

---

# ANALYZING THE PROFILE AND PURCHASE INTENTIONS OF GREEN CONSUMERS IN POLAND<sup>1</sup>

Fahri Apaydin\*, Magdalena Szczepaniak

*Yalova University, Turkey*

---

**Abstract.** Consumers have started to search for green products and services as their environmental consciousness has been increasingly rising. As a result, companies have been forced to implement the strategies of green marketing, and marketers began to consider the differences existing between various segments of market in terms of green awareness. The aims of this study are to divide the market into specific consumer groups according to the environmental variables that have been viewed as important in the consumption process of the eco-friendly products; it is done so as to determine whether the significant differences between segments exist in terms of demographic variables and to discover a profile of green consumers in Poland. The self-administrated questionnaire sent via emails and networking websites served as a measurement instrument. As a result of the analyses, the environmental variables allowed for making a segmentation of consumers and discovering three groups: the Potential Greens, True Greens and Browns. Age and gender seem to be differentiating between greener segments and those consumer groups that are less environmentally conscious, while education and income are not statistically significant.

**Keywords:** Green Marketing, Polish consumers, green consumer segments, environmental consciousness.

---

## 1. Introduction

In the recent years, environmental concerns have gained extensive attention from researchers, governments, consumers, as well as companies. Air pollution, natural resource exploitation, excessive logging of forests, and other causes of environmental degradation have been covered by media repeatedly. Rapid economic growth and over-consumption have also significantly contributed to the problems of the environment. Therefore, the pro-environmental actions and initiatives are seen as crucial for reducing the negative influence of consumers and organizations' activities on the environment, and for promoting sustainable development.

It was proven in some of the previous empirical studies that consumers nowadays do more often decide to choose green products (Buenstorf and Cordes, 2008; Sony and Ferguson, 2017; Suki, 2016; Cherian and Jacob, 2017). Therefore, the organizations are

---

<sup>1</sup> This paper is produced from the master's thesis of Szczepaniak, M., titled *Green Consumers in Poland* (2015) at Yalova University, Graduate School of Social Sciences, [magdalena-szczepaniak@hotmail.com](mailto:magdalenaszczepaniak@hotmail.com).

\* Corresponding author:

Faculty of Economics and Administrative Sciences, Yalova University, Yalova, Turkey.

E-mail: [fapaydin1@yahoo.com](mailto:fapaydin1@yahoo.com)

compelled to obtain information about the consumers and their behavior and learn the new market trends from them. If companies define different market segments' characteristics, they can easily select and target the groups of consumers that are suitable for them and offer the right mix of products or services to the right market segments. Consequently, their profitability and efficiency might increase and thus they can gain a competitive advantage.

Market segmentation helps to improve customer satisfaction and the expectation-perception coherence (Martin et al., 2000; Martinez, 2015). As a result of the increasing environmental awareness and preferences for green companies involved in pro-environmental initiatives as well as their environmentally-friendly products and services, marketers started profiling ecological consumers. Therefore, the major purpose of this study is to identify green consumer profiles based on the constructs that have been viewed as significant in the consumption process of proenvironmental products.

The conclusions and some implications can be found at the end of the paper. The results of the study can be beneficial for profiling consumers, as well as developing marketing and communications strategies for the companies. This study presents some recommendations for the marketing practitioners as well.

## **2. Literature Review**

The concept of green marketing is closely related to the assumptions of social marketing. According to the social marketing theory, when a company makes decisions about marketing actions, it should take into account not only the needs of customers or the requirements of the organization, but also the long-term interests of consumers and the whole community (Kotler and Armstrong, 2012). Therefore, while creating marketing strategies, organizations should focus on the balance between the three aspects: the profits of the enterprise, the needs of consumers, and the public interest. The term marketing has been broadened to issues regarding social welfare, including the environment protection, due to the negative outcomes of traditional marketing, such as the manipulation of consumers, promotion of overconsumption or the excessive exploitation of natural resources (Płoska, 2005; Sony and Ferguson, 2017).

The literature on green marketing demonstrates that scholars have put much work in identifying the characteristics of the eco-friendly consumers (Rex and Baumann, 2007; Sony and Ferguson, 2017; Narula and Desore, 2016). Market segmentation should be used by the companies that want to choose a suitable green message for a proper group of consumers through an appropriate communication channel. Various approaches to segmentation exist in literature. Researchers determine segmentation variables by taking into account specific objectives of their studies (Lai et al., 2009). Many scholars tried to determine the characteristics of an eco-friendly consumer in order to create market seg-

ments. As stated by Kotler and Keller (2005), these characteristics can be classified into the following groups: geographic characteristics (e.g., geographic region), demographic and socioeconomic characteristics (e.g., age, gender), psychographic characteristics (e.g., values, lifestyle), and behavioral variables (e.g., purchase occasion).

Within literature, we find indications that demographic characteristics, such as age, gender, education and income influence the consumer’s green purchasing behaviors and expressed intentions (Suki, 2016; Narula and Desore, 2016). Researchers in their studies on environmental issues suggest that green conscious consumers are more likely to be female, belonging to a younger age group, more educated and might have a higher level of income. Large numbers of organizations focus on sociodemographic characteristics for segmenting and targeting green consumers (McDonald and Dunbar, 1998). The reason for this situation is the availability and relative ease of the application of these kinds of segmentation measures compared to other variables (Myers, 1996). Despite that, many researches show the limited value of demographics for the segmentation process (Stern et al., 1995). Therefore, more recent studies use rather the psychographic characteristics, for example, the environmental concern or perceived consumer effectiveness to determine green segments of the market. These types of characteristics are considered to be better than demographic factors in explaining differences in green consumer behavior (Straughan and Roberts, 1999).

The framework suggested a more integrated examination of the green conscious consumer and his/her behavior by an investigation of all the constructs together at the same place and time. However, after reviewing the extensive literature, in this study the following framework was proposed (Figure No. 1): its three main dimensions are attitudes, knowledge and behaviors. The first dimension consists of the perceived effectiveness of a consumer, the consumer’s green concern, and the economic factor. The second dimension includes only one construct, which is knowledge. The third dimension contains green activism, green purchase behavior and green habits.

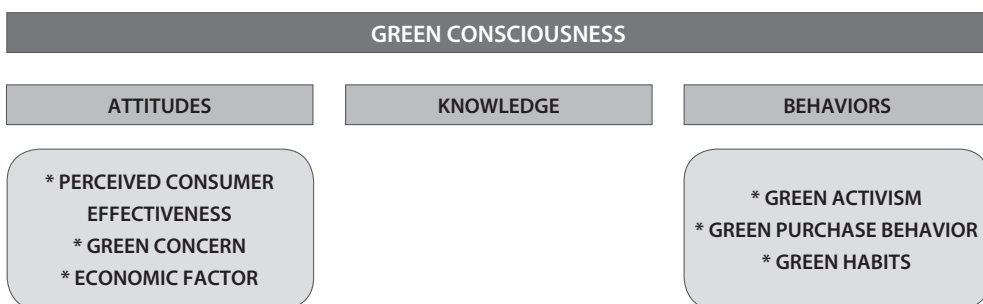


FIGURE No. 1. The Holistic Framework Proposed in This Study

In order to capture the holistic view of the environmental consciousness, it is necessary to examine all of its dimensions – attitude, knowledge and behavior and the variables they include. The multidimensional approach proposed in this study is believed by the author of this paper to effectively help in identifying the distinct market segments of green consumers. The content of each dimension will be explained more deeply in the following sections.

In accordance with Milfont and Duckitt (2010), environmental attitude can be defined as a psychological tendency expressed by evaluating the perceptions or beliefs regarding natural environment with some degree of favor or disfavor. Some of the researchers use the term *environmental attitude* interchangeably with *environmental concern* (Dunlap and Jones, 2002).

*Perceived consumer effectiveness* (PCE) was defined by Ellen et al. (1991) as “a domain-specific belief that the efforts of an individual can make a difference in the solution to a problem.” In other words, some individuals may feel that their own actions can significantly reduce environmental problems, while others may think that their efforts will not make any difference. In some early studies, perceived consumer effectiveness was measured as a part of personality variables to predict environmental concern (Kinneer et al., 1974).

The individual’s concern for the environment has met a relatively great interest from scholars in the literature. Lee et al. (2014) conceptualized it as a “general attitude toward an environment that reflects the extent to which consumers are worried about threats to the environment” based on the results of a previous study. This attitude is influenced by three factors: direct personal experiences, experiences of other individuals and communication produced by the media (Paço and Raposo, 2010; Kumar, 2017). The definition proposed by Dunlap and Jones (2002) is viewed as one of the most comprehensive definitions of environmental concern. It states that green concern is the individuals’ awareness of environmental problems, their attempts to solve them or the lever of their willingness for such attempts.

The economic factor is another construct that has been investigated by scholars. Numerous researchers analyzed the willingness of consumers’ to pay an additional amount for an eco-friendly product’s attributes beyond the price of the base product. This kind of green attributes especially attract the younger, female, more educated and wealthier consumers and encourages paying a premium (Laroche et al., 2001). The premium that consumers are willing to pay for environmentally-friendly products and services is a behavioral intention (Ajzen and Driver, 1992). These intentions relate to “the amount of effort a person exerts to perform a behavior” (Cordano and Frieze, 2000). Therefore, the magnitude of the premium reflects the amount of effort an individual makes to reward a product attribute.

Environmental knowledge can be defined as “a general knowledge of facts, concepts, and relationships concerning the natural environment and its major ecosystems”

(Fryxell and Lo, 2003). Another interpretation of green knowledge underlines the role of individuals in preserving the environment by referring to environmental knowledge as an individual's ability to identify various symbols, concepts and behavior patterns related to environmental protection (Laroche et al., 2001). Therefore, green knowledge involves what individuals know about the environment, as well as the awareness about environmental problems and the ways for resolving those problems.

The third dimension of the framework proposed in this research consists of the following constructs: green activism, green purchase behavior, and green habits. Previous studies suggest various subtypes of environmentally significant behavior also known as environmentally conscious behavior, environmentally responsible behavior, pro-environmental behavior, green behavior, or eco-friendly behavior. According to Stern (1999), it is possible to distinguish three kinds of behavior that cover different activities: green purchase, good citizenship behavior and environmental activist behavior. Green habits from this study are an equivalent to the construct of good citizenship behavior, and green activism is analog to the environmental activist behavior from the Stern's research. All of these three types of behavior aim at influencing the environment in a positive way. The constructs are related to each other, though they have been investigated separately in order to better understand the concept of green consciousness, as well as to more effectively segment the market.

Numerous researchers from different disciplines investigated the concept of green activism. Seguin et al. (1998) define it as a "function of specific behaviors," and that various kinds of behaviors have been used to operationalize the concept. For instance, being a member of an environmental group (Edwards and Oskamp, 1992), engaging in political actions (Stern et al., 1995), being actively involved in environmental organizations (Stern, 2000), intentionally performing "difficult" environmental behavior (Seguin et al., 1998), and having the potential to influence policy or management decisions (McFarlane and Hunt, 2006).

It was demonstrated in the previous studies that the reason of numerous environmental problems is the buying behavior of consumers. However, nowadays consumers are becoming more and more aware of the need to choose green products in order to protect the environment. The green purchase behavior involves the use of products or services that are environmentally beneficial, recyclable, or that are able to protect the environment (Mostafa, 2007).

Green habits, as opposed to green buying behavior, which is limited to the purchase of pro-environmental products or services, are considered in this research as an activity that is not related to purchase and has a positive impact on the natural environment. In empirical literature, this type of behavior is defined as "intentionally reducing the negative impact that an action can have on the environment" (Kollmuss and Agyeman, 2002) and it should be performed as "everyday environmental behavior" (Tindall et al., 2003).

Consequently, eco-friendly activists deliberately choose to perform the activities that aim at preservation of environment and these are not just one time actions, but actions that are committed regularly.

### **3. Methodology**

#### **3.1. Objectives of the Research**

This study addresses three main research questions:

- Is it possible to clearly identify green consumer segments based on the constructs that have been viewed as significant in the consumption process of ecological products?
- Do the environmentally-friendly segments significantly differ from other consumer groups regarding the demographic characteristics?
- Is it possible to determine green segments among Polish consumers based on the multidimensional framework proposed in this study?

#### **3.2. Measurement Instrument**

The self-administrated questionnaire served as a measurement instrument and it was sent to the participants of the study as an online survey to reach more consumers. The survey was composed of two main sections. The first part was developed to measure the constructs proposed in the theoretical holistic framework (green concern, perceived consumer effectiveness, economic factor, environmental knowledge, green purchase behavior, green habits, and green activism). In the second part, data were collected on the sociodemographic features. The questionnaire included statements assessing the concepts through 5-point Likert scales (1 being *strongly disagree* and 5 being *strongly agree*). The questions were translated into Polish, and its content validity was established using experts' reviews. To measure the constructs, multiple items were used and borrowed from prior researches:

Five items from the New Ecological Paradigm (NEP) scale (Dunlap et. al., 2000) were adapted to measure the construct of the environmental concern. The environmental concern shows the extent to which individuals are concerned about the issues related to the environment conservation and the future of the environment as well as its impact on themselves and their health. Therefore, statements such as "I am extremely worried about the state of the world's environment and what it will mean for my future" or "If things continue on their present course, we will soon experience a major ecological catastrophe" were included in the questionnaire.

Four items from Straughan and Roberts's (1999) study were applied to measure the perceived consumer effectiveness (PCE), including declarations such as "I feel capable of helping solve environmental problems" and "I feel I can help solve natural resources

problem by conserving water and energy”. These statements relate to green issues and, at the same time, to a personal belief that an individual can contribute to solving environmental problems.

Four variables constituted the economic factor construct and they were borrowed from Paço and Raposo’s (2010) research. These items, for example, “I am willing to buy green products even if they cost more than usual ones” and “I am willing to pay more taxes in order to protect the environment”, examine a consumer’s willingness to pay a premium for the environmentally-friendly products and to pay higher taxes in order to conserve the environment.

Five statements, such as “I know the meaning of global warming” or “I know what the renewable energy sources are”, were used to measure the environmental knowledge. These items were adapted from Paço and Raposo’s (2010) study and adjusted to present research in order to examine a consumer’s knowledge about the green aspects and ways to protect the environment.

To measure green purchase behavior, the questionnaire included four items from the Ecologically Conscious Consumer Buying (ECCB) scale (Roberts and Bacon, 1997). The statements, such as “I usually buy products made from recycled materials” and “I have switched products/brands for ecological reasons”, demonstrate an individuals’ inclination for purchasing green products that can be energy-efficient, recyclable or come from environmentally-friendly manufacturers.

Five items were adapted also from the ECCB scale in order to measure the construct of green habits. This study assumes that the green behavior dimensions consist of three distinct types of behaviors (green purchase behavior, green habits and green activism). Therefore, the variables from this construct relate to activities that are not related to purchase and are distinct from activism, for example, “I turn off the tap when brushing my teeth” and “I conserve energy by turning off the lights and electrical appliances when I am not using them”.

In order to measure the construct of green activism, four items were applied from the Paço and Raposo (2010) study. The examples of statements include “I am interested in reading reports on environmentally friendly products” and “I have taken part in a protest related to environmental cause”; they aim at assessing the interest of consumers in participating in proenvironmental organizations or actions, supporting the green causes and the willingness to search for the information regarding green issues.

### **3.3. Sample**

The study used a convenience sample composed of 250 respondents from Poland. Their sociodemographic characteristics are presented in Table No. 1 and among those 250 participants, there were 168 females (67.2%) and 82 males (32.8%). The sample consists of more female than male individuals which might be justified by the belief that females are more interested in green issues.

About 30.4% (76) of the respondents were between 18 and 25 years old, the age of 52.8% of the sample (132) ranged between 26 and 35, 4.4% (11) of them were 36-45 years old, 8.4% (21) of them between 46 and 55, and 4% (10) of the respondents were 56 or older. The collected data demonstrate a slight over-representation of the individuals from younger age groups. This can be explained by the fact that the survey was distributed by emails, as well as social networking websites, for younger people tend to be more engaged in the activities in social media.

The majority of the study's participants hold a higher education degree (71.6%) or have finished secondary education (28.4%). About 15.6% of the respondents have a monthly income of less than 1299 PLN, which is currently a minimum wage in Poland (approximately \$349 in US dollars). 30.8% of the study's participants reported an income between 1300 and 1999 PLN (350-537 USD). 29.6% of the sample's income range between 2000-2999 PLN (538-806 USD). Whereas, 14.8% of respondents reported an income between 3000-3999 PLN (807-1075 USD), and 9.2% of the sample's income is 4000 PLN and more (1076 USD and more).

TABLE No. 1. The Socio-Demographic Characteristics of the Sample

Demographic characteristics	Freq.	Percentage of sample
<b>Gender</b>		
Female	168	67,2
Male	82	32,8
<b>Age</b>		
18-25	76	30,4
26-35	132	52,8
36-45	11	4,4
46-55	21	8,4
56 and more	10	4
<b>Education</b>		
secondary	71	28,4
higher	179	71,6
<b>Income</b>		
less than 1299 PLN (349 USD*)	39	15,6
1300-1999 PLN (350-537 USD)	77	30,8
2000-2999 PLN (538-806 USD)	74	29,6
3000-3999 PLN (807-1075 USD)	37	14,8
4000 and more PLN (1076 USD and more)	23	9,2

\* 1 USD = 3,72 PLN (20.04.2015)

The next step after the data were collected was to analyze them with the statistical software SPSS 16.0. The data were submitted to the following analyses: factor analysis, hierarchical and non-hierarchical (k-means) cluster analysis, and the Analysis of Variance (ANOVA). Then, obtained segments were characterized.



### 3.4. Factor Analysis

As a result of factor analysis, seven factors were found out (green concern, perceived consumer effectiveness, economic factor, environmental knowledge, green purchase behavior, green habits, and green activism). According to the score obtained in the Kaiser-Meyer-Olkin measure – 0.857, the results of the analysis can be considered are meritorious (Kaiser, 1974). Moreover, the Bartlett's test of sphericity shows a significance level of 0.01.

The internal consistency was measured by computing Cronbach's coefficient alpha for each of the seven constructs investigated in this study. The intercorrelated variables were gathered under more general and elemental factors. Thus, the variables were reduced and the appropriate number of factors was found. Then, all factors with eigenvalues greater than 1 were extracted, so that seven factors were left. The values of discarded components were ignored. After that, a rotation was performed in order to optimize the structure. As a result, the column Rotation Sums of Squared Loadings shows that factor no. 1 accounts for 11.162% of the total variance in all seven variables, factor no. 2 accounts for 10.263%, factor no. 3 explains 9.871% of total variance, factor no. 4 explains 9.459%, factor no. 5 accounts for 9.453%, factor 6 no. for 9.092% and factor no. 7 explains 7.057% of total variance. Therefore, it can be stated that the total variance explained by seven factors is equal to 66.357%. One item from the environmental concern dimension ("Despite our special attributes, humans are still subjects to the laws of nature") was deleted in order to reach a reliability of  $\alpha = 0.818$ . While the reliability of the perceived consumer effectiveness dimensions was equal to Cronbach's coefficient alpha  $\alpha = 0.744$ . In order to achieve the reliability at the level of  $\alpha = 0.839$ , one item was deleted from the economic factor dimension ("Economic development is less important than protecting the environment"). Similarly, two items were removed from the green knowledge dimension ("I know how to preserve and not cause damage to the environment" and "I know that plastic bags take many years to decompose and cause pollution"), so that the reliability could equal to  $\alpha = 0.848$ . In spite of this, the reliability of the green purchase behavior dimension was equal to Cronbach's coefficient alpha of  $\alpha = 0.736$ . Two items were deleted from the dimension of green habits ("I usually keep separate piles of rubbish for recycling" and "I hand in at the chemist's the medicine that is left over or past its sell-by date") and the reliability is  $\alpha = 0.603$ . According to Sekaran (1992), all the Cronbach's Alpha coefficient values above 0.6 are considered to be acceptable. Therefore, the Cronbach's alpha coefficients of the constructs were satisfactory, with values ranging between  $\alpha = 0.603$  and  $\alpha = 0.848$ . The factors identified in the factor analysis were afterward used as inputs in the following analysis.

### **3.5. Cluster Analysis**

In order to distinguish clusters, both hierarchical and non-hierarchical (k-means) cluster analyses were applied (Table No. 2). The factor scores for each of the seven dimensions was calculated and subsequently submitted to a hierarchical cluster analysis. To indicate the number of the clusters, a Ward's method with the Squared Euclidean distance as an interval measure were applied. Afterwards, the agglomeration matrix and the dendrogram were examined revealing a three-cluster solution.

Then, the non-hierarchical k-means analysis was applied using findings from the hierarchical cluster procedure. The solution derived from the k-means analysis demonstrated the following results: cluster one ( $n = 180$ ) constituted 72% of the sample, cluster two ( $n = 29$ ) corresponded to 11.6%, and cluster three ( $n = 41$ ) represented 16.4% of the sample. In order to discover the difference between clusters, the Analysis of Variance (ANOVA) was performed (Table No. 2). The constructs were used as dependent variables and the three clusters were used as independent variables. There are statistical significant differences between the groups ( $P = 0.009$  for green knowledge,  $P = 0.01$  for the rest of the constructs) since the significance level is below 0.05.

Consequently, multiple comparisons with Tukey's Honestly Significant Difference (HSD), as a post hoc test, were conducted to examine the between-group differences among the variables. Based on the analysis, the groups were classified as such: green concern, perceived consumer effectiveness, economic factor, environmental knowledge, green purchase behavior, green habits and green activism.

### **3.6. Discussion**

As a result of the Analysis of Variance (ANOVA), the first segment (72%) was labeled as the "Potential Greens"; they showed the scores ranging from middle to high. The second cluster demonstrated the highest of scores and was labeled as the "True Greens" (11.6%). All the while, the third group was named as the "Browns" (16.4%) showing the lowest of scores. Therefore, the first research question – though it remains unclear whether it is possible to clearly identify green consumer segments based on the constructs that have been viewed as significant in the consumption process of the ecological products – of this study was answered, confirming that the seven constructs examined in this research can serve as factors in determining green consumer groups.

The Pearson's test was undertaken in order to examine the significance of the sociodemographic characteristics in the process of differentiation of the segments. A cross-tabulation analysis and the chi-square statistics were used. The results are shown in Table No. 3 and indicate that the variables of gender ( $P = 0.01$ ) and age ( $P = 0.004$ ) are significant for differentiating between the groups. Furthermore, there are no statistical significant differences between the three clusters according to the variables of education ( $P = 0.241$ ) and income ( $P = 0.578$ ).

TABLE No. 2. Cluster Profiles with the Mean Values Across the Seven Variables and Post Hoc Test

One-way ANOVA					Tukey post hoc		
	Cluster 1	Cluster 2	Cluster 3	General			
	"Potential Greens" (n = 180)	"True Greens" (n = 29)	"Browns" (n = 41)	Mean			
	M (SD)	M (SD)	M (SD)	M (SD)	F	P	P < 0,01
Green concern	4.04 (0.65)	4.57 (0.47)	2.77 (0.73)	3.90 (0.83)	82,151	0,00	2>1>3
PCE	3.75 (0.60)	4.36 (0.72)	2.23 (0.72)	3.57 (0.89)	122,08	0,00	2>1>3
Economic factor	2.97 (0.79)	4.55 (0.42)	1.56 (0.53)	2.92 (1.06)	148,39	0,00	2>1>3
Knowledge	4.51 (0.60)	4.85 (0.30)	4.38 (0.93)	4.53 (0.65)	4,843	0,01	2>1,3
Green purchase behavior	3.27 (0.74)	4.40 (0.42)	2.51 (0.71)	3.28 (0.86)	60,747	0,00	2>1>3
Green habits	4.39 (0.64)	4.77 (0.30)	3.68 (1.07)	4.32 (0.76)	23,962	0,00	2>1>3
Green activism	2.09 (0.69)	3.52 (0.83)	1.21 (0.66)	2.11 (0.92)	92,66	0,00	2>1>3

TABLE No. 3. Chi-square Test (Demographic)

Variables	Pearson's $\chi^2$	df	Sig.
Gender	22,041	2	0,01
Age	22,733	8	0,004
Education	2,85	2	0,241
Income	6,618	8	0,578

Table No. 4 presents the characteristic of each cluster according to the sociodemographic variables. As it was indicated by previous studies (Diamantopoulos et al., 2003; Straughan and Roberts, 1999; Banerjee and McKeage, 1994), also by present research, gender is a significant determinant of green consciousness and – what is more – females show a higher level of environmental awareness than males. They constitute 89.65% of the segment “True Greens”, 70% of the group “Potential Greens” and only 39.02% of the “Browns”.

When it comes to the next demographic characteristic – age – it also seems to be statistically significant ( $P = 0.004$ ) in determining a profile of the environmentally-friendly consumer. Moreover, most of the younger participants of the study became a part of the segments: “Browns” and “Potential Greens”, while older age groups were found to be established within the clusters of “Potential Greens” and “True Greens”.

These results are consistent with the outcomes reached by Strumińska-Kutra (2012) in her study. She stated that young people (between 18 and 24 years old), unlike their contemporaries from the 1980s, are rather not involved in eco-friendly behaviors.

Although the scholars who conducted previous researches have not always come to the same conclusions, the green consumer has been generally considered as a young individual (Diamantopoulos et al., 2003). However, in Poland, the studies from the 1980s

TABLE No. 4. Characteristics of the Clusters – Mean Scores

Demographics		Cluster 1		Cluster 2		Cluster 3		Total
		"Potential Greens"		"True Greens"		"Browns"		
		(n = 180)		(n = 29)		(n = 41)		
Gender (%)	Female	126	(70.00)	26	(89.65)	16	(39.02)	168
	Male	54	(30.00)	3	(10.35)	25	(60.98)	82
Age (%)	18-25	58	(32.22)	3	(10.34)	15	(36.58)	76
	26-35	93	(51.67)	14	(48.28)	25	(60.98)	132
	36-45	9	(5.00)	2	(6.90)	0	(0.00)	11
	46-55	13	(7.22)	7	(24.14)	1	(2.44)	21
	56 and more	7	(3.89)	3	(10.34)	0	(0.00)	10
Education (%)	secondary	49	(27.22)	12	(41.38)	10	(24.39)	71
	higher	131	(72.78)	17	(58.62)	31	(75.61)	179
Income (%)	less than 1299	32	(17.78)	1	(3.45)	6	(14.63)	39
	1300-1999	56	(31.11)	10	(34.48)	11	(26.83)	77
	2000-2999	53	(29.44)	9	(31.03)	12	(29.27)	74
	3000-3999	23	(12.78)	7	(24.14)	7	(17.07)	37
	4000 and more	16	(8.89)	2	(6.90)	5	(12.20)	23

indicated a high level of environmental awareness among young people (Kassenberg, 1987), and thirty years later it has been reflected in a high level of green consciousness represented by older individuals in this study. Furthermore, especially young people in Poland show the characteristic of a modern consumer society, as Poles have already accustomed to free market realities (Mróz, 2011) after the transformation of the political and economic system at the turn of the 1980s and 1990s.

Furthermore, it could seem that consumers with a higher level of education and income are more environmentally conscious and more actively involved in proenvironmental activities as it was indicated in some prior studies (Roberts, 1996). However, no statistically significant differences between segments according to education ( $P = 0.241$ ) and ( $P = 0.578$ ) have been found in present research. It can be explained by the fact the influence of income on the household's decisions is difficult to assess. For instance, it should be more possible for the households with a higher income to invest in water or energy saving devices, which are usually quite expensive, though their water or energy demand might be less elastic to prices than demand of household with lower income (Martinez-Espineira et al., 2014). Besides, Lam (2006) in his research demonstrated that the level of formal education does not have an impact on green behavioral intentions. It might be related to the suggestion from the Strumińska-Kutra's study (2012) that Polish schools do not provide enough information about sustainable consumerism.

To conclude, the answer for the second research question of this study (*Do the green segments significantly differ from other consumer groups regarding the demographic characteristics?*) was provided. It can be stated that there are differences between more

proenvironmental segments and the remaining groups of consumers in terms of sociodemographic characteristics, such as age and gender; however, this study does not provide such an evidence for the variables education and income. This situation might be justified by the cultural, economic and historical differences between various countries. In this study, the segments of environmentally-friendly consumers are characterized as follows:

### *3.6.1. Segment 1: The "Potential Greens" (72%)*

In this group of consumers, females predominate over males. Moreover, this segment is mainly composed of individuals whose age ranges between 18 and 35. They show quite a high level of green concern and environmental knowledge. However, the "Potential Greens" demonstrate mixed feelings about their individual ability to contribute to the environment protection and improvement. What is more, consumers from this segment are rather not willing to pay more for environmentally-friendly products and services or to preserve the natural environment. Consequently, the "Potential Greens" show a moderate level of an eco-friendly purchase behavior. When it comes to other types of proenvironmental behaviors, they are engaged in the green habits such as turning off the tap when brushing their teeth or saving energy by turning off the lights in their homes when not using them. However, they are not interested in green activism actions, such as supporting environmental organizations, reading the reports on eco-friendly products or companies or giving money to the environmental cause.

### *3.6.2. Segment 2: The "True Greens" (11.6%)*

Similar to the previous group, this segment consists mainly of female consumers. Besides, the individuals' ages range between 26 and 35 as well as between 46 and 55. They are very concerned about the green issues and demonstrate the highest level of knowledge compared to other segments. They believe that they can make a difference for the natural environment and contribute to its conservation. Moreover, they show the willingness to pay a premium for green products and more taxes in order to protect the environment. Consequently, members of this group engage in proenvironmental purchase behavior. What is more, they perform green activities, like energy or water saving. The "True Greens" are involved in all types of green behavior and environmental activism, too. Among those different kinds of behaviors, activities such as taking part in a protest related to the environmental cause or reading reports on eco-friendly products are the least popular.

### *3.6.3. Segment 3: The "Browns" (16.4%)*

This group includes mainly males, which is contrary to previous segments. The "Browns" also consist of almost only young individuals, aged between 18 and 35. They have quite

a high level of environmental knowledge. However, other segments are slightly more knowledgeable about the green issues. Although they seem to be well informed about the environmental problems, they are not concerned about protecting the environment. They are also not willing to pay more for any eco-friendly products and services. They think that economic development is much more important than protecting the environment. Therefore, the “Browns” are rather not involved in green purchase behavior. Furthermore, consumers from this group consider their individual actions not sufficient to contribute to the improvement of the natural environment. Consequently, they definitely do not engage in environmental activism and do not support environmental movements and they show a moderate level of green habits.

As a result, the third research question of the present study (*Is it possible to determine green segments among Polish consumers based on the multidimensional framework proposed in this study?*) was answered. This research discovered the green consumer profiles in Poland of all seven constructs (green concern, perceived consumer effectiveness, economic factor, environmental knowledge, green purchase behavior, green habits, and green activities) from the holistic theoretical model of the environmental consciousness proposed in this research. The previous studies were usually focusing on one or few dimensions of green consciousness, not taking into account all of the significant determinants of green consumer profile. Therefore, this study is believed to contribute to the existing literature on green awareness and, specifically, to the present knowledge about the pro-environmental segments in the Polish market.

#### **4. Conclusion**

Over the last few decades, individuals have understood the seriousness of environmental problems and started to be increasingly green-conscious. Preserving the natural environment has become a significant concern for society. As a result, consumers develop various eco-friendly behaviors into their everyday lives, including green habits, pro-environmental activism, as well as the purchases of eco-friendly goods. More and more often do individuals search for environmentally-friendly products and services and prefer to buy the goods from the companies that engage in the environmental protection practices.

Nowadays, when an increasing number of individuals decide to choose green, the organizations are assessed on the basis of business ethic and social accountability. Therefore, marketers should take into account the differences existing between various groups of consumers in terms of green awareness. The companies should focus on identifying the needs and characteristics of specific market segments in order to target appropriate groups and implement suitable marketing strategies to gain market share and a competitive advantage in the marketplace.

Many scholars made great efforts to discover the profile of a green consumer. Academic literature presents us with numerous attempts to segment the market using a va-

riety of variables, both sociodemographic and environmental, though many studies had decided to investigate only one or few constructs, not implementing the comprehensive view. Therefore, in this research, the holistic model including green attitudes (green concern, perceived consumer effectiveness, economic factor), environmental knowledge and eco-friendly behaviors (green purchase behavior, green habits, green activism) has been proposed and carried out.

The companies that successfully target the segments can select among various strategies and instruments that offer to them the green marketing. Green marketing originated from socially responsible marketing and indicates that the organizations must take the responsibility for the needs and desires of consumers, own profit and satisfy the company's requirements, as well as the whole society's interest, at the same time. Green marketing includes various activities, such as modifying the product or service, making changes in the production process or packaging of goods, as well as revising advertising and promotion policies. The company can generally have a defensive (passive) approach to green marketing, doing the absolute minimum to comply with environmental regulations and laws, or an assertive (proactive) one, voluntarily creating proenvironmental activities and being proactive. Marketers can decide about the specific strategy that the organization prefers to implement, for example, a lean, defensive, shaded or extreme green strategy.

Due to the lack of clear definitions and standards, some companies started to make questionable green claims about their products, in turn misleading the consumers. These practices, called "greenwashing", led to the skepticism of individuals about environmentally-friendly products and services. Besides, the companies became more cautious about offering green goods. Moreover, during the times of recession, individuals considered the ecological problems to be rather of secondary importance. It is possible to observe this situation taking place in Poland. However, according to the increasing number of the studies on green issues carried out in Poland, the level of environmental consciousness of the Polish society has significantly raised over the years.

Based on the results of this study, it can be concluded that the Polish society is, in general, aware of the problems related to the natural environment protection. They assess their environmental knowledge at a very high level. However, they are reluctant to green activism. They are rather not prone to participate in ecological associations or proenvironmental actions. Although most of the individuals in Poland confess to having green habits, those activities are usually connected to water and energy saving, thus some people can be motivated by the economic factor rather than the concern about the environment. Generally speaking, Polish consumers are aware of the green issues but this awareness does not always translate into proenvironmental behaviors.

Particularly, the outcome of this research proves that certain sociodemographic and environmental factors are significant for differentiating between greener groups of indi-

viduals and those that are less environmentally conscious. Firstly, the market was divided into groups based on the following environmental variables: green concern, perceived consumer effectiveness, economic factor, environmental knowledge, green purchase behavior, green habits, and green activism. Secondly, it was shown that the segments significantly differ in terms of age and gender but the education and income are not relevant to differentiate between consumers groups. And then the profile of green consumers in Poland was determined based on the holistic model proposed in this research.

The study determined three segments of Polish consumers: “Potential Greens”, “True Greens” and “Browns”. The largest group consist of the “Potential Greens”, who are quite concerned and knowledgeable about the environment, perceiving themselves rather capable of contributing to environment protection and to engaging in green habits, such as water and energy conservation, on a daily basis. However, they are rather sensitive to the price of environmentally-friendly products and services, not too much willing to buy them, and to contribute financially to solving the ecological problems. Moreover, they are rather not involved in green activism.

Unlike other segments, the “True Greens” are quite engaged in the proenvironmental movements or in supporting green issues. Furthermore, this group of consumers believes that their commitment to the environment conservation and financial support for the cause can make a real difference for the environment. Thus, they actively purchase eco-friendly goods, even when they have to pay the green premium. However, this group consists of the smallest number of individuals. More people are included in the “Browns” segment.

The “Browns” are not interested in the green issues and the protection of the natural environment. They do not even consider themselves to be able to help in reducing ecological problems, though they show a quite high level of environmental knowledge and are rather engaged in performing green habits. But the water and energy conservation can be related to the financial motives, since the “Browns” are convinced that the economic development is more significant than environment protection. Hence, they are not eager to spend their money on this matter as well.

The companies should take into consideration the way that the market is divided into these three segments and analyze each group of consumers by assessing their attractiveness. The next step for an organization is to select a correct positioning of target segment or segments and to implement suitable marketing strategies and instruments. Marketing practitioners whose purpose is to attract consumers concerned about the environment and its protection should emphasize in their marketing campaigns the green image of the company. For instance, they can advertise the proenvironmental practices implemented in the organization, such as reducing the carbon footprint by changing the vehicles to electric, using the recycled materials for production or packaging of goods, or efficiently managing the waste.



Likewise, the companies can promote the proenvironmental attributes of the products or services offered by the company describing the eco-friendly characteristics clearly by stating the benefits for the environment, and justifying the green claims (for example, underlining that the product is recyclable, non-toxic, efficient in the use of resources or easily disposable). However, the companies must remember not to exaggerate their environmental claims. They should focus on credibility in order to avoid greenwashing. Additionally, the manufacturers of green goods should provide sufficient information about the product and its consequences on the environment. For that, they can use eco-labels and tags, which communicate the green credentials of products and can help increase the awareness of green issues. What is more, it makes easier for the consumers to choose the environmentally-friendly goods. These kinds of initiatives will draw the attention of individuals who are aware of the ecological problems and care about the environment preservation.

Despite all of the mentioned, the consumers who are not green-conscious might be attracted by convincing them that conserving the environment is everyone's responsibility and it has a positive impact on the environment. Marketing managers should make long-term efforts to promote green attitudes, environmental knowledge, and eco-friendly behaviors through various media and advertising campaigns. The increase of individuals' daily green attitudes and habits will eventually lead to eco-friendly purchases. Furthermore, it is important to point out the significance of a consumer's individual decisions and actions related to the protection of the environment. The companies should provide to their consumers an encouraging feedback, emphasizing that an individual's decisions and initiatives have a positive effect on the environment; hence, increasing perceived effectiveness of the consumers will in turn raise the green buying behavior.

When it comes to the consumers that are less willing or totally reluctant to pay extra money for the environmentally-friendly products, discounts or subsidies can be offered by companies. Also, the marketing managers can emphasize the other values of products, such as functionality, visual appeal, quality, design or taste. First of all, the companies should develop products that combine other values with environmental friendliness. All the while, the consumers that are not sensitive to the price can be attracted by marketers by emphasizing, except for the basic advantage of influencing the environment in a positive way, also the prestige of buying and consuming environmentally-friendly goods.

Moreover, since a large number of young people constitute the group of consumers who are not much interested in environmental issues, the companies should invest in product innovations in order to reach younger age groups of consumers. Younger people are more likely to search for innovativeness when adopting a new product or service. For example, when the company introduces the newest packaging innovation, such as using a kind of degradable fiber, it is likely to both contribute to environment protection and gain the attention of young individuals.

Some limitations of this study have been recognized. First of all, the sample is quite small (n = 250) and it is slightly over-represented by the individuals from the younger age groups. Also, the number of females participating in the study is much higher than males. Besides, after deleting some of the questions from the questionnaire in order to reach higher reliability, in some dimensions the variables are represented by a small number. Therefore, scholars who might be interested in deepening the study by using a larger sample, together with a wider range of variables and further researches, should use a more diverse sample in order to increase the generalizability of the results.

## REFERENCES

- Ajzen, I. & Driver, B. (1992). Contingent value measurement: On the nature and meaning of willingness to pay. *Journal of Consumer Psychology*, 1(4), 297–316.
- Buenstore, G. & Cordes, C. (2008). Can sustainable consumption be learned? A model of cultural evolution. *Ecological Economics*, 67, 646-657.
- Cherian, J. & Jacob, J. (2012). Green Marketing: A Study of Consumers' Attitude towards Environment Friendly Products. *Asian Social Science*, 8(12), 117-126.
- Cordano, M. & Frieze, I. H. (2000). Pollution reduction preferences of U.S. environmental managers: Applying Ajzen's theory of planned behavior. *Academy of Management Journal*, 43(4), 626–641.
- Dunlap, R. E., Van Liere, K. D., Mertig, A. G. & Jones, R. E. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues*, 56(3), 425–442.
- Dunlap, R. E. & Jones, R. E. (2002). *Environmental concern: Conceptual and measurement issues. Handbook of Environmental Sociology*, Westport, CN: Greenwood Press.
- Edwards, T. & Oskamp, S. (1992). Components of antinuclear war activism. *Basic and Applied Social Psychology*, 13, 217–230.
- Ellen, P. M., Wiener, J. L. & Cobb-Walgreen, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy and Marketing*, 10, 102-117.
- Fryxell, G. E. & Lo, C. W. H. (2003). The influence of environmental knowledge and values on managerial behaviors on behalf of the environment: An empirical examination of managers in China. *Journal of Business Ethics*, 46, 45–59.
- Kinnear, T., Taylor, J. & Ahmed, S. (1974). Ecologically concerned consumers: who are they? *Journal of Marketing*, 38, 20–24.
- Kollmuss, A. & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8, 239–260.
- Kotler, P. & Keller, K L. (2005). *Marketing management* (12th Ed.). NJ: Prentice Hall: Englewood Cliffs.
- Kotler, P. and Armstrong, G.(2012). *Marketing. Wprowadzenie*, Tran. Wolter Kluwer, Polska, Warszawa.
- Kumar, P. (2017). Intents of green advertisements. *Asia Pacific Journal of Marketing and Logistics*, 29(1), 70-79.

- Lai, P., Sorice, M. G., Nepal, S. K. & Cheng, C. (2009). Integrating social marketing into sustainable resource management at Padre Island National Seashore: an attitude-based segmentation approach. *Environmental Management*, 43, 985-998.
- Laroche, M., Bergeron, J. & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, 18(6), 503-520.
- Lee, Y., Kim, S., Kim, M. S. & Choi, J. G. (2014). Antecedents and interrelationships of three types of pro-environmental behavior. *Journal of Business Research*, 67, 2097–2105.
- Martin, A. M. D., Iglesias, V., Vazquez, R. & Ruiz, A.V. (2000). The use of quality expectations to segment a service market. *Journal of Services Marketing*, 14(2), 132-146.
- Martínez, P. (2015). Customer loyalty: exploring its antecedents from a green marketing perspective. *International Journal of Contemporary Hospitality Management*, 27(5), 896-917.
- McDonald, M. & Dunbar, I. (1998), *Market segmentation — how to do it how to profit from it*, (2nd ed.). London:Macmillan.
- McFarlane, B. L. & Hunt, Len M. (2006). Environmental activism in the forest sector: social psychological, social-cultural and contextual effects. *Environment and Behavior*, 38, 266–285.
- Milfont, T. L. & Duckitt, J. (2010). The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *Journal of Environmental Psychology*, 30(1), 80-94.
- Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behavior: the effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220–229.
- Myers, J. H. (1996). *Segmentation and positioning for strategic marketing decisions*, Chicago, IL: American Marketing Association.
- Narula, S.A. & Desore, A. (2016). Framing green consumer behaviour research: opportunities and challenges. *Social Responsibility Journal*, 12(1), 1-22.
- Paço, A. M. F. & Raposo, M. L. B. (2010). Green consumer market segmentation: empirical findings from Portugal. *International Journal of Consumer Studies*, 34, 429-436.
- Ploska, R. (2005). Marketing wobec wyzwań społecznych i ekologicznych', Editor: W. Żurawik. *Marketing – podstawy i kontrowersje*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk, 319-340.
- Rex, E. & Baumann, H. (2007). Beyond ecolabels: what green marketing can learn from conventional marketing. *Journal of Cleaner Production*, 15, 567-576.
- Roberts, J. A. (1996). Green consumers in the 1990s: profile and implications for advertising. *Journal of Business Research*, 36, 217-231.
- Roberts, J. A. & Bacon, D. R. (1997). Exploring the Subtle Relationships between Environmental Concern and Ecologically Conscious Consumer Behavior. *Journal of Business Research*, 40, 79-89.
- Seguin, C., Pelletier, L. G. & Hunsley, J. (1998). Toward a model of environmental activism. *Environment and Behavior*, 30, 628–652.
- Sony, A. & Ferguson, D. (2017). Unlocking consumers' environmental value orientations and green lifestyle behaviors: A key for developing green offerings in Thailand. *Asia-Pacific Journal of Business Administration*, 9(1), 37-53.
- Stern, P. C., Diez, T. & Guagnano, G. A. (1995). The new ecological paradigm in social– psychological context. *Environment and Behavior*, 27(6), 723–43.
- Stern, P. C., Dietz, T., Kalof, L. & Guagnano, G. A. (1995). Values, beliefs, and pro-environmental action: attitude formation toward emergent attitudes objects. *Journal of Applied Social Psychology*, 25, 1611–1636.

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A. & Kalof, L. (1999). A value-belief-norm theory of support for social movements: the case of environmentalism. *Human Ecology Review*, 6, 81–97.

Stern, P.C. (2000). Theory of environmentally significant behavior. *Journal of Social Issues*, 56, 407–424.

Straughan, R. D. & Roberts, J. A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of Consumer Marketing*, 16(6), 558-575.

Tindall, D.B., Davies, S.& Mauboules, C.(2003). Activism and conservation behavior in an environmental movement: the contradictory effects of gender. *Society and Natural Resources*, 16, 909–932.