous findings that highly educated and middle aged consumers are more prone to sustainable consumption. Thus, as suggested by the literature demographic characteristics

of consumers might not be the best indicators of consumer purchasing behavior – including Macedonia as well.

Furthermore, energy efficiency labels seem to slightly drive the purchasing decisions of consumers for home appliances and lightening as one of the products with greater environmental impact. According to the study, consumers somehow recognized the importance of rationalizing their energy consumption, were reasonably aware of the energy efficiency when buying home appliances and their awareness for energy labels moderately influenced their purchase decisions. Also, cost saving is shown as broadly present motivational factor for respondents when buying energy efficient home appliances and light bulbs even for environmentally concerned people. The level of their concern is not shown as strong prerequisite which influences the motivational factors in their purchase decisions. Therefore, it could be suggested that these issues should be strongly highlighted in the marketing communication of companies as well government bodies that wish to attract consumers and raise their attention about energy efficiency feature.

To summarize, it could be said that the findings presented in the current study allow a better understanding on sustainable consumer behavior of Macedonian consumers and its relation with some of its psychographic and demographic antecedents. General environmental concern and willingness to act were found to weakly effect sustainable purchase decisions of consumers, along with the gender as demographic antecedent. Eco label awareness was not found to moderate the positive relation between environmental concern and purchase decision of consumers. Transferred to the energy efficiency manner, the energy label awareness slightly moderated the positive weak relation between the specific energy awareness and purchase decisions of consumers. When it comes to evaluating the motivational factors of buying energy efficient products, saving the energy appeared to be an important feature in order to cost savings for majority of consumers, even to the environmentally concerned ones.

In order to achieve environmental and also overall sustainability, the negative environmental impacts of consumer behavior are necessary to be minimized. Even though in general, consumers want to take a part in sustainable development process and there are varieties of available options to do so, the environmental impacts from consumption are continuously increasing. Therefore it is essential researchers to shed more light on consumer behavior. In that line, this research gives its own impact investigating attitudes toward environment and sustainable consumer behavior in the context of developing country, where this type of research is quite scarce. Additionally, accepting and implementing the concept of sustainable development, the government develops strategies to promote more sustainable consumer behavior. Regarding their effectiveness, understanding and evaluating the consumer behavior is important in order to develop the ways which can help to influence and change the consumer behavior on the way to

sustainability. Thus, the results from the current study concerning the relation between attitudinal and demographic factors might be used by all relevant players involved in implementing the strategies for promoting more sustainable consumption in the society.Moreover, the finding presented in this research could be used in marketers' strategies as well. To some extent, they might help initially to understand the motivational factors in purchase energy efficient products. This is important because energy efficient technologies are globally recognized as effective practices for significant decrease of environmental impacts from consumer behavior since they could be adopted by a large number of consumers.

Therefore, in relation to sustainability, it seems a lot of additional efforts are needed for consumer behavior change that is also in accordance to the sustainable development policy on national and international level. Also, it seems that numerous further activities are needed and can be taken in raising public energy efficiency awareness in purchase decisions of products with the aspirations of consuming the energy sustainably.

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APPENDICES

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Appendix A: List of Abreviations

EC –Environmental Concern
EEPB-Energy Efficient Purchase Behavior
ELA-Eco Label Awareness
EngC-Energy Consciousness
EngLA-Energy Label Awereness
GHG-Green House Gas
SCB –Sustainable Consumer Behavior
TPB-Theory of Planned Behavior
TRA-Thery of Reasioned Action
W2B-Willingness to Behave

Appendix B: Questionnaire in English

SURVEY Nr.:____

INTERVIEWER Nr.: _____

Research: SUSTAINABLE CONSUMER BEHAVIOUR

The purpose of this questionnaire is to determine your attitude towards the environment and usage of eco products in your daily life.
INTERVIEWER, DO NOT READ, EXPLAIN ONLY IF ASKED: Eco products in this questionnaire are defined as products that are designed so that their production and/or use will cause minimal or no harm to the environment in the form of pollutants and/or waste.

The term "home appliances" in this questionnaire includes light bulbs, refrigerator, washing machine and dishwasher.
INTERVIEWER: The questionnaire is strictly anonymous and the data that you will provide will be used strictly for the purposes of this survey.
I hope you can take 10 minutes and participate in the survey.

INTERVIEWER: Please answer the following questions either choosing the appropriate alternative or using the following scale:

(I strongly disagree) 1 2 3 4 5 (I strongly agree)

	INTERVIEWER: **Firstly we are interested in your attitude towards the environment in general. (Environmental Concern)**					
1	1	2	3	4	5	Pollution is presently one of the most critical problems facing this nation
2	1	2	3	4	5	Natural resources must be preserved even if people must do without some products
3	1	2	3	4	5	You feel that pollution affects your life personally
4	1	2	3	4	5	You have often thought that if we could just get by with a little less there would be more left for future generations
5	1	2	3	4	5	You think all the worried comments made about air and water pollution are all justified
6	1	2	3	4	5	You become incensed when you think about the harm being done to the plant and animal life by pollution
	INTERVIEWER: **We proceed with possible activities for environmental protection.**					
7	1	2	3	4	5	You would be willing to sign a petition or demonstrate for an environmental cause
8	1	2	3	4	5	You think that riding a bicycle or taking a bus to work are good ways to reduce air pollution
9	1	2	3	4	5	You would donate a day's pay to a foundation to help improve the environment

(table continues)

(continued)

10	1	2	3	4	5	You would be willing to have my laundry less white or bright in order to be sure that You were using a non-polluting laundry product
11	1	2	3	4	5	You would be willing to pay a 5 percent increase in your taxes to support greater governmental control of pollution
12	1	2	3	4	5	You think it is good to stop buying products from companies that are guilty of polluting the environment, even though it might be inconvenient
13	1	2	3	4	5	You think making of personal sacrifices for the sake of slowing down pollution is important, even though the immediate results may not seem significant
	INTERVIEWER: **Now we would like to know your current attitude toward eco products and informations provided about eco products. (Eco Product Information)**					
14	1	2	3	4	5	It is easy to differentiate between the products which are ecological and the ones that are not
15	1	2	3	4	5	You feel that eco-labels are a good way to identify products that are ecologically sustainable
16	1	2	3	4	5	Products that are made in Macedonia are more ecological than foreign products
17	1	2	3	4	5	Food that is grown in Macedonia is more ecological than food that is imported
18	1	2	3	4	5	There is enough information available on the effect that different products have on environment
19	1	2	3	4	5	Information companies release on their ecological influence is reliable
20	1	2	3	4	5	The most reliable information about ecological products comes from the sales clerk
21	1	2	3	4	5	Food bought from the green market is always ecological
	INTERVIEWER: **In this section we will talk about your activities in this field. (SCB)**					
22	1	2	3	4	5	You normally make a conscious effort to limit my use of products that are made of or use scarce resources
23	1	2	3	4	5	You do not buy products that have excessive packaging
24	1	2	3	4	5	When there is a choice You always choose the product that contributes to the least amount of pollution
25	1	2	3	4	5	If You understand the potential damage to the environment that some products can cause, You do not purchase those products
26	1	2	3	4	5	You have switched products for ecological reasons
27	1	2	3	4	5	You have convinced some members of your family and friends not to buy some products that are harmful to the environment

(table continues)

(continued)

28	1	2	3	4	5	Whenever possible You buy products packaged in reusable containers
29	1	2	3	4	5	When You purchase products You always make a conscious effort to buy those products that are low in pollutants
30	1	2	3	4	5	When You have a choice between two equal products, You always purchase the one less harmful to other people and environment
31	1	2	3	4	5	You do not buy a product if the company that sells it is ecologically irresponsible
32	1	2	3	4	5	You try only to buy products that can be recycled
33	1	2	3	4	5	You usually purchase the lowest priced product, regardless of its impact on society
34	1	2	3	4	5	Most of your family members pay attention to green values
35	1	2	3	4	5	Most of your friends buy green
36	1	2	3	4	5	You think that buying ecological products is a valuable sacrifice towards the wellfare of the planet
37	1	2	3	4	5	You think that people that generally purchase green products are more educated than the ones that don't
38	1	2	3	4	5	You think that purchasing green products tells that you are a kind and caring person
39	1	2	3	4	5	Consumers need to join together to protect themselves against pollution
40	1	2	3	4	5	As a group, consumers need to work together to protect the survival of the planet
41	1	2	3	4	5	If counsumers work together to fight pollution, everyone is better of
NTERVIEWER: In this section we will talk about your awarenes of energy efficiency of home appliances you have bought (Energy Efficiency Behavior) (Energy Efficient Intention)						
42	1	2	3	4	5	You always make real efforts to rationalize energy consumption
43	1	2	3	4	5	Buying EE labeled products makes you feel like you are helping to protect the environment for future generations
44	1	2	3	4	5	You would be willing to combat global climate change by reducing energy consumption
45	1	2	3	4	5	You are willing to pay extra for highly energy efficient products
46	1	2	3	4	5	When you buy home appliances their energy efficiency is important to you
INTERVIEWER: Please answer the following questions by circle the number infront of the appropriate alternative you choose (Energy Efficient Knowledge) (Motivation)						

(table continues)

(continued)

47	1) yes	2) no	3) do not know/do not applicable	You have replaced light bulbs in your home with those of smaller wattage so that you will conserve on the electricity you use
48	1) yes	2) no	3) do not know/do not applicable	**Environmental protection** is the only reason when you buy energy efficient appliances/light bulbs for your home
49	1) yes	2) no	3) do not know/do not applicable	Energy efficiency of appliances/light bulbs you have bought is only important as a **means of cost saving**
50	1) yes	2) no	3) do not know/do not applicable	Energy efficiency of appliances you have bought is important for **environmental reason and cost saving**
51	1) yes	2) no	3) do not know/do not applicable	You recall seeing the energy efficiency label attached to the light bulbs/home appliance you have bought in last 24 months
52	1) yes	2) no	3) do not know/do not applicable	"A " energy efficiency rate on EE label means "highest energy efficiency or energy savings"
53	1) yes	2) no	3) do not know/do not applicable	The Energy efficiency label have influenced at least on of your home appliances purchase decisions

INTERVIEWER: The following information is needed solely for the analysis of the segments. No information will be connected to the individual respondent and the content of the filled in information is kept highly confidential.

INTERVIEWER: Please choose the appropriate answer.

What is your marital status?

1 single
2 married
3 living together without being married
4 divorced
5 married, but living separately
6 widow

What is your employment status?

1 employed
2 entrepreneur, self employed
3 unemployed
4 retired
5 student
6 housewife
7 unable for work - invalid etc

What is your completed education?

1 Elementary school
2 Secondary (high) school
3 Vocational school
4 Bachelor degree

5 Master's degree
6 PhD.

What is your personal average monthly income, if you consider <u>net worth</u>?

1 0 €
2 below average — <u>if below average</u>: in upper half of below average
3 <u>if below average:</u> in lower half of below average
4 Average
5 above average — <u>if above average</u>: in upper half of above average
6 <u>if above average:</u> in lower half of above average

What is the average houshold net monthly income (including grants, child allowances, etc..)?

1 0 €
2 below average — <u>if below average</u>: in upper half of below average
3 <u>if below average:</u> in lower half of below average
4 average
5 above average — <u>if above average</u>: in upper half of above average
6 <u>if above average:</u> in lower half of above average
7 I do not know

How many members live in your household? (including yourself)

1 _____

How many children under the age of 15 are there in your household?

1 _____

Who is the main contributor to your family income?

1 me
2 we all contribute about the same amount
3 somebody else

Your sex

1 male

2 female

Please enter the year of your birth

_____

Do you live in a house or apartment? (one answer possible)

1 house
2 house, two or more generations together
3 apartment in a row/townhouse
4 apartment in a block

Do you own your appartment or are you renting it? (one answer possible)

1 rent
2 own

Do you live in a city, town or a village?

1 in a city with more than 100.000 inhabitants
2 in a town with more than 10.000 inhabitants
3 in a town with less than 10.000 inhabitants
4 in a village

INTERVIEWER: **Thank you for your time and effort, you have been a great help in the research!**

***DO NOT READ, FOR INTERVIEWER*:**

Duration of the interview (evaluate!):

1 - up to 5 minutes
2 - 6 to 10 minutes
3 - 11 - 15 minutes
4 - more than 15 minutes

***TO THE INTERVIEWER*: Thank you for good job and carefully filled out questionairre!**

With my signature I guarantee that the questionairre was carefully filled and filled by stated rules.

Interviewer signature:_____

Appendix C: Questionnaire in AHKETA

Macedonian бр.:_____

Истражување: »ЕКОЛОШКО ОДНЕСУВАЊЕ НА ПОТРОШУВАЧИТЕ ВО МАКЕДОНИЈА«

Здраво. Јас сум Јулијана Серафимова студент на Љубљанскиот Универзитет, Факултетот за економија, со седиште во Скопје и подготвувам магистерски труд на тема Еколошко однесување на потрошувачите.

Целта на овој прашалник е да се одреди вашиот став кон околината и употребата на еколошки производи во вашиот секојдневен живот, како и вашето општо познавање на означувањето т.е. етикетирање на енергетската ефикасност на уредите за домакинство и светилките.

Во овој прашалник еколошките производи се дефинирани како производи чие производство и/или употреба ќе предизвикаат минимална или никаква штета врз околината во форма на загадувачи и/или смет.

Прашалникот е строго анонимен и податоците што ќе ги дадете ќе бидат употребени исклучиво за потребите на оваа анкета.
Се надевам дека ќе одвоите 10 минути и ќе земете учество во оваа анкета.

Ве молам одговорете на следните прашања или со избор на соодветната алтернатива или со употреба на следната градација:

(1) -воопшто не се согласувам ; (2) -не се согласувам ; (3)- ниту се согласувам, ниту не се согласувам ; (4) - се согласувам ; (5) - сосема се согласувам

Прво, не интересира вашиот општ став кон околината.					
1	2	3	4	5	Во моментов загадувањето е еден од најкритичните проблеми со кои се соочува овој народ.
1	2	3	4	5	Природните ресурси мора да се сочуваат, па дури и луѓето да бидат без некои производи
1	2	3	4	5	Чувствувате дека загадувањето влијае и врз вашиот личен живот
1	2	3	4	5	Често сте помислувале дека кога би можеле да трошиме само малку помалку би останало повеќе за идните генерации
1	2	3	4	5	Сметате дека сите коментари за загриженост во врска со загадувањето на воздухот и водата се основани
1	2	3	4	5	Се разбеснувате кога ќе помислите на штетата која се нанесува на растителниот и животинскиот свет со загадувањето
Се разбеснувате кога ќе помислите на штетата која се нанесува на растителниот и животинскиот свет со загадувањето					
1	2	3	4	5	Подготвени сте да потпишете петиција или да

					демонстрирате за општо еколошко добро
1	2	3	4	5	Сметате дека возењето велосипед или патувањето со автобус до работа е добар начин да се намали загадувањето на воздухот
1	2	3	4	5	Би донирале дневница на фондација за да помогнете во подобрувањето на околината
1	2	3	4	5	Подготвени сте вашите алишта да бидат помалку бели или блескаво чисти кога би биле сигурни дека користите производ за перење кој не загадува
1	2	3	4	5	Подготвени сте да платите 5-процентно зголемување на даноците како поддршка за поголема контрола на владата врз загадувањето
1	2	3	4	5	Сметате дека е добро да се престане со купувањето производи од компании кои се криви за загадувањето на околината, дури и ако тоа ви создава потешкотии
1	2	3	4	5	Сметате дека личното жртвување со цел да се успори процесот на загадување е важно, дури и кога непосредните резултати се чинат незначителни
Сега би сакале да го знаеме вашиот моментален став кон еколошките производи и за информациите што се обезбедуваат за истите во Македонија.					
1	2	3	4	5	Лесно се воочува разлика помеѓу производите што се ек и оние што не се
1	2	3	4	5	Сметате дека еколошките етикети се добар начин да се идентификуваат производите што се еколошки одржливи
1	2	3	4	5	Производите направени во Македонија се поеколошки од странските производи
1	2	3	4	5	Храната која се одгледува во Македонија е поеколошка од увезената храна
1	2	3	4	5	Има доволно информации достапни за влијанието кое различни производи го имаат врз околината
1	2	3	4	5	Информациите кои компаниите ги даваат за нивното еколошко влијание се веродостојни
1	2	3	4	5	Најверодостојните информации за еколошките производи доаѓаат од продавачите
1	2	3	4	5	Храната купена на пазарите е секогаш еколошка
Во овој дел би сакале да зборуваме за вашите активности на ова поле.					
1	2	3	4	5	Обично правите свесен напор да ја ограничите употребата на производи направени од дефицитарни ресурси или производи кои користат такви ресурси
1	2	3	4	5	Не купувате производи кои се прекумерно спакувани
1	2	3	4	5	Кога има избор, секогаш го избирате производот за кој сметате дека најмалку придонесува на загадувањето
1	2	3	4	5	Ако забележите дека одредени производи може да предизвикаат потенцијална штета на околината, тие приозводи не ги купувате

1	2	3	4	5	Сте го смениле користењето на некои производи од еколошки причини
1	2	3	4	5	Сте убедиле некои членови од семејството и некои пријатели да не купуваат некои производи кои се штетни за околината
1	2	3	4	5	Кога тоа е можно, купувате производи кои се спакувани во амбалажа која може повторно да се користи
1	2	3	4	5	Кога купувате производи, секогаш правите свесен напор да ги купите оние призводи кои содржат најмалку загадувачи
1	2	3	4	5	Кога имате избор помеѓу два еднакви производи, секогаш го купувате оној кој е помалку штетен за луѓето и за околината
1	2	3	4	5	Не купувате производ ако компанијата којашто го продава е еколошки неодговорна
1	2	3	4	5	Се обидувате да купувате само производи кои може да се рециклираат
1	2	3	4	5	Обично ги купувате производите со најниска цена, без оглед на нивното влијание на општеството
1	2	3	4	5	Најголемиот дел од членовите на вашето семејство обрнува внимание на зелените вредности
1	2	3	4	5	Најголемиот дел од вашите пријатели купуваат зелено
1	2	3	4	5	Сметате дека купувањето еколошки производи е вредна жртва за доброто на планетата
1	2	3	4	5	Сметате дека луѓето кои воглавно купуваат зелени производи се пообразовани од оние кои не го прават тоа
1	2	3	4	5	Сметате дека купувањето зелени производи кажува дека сте добра и грижлива личност
1	2	3	4	5	Потрошувачите треба да се здружат за да се заштитат себеси од загадувањето
1	2	3	4	5	Како група, потрошувачите треба да работат заедно за да го заштитат опстанокот на планетата
1	2	3	4	5	Ако потрошувачите работат заедно во борбата против загадувањето, на сите ќе им биде подобро
Во овој дел би сакале да зборуваме за вашето познавање на енергетската ефикасност на домашните апарати што сте ги купиле.)					
1	2	3	4	5	Секогаш вложувате напори да ја рационализирате потрошувачката на електрична енергија
1	2	3	4	5	Купувањето на производи со ознака ЕЕ (енергетска ефикасност) прави да се чувствувате како да помагате во заштитата на околината за идните генерации
1	2	3	4	5	Подготвени сте да се борите против глобалните климатски промени со намалување на потрошувачката на електрична енергија
1	2	3	4	5	Подготвени сте да платите повеќе за производи кои имаат поголема енергетска ефикасност

1	2	3	4	5	Кога купувате домашни апарати важна ви е нивната енергетска ефикасност
Во овој дел би сакале да зборуваме за вашето познавање на енергетската ефикасност на домашните апарати што сте ги купиле.					
да (1)	ne (2)	не знам /	без одговор (3)		Во овој дел би сакале да зборуваме за вашето познавање на енергетската ефикасност на домашните апарати што сте ги купиле.
да (1)	ne (2)	не знам /	без одговор (3)		Еколошката заштита е главна причина за купување на енергетски ефикасните апарати /светилки во вашиот дом
да (1)	ne (2)	не знам /	без одговор (3)		Заштеда на трошоците се единствената причина за купување на енергетски ефикасни апарати/ светилки
да (1)	ne (2)	не знам /	без одговор (3)		Енергетски ефикасните апарати/светилки сте ги купиле заради еколошки причини како и заштеда на трошоците
да (1)	ne (2)	не знам /	без одговор (3)		Се сеќавате дека ја погледнавте етикетата за енергетска ефикасност на сијалицата/домашниот апарат што сте го купиле во последните 24 месеци
да (1)	ne (2)	не знам /	без одговор (3)		“А” степен на енергетска ефикасност на ЕЕ етикетите значи “најголем степен на енергетска ефикасност или енергетска заштеда”
да (1)	ne (2)	не знам /	без одговор (3)		Етикетата за енергетска ефикасност имала влијание барем на една од одлуките при купувањето на вашите домашни апарати.

Следните информации се потребни исклучиво за анализа на сегментите. Ниту една информација нема да биде поврзана со индивидуалните испитаници, а содржината на пополнетите информации се строго доверливи.

Ве молиме изберете соодветен одговор.

1 сам/-а
2 во брак
3 вонбрачна заедница
4 разведен/-а
5 во брак, но живееме одвоено
6 вдовец/-ица

Кој е вашиот работен статус?

1 вработен/-а
2 **претприемач, самовработен/-а**
3 невработен/-а
4 пензиониран/-а
5 студент
6 домаќинка
7 неспособен/-а за работа - инвалид

итн.

Кое е вашето завршено образование?

1 Основно школо
2 Гимназија
3 Средно стручно образование
4 Високо образование
5 Магистратура
6 Докторат

Кој е вашиот просечен месечен нето личен доход?

1 0 ДЕН
2 Подпросечен
ако е подпросечен:
2а: во горната половина на подпросечен
2б: во долната половина на подпросечен
3 просечен
4 Надпросечен
ако е надпросечен:
2а: во горната половина на над просечен
2б: во долната половина на над просечен

Кој е вкупниот просечен месечен нето приход на целото ваше домаќинство (вклучувајќи ги и стипендиите, детските додатоци, итн.)?

1 0 ДЕН
2 Подпросечен
ако е подпросечен:
2а: во горната половина на подпросечен
2б: во долната половина на подпросечен
3 просечен
4 Надпросечен
ако е надпросечен:
2а: во горната половина на над просечен
2б: во долната половина на над просечен
5 Не знам

Од колку членови се состои вашето домаќинство ?(вклучувајќи ве и вас)

1 _____

Колку деца на возраст под 15 години има во вашето домаќинство?

1 _____

Кој највеќе придонесува на вашиот семеен приход?

1 јас
2 сите допринесуваме со приближно иста сума
3 некој друг

Вашиот пол

1 машко
2 женско

Ве молиме внесете ја годината на вашето раѓање

_____

Дали живеете во куќа или во стан ? (можен е само еден одговор)

1 куќа
2 куќа, две или повеќе генерации заедно
3 стан во станбена куќ
4 стан во зграда

Дали сте сопственик на станот или го изнајмувате? (можен е само еден одговор)

1 изнајмен
2 сопствен

Дали живеете во град или во село?

1 во град со преку 100.000 жители
2 во град со преку 10.000 жители
3 во град со помалку од 10.000 жители
4 во село

Ви благодариме за трудот и времето што ги одвоивте. Бевте од голема помош за нашето истражување!

Appendix D: Selected Statements from the Questionnaire

INTERVIEWER: **Firstly we are interested in your attitude towards the environment in general. (Environmental Concern)**					
1	2	3	4	5	Pollution is presently one of the most critical problems facing this nation
1	2	3	4	5	Natural resources must be preserved even if people must do without some products
1	2	3	4	5	You feel that pollution affects your life personally
1	2	3	4	5	You have often thought that if we could just get by with a little less there would be more left for future generations
1	2	3	4	5	You think all the worried comments made about air and water pollution are all justified
1	2	3	4	5	You become incensed when you think about the harm being done to the plant and animal life by pollution
INTERVIEWER: **We proceed with possible activities for environmental protection. (Willingness to Behave)**					
1	2	3	4	5	You would be willing to sign a petition or demonstrate for an environmental cause
1	2	3	4	5	You would donate a day's pay to a foundation to help improve the environment
1	2	3	4	5	You would be willing to have my laundry less white or bright in order to be sure that You were using a non-polluting laundry product
1	2	3	4	5	You would be willing to pay a 5 percent increase in my taxes to support greater governmental control of pollution
INTERVIEWER: **Now we would like to know your current attitude toward eco products and informations provided about eco products. (Eco Product Information Awareness)**					
1	2	3	4	5	You feel that eco-labels are a good way to identify products that are ecologically sustainable
INTERVIEWER: **In this section we will talk about your activities in this field. (SCB).**					
1	2	3	4	5	You normally make a conscious effort to limit my use of products that are made of or use scarce resources
1	2	3	4	5	You do not buy products that have excessive packaging
1	2	3	4	5	When there is a choice You always choose the product that contributes to the least amount of pollution
1	2	3	4	5	You have switched products for ecological reasons
1	2	3	4	5	You try only to buy products that can be recycled
INTERVIEWER**: In this section we will talk about your awarenes of energy efficiency of home appliances you have bought (EE Behavior&Intention)**					
1	2	3	4	5	You always make real efforts to rationalize energy

					consumption
1	2	3	4	5	Buying EE labeled products makes you feel like you are helping to protect the environment for future generations
1	2	3	4	5	You would be willing to combat global climate change by reducing energy consumption
1	2	3	4	5	You are willing to pay extra for highly energy efficient products
1	2	3	4	5	When you buy home appliances their energy efficiency is important to you

INTERVIEWER: Please answer the following questions by circle the number infront of the appropriate alternative you choose (Energy Efficient Knowledge) (Motivation)

1) yes	2) no	3) do not know/do not applicable	You have replaced light bulbs in your home with those of smaller wattage so that you will conserve on the electricity you use
1) yes	2) no	3) do not know/do not applicable	**Environmental protection** is the only reason when you buy energy efficient appliances/light bulbs for your home
1) yes	2) no	3) do not know/do not applicable	Energy efficiency of appliances/light bulbs you have bought is only important as a **means of cost saving**
1) yes	2) no	3) do not know/do not applicable	Energy efficiency of appliances you have bought is important for **environmental reason and cost saving**
1) yes	2) no	3) do not know/do not applicable	You recall seeing the energy efficiency label attached to the light bulbs/home appliance you have bought in last 24 months
1) yes	2) no	3) do not know/do not applicable	"A " energy efficiency rate on EE label means "highest energy efficiency or energy savings"
1) yes	2) no	3) do not know/do not applicable	The Energy efficiency label have influenced at least on of your home appliances purchase decisions

What is your completed education?

1 Elementary school
2 Secondary (high) school
3 Vocational school
4 Bachelor degree
5 Master's degree
6 PhD.

Your sex

1 male
2 female

Please enter the year of your birth_____

Appendix E: Statistics

Table 1.Reliability Test-Environmental Concern (EC)

Statements	Strongly Disagree - Strongly Agree					Mean	Median	Standard Error	SD
	1	2	3	4	5				
EC1 Pollution is presently one of the most critical problems facing this nation	5	46	51	137	84	3.77	4	5.78E-02	1.04
EC2 Natural resources must be preserved even if people must do without some products	4	29	69	144	77	3.81	4	5.24E-02	0.94
EC3 You feel that pollution affects your life personally	2	7	30	146	138	4.27	4	4.27E-02	0.77
EC4 You have often thought that if we could just get by with a little less there would be more left for future generations	7	24	52	120	120	4.00	4	5.64E-02	1.01
EC5 You think all the worried comments made about air and water pollution are all justified	4	16	42	141	120	4.11	4	4.98E-02	0.90
EC6 You become incensed when you think about the harm being done to the plant and animal life by pollution	2	13	51	139	117	4.11	4	4.76E-02	0.85

Table 2.Reliability analysis –Evironmental concern-Scale (Alpha) -Item 1 deleted

N of				
Statistic for	Mean	Variance	Std Dev	Variables
SCALE	20.2795	7.6849	2.7722	5
Reliability Coefficients				
N of Cases = 322.0 N of Items – 5 (Item 1 deleted)				
Alpha = 0.5925				

Table 3. Reliability analysis-Environmental Concern –Scale (Alpha) -Item 2 deleted

Statistic for	Mean	Variance	Std Dev	Variables

SCALE	20.2391	8.1638	2.8572	5
Reliability Coefficients				
N of Cases = 322.0 N of Items – 5 (Item 2 deleted)				
Alpha = 0.6027				

Table 4. Reliability analysis-Environmental Concern –Scale (Alpha) -Item 3 deleted

Statistic for	**Mean**	**Variance**	**Std Dev**	**Variables**
SCALE	19.7764	8.1679	2.8580	5
Reliability Coefficients				
N of Cases = 322.0 N of Items – 5 (Item 3 deleted)				
Alpha = 0.5570				

Table 5. Reliability analysis-Environmental Concern –Scale (Alpha) -Item 4 deleted

Statistic for	**Mean**	**Variance**	**Std Dev**	**Variables**
SCALE	20.0528	7.2651	2.6954	5
Reliability Coefficients				
N of Cases = 322.0 N of Items – 5 (Item 4 deleted)				
Alpha = 0.5462				

Table 6. Reliability analysis-Environmental Concern –Scale (Alpha) -Item 5 deleted

Statistic for	**Mean**	**Variance**	**Std Dev**	**Variables**
SCALE	19.9441	8.1464	2.8542	5
Reliability Coefficients				
N of Cases = 322.0 N of Items – 5 (Item 5 deleted)				
Alpha = 0.5877				

Table 7. Reliability analysis –Evironmental concern-Scale (Alpha) -Item 6 deleted

Statistic for	**Mean**	**Variance**	**Std Dev**	**Variables**
SCALE	19.9536	7.3674	2.7143	5
Reliability Coefficients				
N of Cases = 322.0 N of Items – 6 (Item 1 deleted)				
Alpha = .5057				

Table 8.Reliability test-Willingness to behave (W2B)

	Strongly Disagree -	**Mean**	**Med**	**Standar**	**SD**

Statements	Strongly Agree						ian	d Error	
	1	2	3	4	5				
W2B1 You would be willing to sign a petition or demonstrat for an environmental cause	3	17	70	156	77	3.89	4	4.78E-02	0.86
W2B2 You would donate a day's pay to a foundation to help improve the environment	16	42	77	128	60	3.54	4	6.05E-02	1.09
W2B3 You would be willing to have your laundry less white or bright in order to be sure that You were using a non-polluting laundry product	13	45	95	113	57	3.48	4	5.90E-02	1.06
W2B5 You would be willing to pay a 5 percent increase in your taxes to support greater governmental control of pollution	59	85	93	56	30	2.73	3	6.75E-02	1.21

Table 9.Reliabiity test-Sustainable Consumer Behavior (SCB)

Statements	Strongly Disagree - Strongly Agree					Mean	Median	Standard Error	SD
	1	2	3	4	5				
SCB1 You normally make a conscious effort to limit my use of products that are made of or use scarce resources	5	52	132	118	16	3.27	3	4.70E-02	0.85
SCB2 You do not buy products that have excessive packaging	13	70	111	103	26	3.18	3	5.53E-02	0.99
SCB3 When there is a choice You always choose the product that contributes to the least amount of pollution	7	35	81	137	63	3.66	4	5.46E-02	0.98
SCB4 You have switched products for ecological reasons	10	52	88	124	49	3.46	4	5.74E-02	1.03
SCB5 You try only to buy products that can be recycled	15	72	101	100	35	2.81	3	5.86E-02	1.05

Table 10.Reliability test- Eco label awareness

	Strongly Disagree -	Mean	Medi	St. Error	SD

Statements	Strongly Agree						an		
	1	2	3	4	5				
ELA You feel that eco-labels are a good way to identify products that are ecologically sustainable	5	15	37	154	112	4.09	4	4.91E-02	0.88

Table 11.Reliability Test-Energy Related Attitude and Behavior

Statements	Strongly Disagree - Strongly Agree					Mean	Median	St. Error	SD
	1	2	3	4	5				
Energy Consciosness (EngC)									
EngC You always make real efforts to rationalize energy consumption	5	11	38	165	104	3.54	4	4.69E-02	0.84
Energy efficiency Purchase Behavior (EEPB)									
EEPB When you buy home appliances their energy efficiency is important to you	4	18	43	172	85	3.99	4	4.78E-02	0.86

Table 12.Demographics Characteristics

Marital status	Number	In %
1.single	73	22.6
2.married	229	70.9
3.living together without being married	3	0.9
4. divorced	8	2.5
5.married, but living separately	3	0.9
6.widow	7	2.2
Total	323	100.0
Employment		
1.employed	217	67.4
2.enterpremeur, self employed	22	6.8
3.unemployed	13	4.0
4.retired	21	6.5
5.student	41	12.7
6.housewife	7	2.2

(table continues)

(continued)

7.unable for work-invalid etc	1	0.3
Total	322	100.0

Level of education		
1.Elementary school	11	3.4
2.Secondary (high) school	37	11.5
3.Vocational school	117	36.2
4.Bachelor degree	139	43.0
5.Master's degree	12	3.7
6.PhD	7	2.2
Total	323	100.0
Personal average monthly income: on a scale 1-4		
1.0 EUR	56	17.3
2.below average	26	8.0
3.average	186	57.6
4.above average	55	17.0
Total	323	100.0
Personal monthly income (Expanded)		
1.0 EUR	56	17.3
2.below average/ in upper half of above average	15	4.6
3 below average/ in lower half of above average	11	3.4
4.average	186	57.6
5.above average/ in upper half of above average	27	8.4
6.above average/ in lower half of above average	28	8.7
Total	323	100.0
Household average monthly income		
1. 0 EUR	0	0.0
2.below average	26	8.0
3.average	202	62.5
4.above average	79	24.5
5. I do not know	16	5.0
Total	323	100.0
Household average monthly income (Expaned	**Number**	**Percentage %**
1. 0 EUR	0	0.0
2.below average/ in upper half of above average	15	4.6
3 below average/ in lower half of above average	12	3.7
4.average	202	62.5
5.above average/ in upper half of above average	37	11.5

(table continues)

(continued)

6.above average/ in lower half of above average	42	13
7. I do not know	15	4.6

Total	323	100.0
Number of members in householdincluding yourself		
1	3	0.9
2	24	7.4
3	59	18.3
4	149	46.1
5	40	12.4
6	40	12.4
7	6	1.9
8	1	0.3
9	1	0.3
Total	323	100.0
Number of children		
0	109	33.7
1	104	32.2
2	105	32.5
3	3	.9
4	1	.3
5	1	.3
Total	323	100.0
Main contributor to the family income		
1. me	91	28.2
2.we all contribute about the same amount	150	46.4
3.somebody else	82	25.4
Total	323	100.0
Gender		
1.male	151	46.7
2.female	172	53.3
Total	323	100.0
Age		
Less than 20 years	1	0.3
20 -	62	19.2
30 -	76	23.5
40 -	116	35.9
50 -	34	10.5

(table continues)

(continued)

60 -	22	6.8
70 -	12	3.7

Total	323	100.0
Living condition		
1.house	135	41.8
2.house, two or more generations together	34	10.5
3.apartment in a row/townhouse	15	4.6
4.apartment in a block	139	43.0
Total	323	100.0
Ownership of apartment		
1.rent	26	8.0
2.own	297	92.0
Total	323	100.0
Live in a city, town, or village		
1.in a city with more than 100.000 inhabitants	284	87.9
2.in a town with more than 10.000 inhabitants	28	8.7
3.in a town with less than 10.000 inhabitants	5	1.5
4.in a village	6	1.9
Total	323	100.0