

# Environmental Segmentation Alternatives - Bnyers Profdes and Implications

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## Abstract

**Purpose** - The paper's purpose is to study the green marketing consumer in the kingdom of Bahrain through using the ECCB model and profiling green consumers in the kingdom

**Design/methodology/approach** -Using questionnaire survey, the influence of demographic characteristics (gender, age, education and household monthly income) and ECCB (ecological conscious consumer behavior) on green marketing consumers has been tested through Factor analysis, Regression analysis, **MOVA**, and K-means clustering. The sample consisted of 241 consumers,

**Findings** - The findings of this study provide some understanding to the service providers and the government on the effect of demographic profile on online shopping. Of consequence, such understanding would help them in finding and implementing suitable strategies to enhance online shopping.

**Originality/value-** The study stems its originality for being the first analysis of the Kingdom of Bahrain green consumers' characteristics through providing a comprehensive understanding by combining the demographic characteristics and the ECCB model and their effect on green shopping. Furthermore, the study offers a profile of green market consumer.

**Keywords:** **green marketing;** 'segmentation; **environment;** **green consumerism;** **cluster analysis,** demographics, ECCB, Kingdom of Bahrain

Paper type Research paper

## Introduction

In the past few decades there has been a positive evolution in pro-environmental knowledge, attitudes, and behaviours among consumers (Laroche et al., 2002). In the late 1980s, the National Anxiety Centre reported that environmental issues represented half of the top-ten worry list (Schlossberg, 1992). Expressions such as "Decade of the Environment" or "the Earth Decade" have been associated to the 1990s. Through this decade, social and environmental concerns tool on great importance for consumer purchasing decisions (Prothero, 1996; Menon et al., 1999). Businesses coped with this new situation in many innovative and relevant ways, seeking to remain competitive, started to incorporate these newly emerging concerns in their management and marketing decision-making (Straughan and Roberts, 1999; Rivera-Camino, 2007).

Nowadays, green consumers adapted to environmental threats in several ways as they became more willing to pay extra for ecologically friendly products (Myburgh-Louw & O'Shaughnessy, 1994), considered environmental issues when shopping (e.g., checking if the product is made from recycled materials), and bought more ecologically compatible products (Laroche et al., 2002). Such orientation by the consumers increased the attention devoted to the relationship between consumer behaviour, marketing, and the environment. This attention has been evident in two

**facets: first, there has been an increase in public awareness regarding environmental aspects, and second, an increase in the evidence of environmental responsibilities or green activities (do Paco and Raposo, 2009).**

On the other hand, to avoid deceiving claims by producers and advertisers, the UK watchdogs started cracking down on spurious science. In March 2010, a new BCAP code (the Broadcast Code for Advertisers) and the CAP code (applicable to non-broadcast advertising and sales promotions) stating "Generalized claims for environmental benefit must be assessed on a 'cradle to grave' basis." Advertising and producers' claims for a product are assessed not just on the finished article, but also on the resources used, manufacturing, packaging, distribution and disposal.

The present study attempts to offer more insights into the Bahraini green consumer market. The research objectives are divided in twofold. First, the study examines a range of demographic (age, gender, income, and education) and psychographic factors (perceived consumer effectiveness, environmental concern, and liberalism) in relation to ecological conscious consumer behavior (ECCB). To address the future of ecologically conscious consumption in the kingdom of Bahrain, the present study will concentrate on younger consumers who represent the future of green consumption. Second, the research applies the green marketing segmentation concept in the kingdom of Bahrain.

This paper starts with a review of green marketing literature evolution through which, a number of variables are being identified. Next, the importance of market segmentation is highlighted, together with a presentation of the most relevant criteria for differentiating individuals in terms of their environmental behaviour. Relevant facets of the research methodology are afterwards presented, as well as the study **implications, and limitations.**

#### Literature review

##### *Evolution of green marketing*

Studies undertaken by Kassrajain (1971), Fisk (1973) and Kinnear et al. (1974), represent the early attempts through which authors tried to establish a relationship between marketing and the environment. These studies were followed by a research stream where green marketing was the focal point (Coddington, 1993; Meffert & Kirchgeorg, 1993; Hopfenbeck, 1993; Ottman, 1994; Peattie, 1995; Polonsky & Mintu-Wimsatt, 1995; Schlegelmilch et al, 1996; Bigne, 1997; Fuller, 1999; Kalafatis et al., 1999; Calomarde, 2000; Fraj & Martinez, 2002; Straughan & Roberts, 1999; Baksi & Bose, 2007; Rivera-Camino, 2007, Lee, 2008; do Paco & Raposo, 2009)

Environmental concerns and the demand by consumer groups for environmentally friendly products have led to the emergence of a 'new marketing philosophy', known as green marketing. Since the 1960s, green marketing has evolved through several stages. This evolution has resulted in an expanded list of issues that fall within the domain of environmental responsibility. With increased social and political pressure, companies have moved beyond simply addressing pollution and waste disposal to looking for alternative package composition and design, alternative product formulations, and cause-related promotion in an effort to keep in-step with the environmental movement (Straughan & Roberts, 1999). Charter & Polonsky (1999)

stated that green marketing is the marketing or promotion of a product based on its environmental performance or an improvement thereof. The late 1980s marked the first stage of green marketing, when the concept of "green marketing" was newly introduced and discussed in the industry (Peattie & Crane, 2005). The emergence of the green marketing concept encouraged marketers to engage in different forms of green marketing at the beginning of this stage where marketers expected to generate positive consumer response, that would be translated into higher market shares or sales revenues (Vandermerwe & Oliff, 1990). Despite the great public concerns about environmental problems, the market growth rate of green products fell short of marketers' expectation (Wong et al., 1996). Eventually marketers realized that consumers' concern for the environment associated with the desire for green products was not translated into purchasing behavior (Schrum et al., 1995). According to Peattie and Crane (2005), five major marketing practices led to the failure, of green marketing during this period, that is:

- (1) Green spinning. Taking a reactive approach by using public relations to deny or discredit the public's criticisms against the company's practices.
- (2) Green selling. Taking an opportunistic approach by adding some green claims to existing products with the intention to boost sales.
- (3) Green harvesting. Becoming enthusiastic about the environment only when greening could result **in** cost savings.
- (4) Entrepreneur marketing. Developing innovative green products to market without really understanding what the consumers actually want.
- (5) Compliance marketing. Using simple compliance with implemented or expected environmental legislation as an opportunity to promote the company's green credentials without taking initiatives to go beyond responding to regulations.

Strong (1996) marked the following phase starting mid-1990s where consumers started becoming more and more environmentally and socially aware. The author defined green consumers as those who: "avoid products that are likely to endanger the health of the consumer or others; cause significant damage to the environment during **manufacture, use of disposal; consume a disproportionate amount of energy; cause unnecessary waste; use materials derived from threatened species or environments**".

According to Gurau & Ranchhod (2005), critical consumers began to emerge as a new force of green consumerism whereby they required social responsibility from corporations. Such force led to the emergence of broader consumption concept namely ethical consumerism (Uusitalo & Oksanen, 2004). According to Browne et al (2000), the growing interest in "ethical" consumerism has been both consumer and trade driven. Consumer theory places ethical consumerism in a "fourth wave" of green marketing, which seeks to reaffirm the moral dimension of consumer choice (Browne et al, 2000). According to Uusitalo & Oksanen (2004), ethical consumerism refers to buyer behaviour that reflects a concern with the problems that arise from unethical and unjust global trades, such as child and low-paid labour, infringement of human rights, animal testing, labour union suppressions, inequalities in trading relations with the Third World, and pollution of the environment. Since, the emergence of the green consumerism and ethical consumerism, which arose in the mid-1990s, consumers have started to demand a say in the production, processing and **resourcing** of the products (Lee, 2008).

According to Lee (2008), since 2000, green marketing evolved in the third phase,

**Implementation of more advanced technology, stricter enforcement on deceptive claims, governmental regulations and incentives as well as closer scrutiny from various environmental organizations and the media. Many green products have greatly improved and regained consumer confidence (Gurau & Ranchhod, 2005; Ottman, 2007). Together, with the continuous rise of growing global concern about the environmental quality, green marketing has gradually picked up momentum again. Some researchers (Stafford, 2003; Ottman et al., 2006) postulate that green marketing is now "making a comeback". There is renewed sensitivity towards the environment and towards social consciousness.**

According to Gurau & Ranchhod, (2005) although there are numerous studies concerning the consumer demand and purchase behaviour for ecological products (Kassaye, 2001; Martin and Simitiras, 1995; Strong, 1996), the international aspects of green marketing have not been fully investigated (Amine, 2003; Borregaard et al, 2003). On the other hand, the last decade has witnessed many enactments of various legislation and greater intervention on the part of governments with the aim to protecting the environment, which was manifested by many countries determined to be more proactive in tackling their ecological problems (Sheth and Parvatiyar, 1995; Head, 1996; Baksi and Bose, 2007). Some comprehensive environmental laws are in place in some Arab countries such as in the Kingdom of Bahrain. The government of Bahrain took more initiative in enlightening the relatively environmentally unconcerned consumers before the latter can become a vital force in the green movement. **Once their environmental concerns have been raised, consumers will become more environmentally conscious and, in turn, make demands on the government to step up in conserving ecological well-being.** The dynamics of this government-consumer interaction will eventually drive the business community to act in a more socially responsible manner in order to avoid expensive legal liabilities (Shi and Kane, 1996) and/or to exploit on emerging 'green' business opportunities (Azzone and Bertele, 1994; Beh, 1994; Biddle, 1993; Gallarotti, 1995).

Given the climate of ecological interest in the Kingdom of Bahrain, this study aims to contribute toward furthering knowledge of the potential of green marketing and the development of an evidence-based understanding of the Bahraini consumers' environmental **consciousness.**

#### *Segmentation of the Green Consumer Market*

In order to position their green product offerings, companies must first segment the market according to levels of pro-environmental purchase behaviour. and then target the "greener" consumer segments. The demand for green products has been uneven across different market segments (Ottman, 1992; Peattie, 1992). Thus, for organizations to position green products and communicate their environmental efforts, to members of the population, who are likely to be concerned about environmental issues, green consumer segments need to be therefore identified (Bohlen et al., 1993, Schlegelmilch *et. al* 1996).

Killbourne (1995) points out that the research in green marketing field has become more fragmented, very specific and seems to share common aims. Furthermore, it

focuses on identifying the role of environmental consciousness of consumers developing a scale for measuring the level of environmental concern.

Peattie & Charter (1997) define green marketing as "the holistic management process responsible for indentifying, anticipating and satisfying the needs of customers and society, in a profitable and sustainable way." In this sense, market orientation and market segmentation appear as aspects to which the marketer must pay special attention. The growing number of organisations entering in the green market points to the need for suitable segmentation as well as targeting and positioning strategies (do Paco and Raposo, 2009).

There have been relatively few attempts to classify consumers specifically according to levels of green purchasing behaviour. However, there has been a whole wealth of research, using a variety of segmentation variables, attempting to profile the environmentally conscious members of the population in general. The measures that have been used fall into two distinct categories: socio-demographics, such as sex, age, education and social class (see Schlegelmilch *et al.*, 1994); and personality measures, such as locus of control, alienation, conservatism and dogmatism (e.g. Balderjahn, 1988; Crosby *et al.*, 1981; Henion and Wilson, 1976; Kinnear *et al.*, 1974). Such studies have been criticized in the literature questioning the relevance of segmentation approaches used in these studies. Straughan & Roberts' (1999) indicated in their results that despite the amount of past research attention devoted to demographics variables. This is not a useful profiling mean as psychographic criteria. While other authors doubted its usefulness as an approach to green marketing, along with questioning its stability.

#### *Green Segmentation Criteri«*

Many studies in the green marketing literature attempted to define the characteristics of green consumer for segmentation purpose. These researches have not always yielded robustly indicative results, and the results produced in one study have been frequently contradicted in another (do Paco and Raposo, 2009). Early attempts to identify green consumers can be traced back to 1968, when Berkowitz and Lutterman (1968) studied the profile of socially responsible consumers. The study results portrayed ecological conscious consumers as "female, pre-middle aged, with high level of education and above average socioeconomic status. Later studies, however, reported different findings.

The underlying logic for market segmentation is well established. It centers on the assumption that customers demonstrate heterogeneity in their product preferences and buying behaviour (Green, 1977; Wind, 1978). This variability is generally explained by differences in product and/or user characteristics (Kalwani & Morrison, 1977; Mahajan & Jain, 1978; Sally Dibb, 1998). The resulting segments can be easily defined by reference to such readily observable descriptive characteristics as geographic location or demographic characteristics.

A number of studies have made attempts to identify demographic variables that shape the green consumer profile. Such variables, when significant, offer easy and efficient ways for marketers to segment the market and capitalize on green attitudes and

behaviour (Anderson et al., 1974; Samdahl & Robertson, 1989; Roberts (1996), Jain & Kaur, 2006); D'Souza et al., 2007).

**The effect of age was investigated through a number of researches on green marketing.** These studies argued that younger individuals are likely to be more sensitive to green marketing issues. **The most common argument is that those who have grown up in a time period, in which environmental concerns have been a salient issue at some level, are more likely to be sensitive towards green marketing issues.** Surprisingly, this trend has been reversed over the last two decades and several studies identified the green consumer as being older than average (Samdahl & Robertson, 1989; Roberts, 1996; Jain & Kaur 2006; D'Souza et al. 2007).

In spite of the number of researches investigating the age effect on portraying the green consumer, the results of age-based investigations are still far from convincing. **Some of the researchers who explore age in relation to green attitudes and behaviour** have found insignificant relationships (e.g. Kinnear et al., 1974; McEvoy, 1972; Roper, 1990; 1992). Others have found the relationship to be significant and negatively correlated with environmental sensitivity and/or behavior as predicted (e.g. Anderson et al., 1974; Tognacci et al., 1972; Van Liere and Dunlap, 1981; Zimmer et al., 1994). Still others have found the relationship to be significant, but positively correlated (e.g. Roberts, 1996.b; Samdahl and Robertson, 1989).

The development of the roles, skills and attitudes assumed by each gender ~ led **many researchers to argue that women are more likely to present pro-environmental behaviour** (Straughan and Roberts, 1999). Balderjahn's (1988) study reported the relationship between environmentally attitude and the use of non-polluting products **were more intensive among men than women.** Other studies, on the other hand, investigated gender as a demographic variable in shaping environmental attitude (e.g. Arbuthnot, 1977; Brooker, 1976; Hounshell & Liggett, 1973; MacDonald & Hara, 1994; McEvoy, 1972; Roberts, 1995; 1996b; Roberts & Bacon, 1997; Roper, 1990; 1992; Samdahl & Robertson, 1989; Stem et al., 1993; Tognacci et al., 1972; Van Liere & Dunlap, 1981). The development of unique sex roles, skills, and attitudes has led most researchers to argue that women are more likely to hold attitudes consistent with the green movement. Theoretical justification argued by Eagly (1987), holds that women, as a result of social development and sex role differences, will carefully consider the impact of their actions on others (Straughan and Roberts, 1999).

Income has always been perceived to have a positive relationship to environmental sensitivity based on the prevailing wisdom that consumers with higher income levels can tolerate the increase in costs associated with supporting green causes and favouring green products. Several studies have investigated the relationship between income and environmental attitudes and or related construct (e.g. Anderson and Cuuningharn, 1972; Anderson et al., 1974; Antil, 1978; Kasarjian, 1971; Kinnear et al., 1974; McEvoy, 1972; Newell and Green, 1997; Roberts, 1995; 1996b; Roberts and Bacon, 1997; Roper, 1990; 1992; Sarndahl & Robertson, 19119; Van Liere & Dunlap, 1981; Zimmer et al., 1994).

Paradoxically, other studies have shown negative relationships between income and environmental concerns (e.g. Roberts, 1996b; Samdahl and Robertson, 1989). Roberts (1996b), argues that differences shown in early studies have been taken over by the

overall growth in the environmental concern across all income levels. The author was also attentive that although the relationship income and environmental concerns in his study was significant, the amount of variance explained was small (Straughan & Roberts, 1999).

The educational level in relation to environmental attitudes was also investigated through a number of studies (e.g. Aaker & Bagozzi, 1982; Anderson et al., 1974; Kinnear et al., 1974; Leonard-Barton, 1981; McEvoy, 1972; Murphy et al., 1978; Newell and Green, 1997; Roberts, 1995; 1996b; Roberts & Bacon, 1997; Roper, 1990; 1992; Samdahl and Robertson, 1989; Schwartz and Miller, 1991; Tognacci et al., 1972; Van Liere & Dunlap, 1981; Zimmer et al., 1994). A positive relationship was found between the two variables almost unanimously across studies. Although the results of studies examining education and environmental issues are somewhat more consistent than other demographic variables discussed to this point, a definitive relationship between the two variables has not been established. The vast majority of these studies have found a predicted positive relationship (Aaker & Bagozzi, 1982; Anderson et al., 1974; Leonard-Barton, 1981; McEvoy, 1972; Miller et al., 1978; Roberts, 1996b; Roper, 1990; 1992; Schwartz & Miller, 1991; Tognacci et al., 1972; Van Liere and Dunlap, 1981; Zimmer et al., 1994). On the other hand, Samdahl & Robertson (1989) found that education was negatively correlated with environmental attitudes. Kinnear et al. (1974) along with Straughan and Roberts (1999) found no significant relationship.

Few studies considered the social class variable as it was criticized for being confusing, and it ignores the individual's upward professional mobility (O'Shaughnessy, 1988).

Whatever advantages demographic profiling of green consumers offers over psychographic profiling in terms of ease of use are more than offset by the relative strength of the associations between psychographic variables and ecologically conscious consumption. In other words, psychographic variables provide a stronger and therefore more useful profile of green consumption (Straughan and Roberts, 1999).

It was in the 1960s that the concept of lifestyle first began to be used more frequently by marketing managers in research undertaken into the phenomena of buying and consumption. This concept is based on the study of people's activities, interests and opinions (AIO) (Henion, K., 1972). Several studies have attempted to clarify the interrelationship between values, attitudes, and environmental behaviour. These studies have not investigated psychographic variables thoroughly as the research in demographic. Straughan, R. & Roberts, J. (1999) identified a number of psychographic variables namely: *Political orientation (Liberalism)*, in relation to the matter of interests and opinions regarding political questions. The results revealed that environmental themes are part of a 'liberal' political agenda. Some studies suggest that individuals with a liberal political background are more likely to display a strong commitment to the green movement, in contrast to those with more conservative political views. As for AIO, Stern et al. (1993) examined the role that social-altruism and egoism played in influencing green behaviour. Their findings suggest that all three of these constructs social-altruism, biospheric-altruism, and egoism influence willingness to take political action. However, social-altruism and

biophilic-altruism are not significant in predicting willingness to pay higher gasoline taxes. Perceived consumer effectiveness, the premise that attitudes and

positively influence the outcome to such problems. This attitude or belief is referred to as perceived consumer effectiveness (PCE). Findings have been fairly conclusive that PCE is positively correlated with ECCB. Roberts (1996b) found that this was the single strongest predictor of ECCB, surpassing all other demographic and psychographic correlates examined. *Environmental concern*. The relationship between attitudes and behavior is one that has been explored in a variety of contexts. Those studies (e.g. Antil, 1984; Kinnear et al., 1974; Lepisto, 1974; Roberts, 1995; 1996b; Roberts and Bacon, 1997; Van Liere and Dunlap, 1981) examining environmental concern as a correlate of environmentally friendly behavior have generally found a positive correlation between the two (Straughan, R. and Roberts, I., 1999).

Furthermore, some studies (Kals et al., 1999) investigated the effect of *locus of control*, personal norms, or affinity of nature, and the human love of nature - as a motivational mechanism to protect natural habits and environment and as moderator variables. From a different perspective, looking at the motivation for environmental behaviour patterns, centred on the individual cost-benefit analysis inherent to human decision-making. As behavioural choices imply costs but can deliver benefits, the consumer will behave in an environmentally sound manner if to do so seems likely to deliver sufficient benefit to make up for the higher price of green products, or the inconveniences involved in recycling or saving energy (Laroche *et al.* 2001). As noted by Chan (1999), empirical evidence regarding the relationship between environmental knowledge, attitudes, and behaviours is mixed. Studies on green consumers concurs that in spite of the large number of consumers who express their concerns about environmental problems, only a few are willing to act at personal expense, such as making a sacrifice in their personal lifestyle

Another of the factors that is recognized as preceding pro-environmental behavior is ecological consciousness (Schlegelmilch & Bohlen, 1996; Mostafa, 2007). Many studies have addressed the characteristics of ecologically conscious consumers. The majority of these studies have found, demographic variables associated with self-report measures of environmental commitment, behavioral indicators of environmental commitment, or psychometric scales measuring environmental consciousness (e.g. Samdahl & Robertson, 1989; Ziouner et al., 1994). Some have offered additional attitudinal or psychographic dimensions associated with green attitudes and behavior (e.g. Roberts, 1996b; Roberts and Bacon, 1997; Stern et al., 1993). A review of these studies suggests several general indicators of an individual's propensity to engage in ecologically conscious consumer behavior (Straughan, R. & Roberts, I., 1999). Table I shows the main criteria and respective segmentation variables that may be used to segment the green consumer market.

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Criteria	Variables	Studies
Demographic	Age, gender, family dimension, religion, subculture, education, job or occupation, income, social class, habitation type	Anderson <i>et al</i> (1974), Banerjee and McKeage (1994), D'Souza <i>et cd.</i> (2007), Jain and Kaur (2006), Laroche <i>et al</i> (2001), Mainieri and Barnett (1997), Roberts (1996), Samdahl and Robertson (1989) and Webster (1975)
Psychographic	Lifestyle, personality, motivation, values	Cornwell and Schwepker (1995), McCarty and Shnun (1994), Straughan and Roberts (1999) and Vlosky <i>et al</i> (1999)
Behavioural	Knowledge, attitude, product usage, purchase behaviour, brand loyalty, benefits	Alwitt and Berger (1993), Balderjahn- (1988), Cornwell and Schwepker (1995), Kinnear <i>et al</i> (1974), Rios <i>et al</i> (2000) and Schuhwerk and Lefkock-Hagius (1995)
Environmental	Concern, POC, knowledge, affect, commitment, ecological consciousness, subjective norms, activism, environmentally friendly behaviour, green products buying behaviour, information search, willingness to pay, recycling, scepticism towards environmental claims	Antonides and van Raaij (1998), Clan and Yam (1995), de Pelsmacker <i>et al</i> (2002), Maloney and Ward (1973), Maloney <i>et ul</i> (1975), Martin and Simintiras (1995), Mostafa (2007) and Schlegelmilch and Bohlen (1996)

Table I (Source: do Paco and Raposo, 2009)

## Research Methodology

Throughout the previous bibliography study of green marketing and its segmentation criteria, a number of variables were identified that highlighted the fact that various types of consumers may have different concerns, attitudes towards the environment with diverse levels of environmental knowledge.

As mentioned previously, the research aims to segment the Bahraini green market with a focus on psychographic criteria adapted from Straughan, R. & Roberts, J. (1999) in addition to demographics. To further address the future of green consumption, the present study will concentrate on younger consumers who represent the future of green consumption.

### *Survey Instrument*

The questionnaire was composed of two main sections. In the first section, data were collected about the demographic characteristics of respondents (gender, age, income, educational level and location). The second section examined the environmental dimension (Perceived Consumer Effectiveness, Environmental Concern, Ecologically conscious consumer behavior (ECCB), Liberalism) used in the Roberts (1996b) and Straughan, R. and Roberts, J. (1999). The scales used to measure this dimension were Likert scales (min 1; max 5).

According to Roberts (1996B), construct of the "ecological conscious consumer behaviour" measures the level to which individuals purchase goods and services that are believed to have un-harmful effect on the environment. The construct contained 22-items measuring "ecological conscious consumer behaviour". The second part of the survey consisted of the "Perceived consumer effectiveness," consisted of four statements measuring the customers' attitude towards the collective effect of purchasing products that may harm the environment. The third set of questions measured the customer environmental concern, with ten statements measuring the

respondent about their concern about different aspect of the environment such as the equilibrium. Those aspects consisted of environmental abuse, resources, plants, and

and statements.

The researcher conducted a pilot study on 30 respondents to ensure that the scale was understandable by the targeted population. Based on the pilot feedback certain words were confusing for the respondents and were changed in this stage to clarify the construct meaning.

*Reliability tests and Factor Analysis*

Reliability tests were conducted on the overall instrument. Results (table II) show that the Cronbach's alpha for the overall construct was 0.875, which is satisfactory for an exploratory study (Hair et al., 1998). Results of the reliability test are presented in Table II. The factor analysis was used and loading factor was satisfactory (above 0.7) according to Nunnally (1978) (refer to tables, II and III)

Cronbach's Alpha .875 Cronbach's Alpha Based on Standardized Items .880 N of Items 41

Table II ~Reliability Analysis

Variable	Indicator	Loading	<i>a</i>
Ecologically conscious consumer behavior	1. To save energy, I drive my car as little as possible.	0.634	0.876
	2. I normally make a conscious effort to limit my use of products that are made of or use scarce resources.	0.619	
	3. I try to buy more efficient household appliances.	0.784	
	4. I will not buy products, which have excessive packaging.	0.783	
	5. When there is a choice, I always choose that product which contributes to the least amount of pollution.	0.681	
	6. I have tried very hard to reduce the amount of electricity I use.	0.761	
	7. I am concerned about the potential damage to the environment that some products can cause; I do not purchase these products.	.867	
	8. I have switched products for ecological reasons.	.823	
	9. I have purchased a household appliance because it uses less electricity than other brands.	.843	
	10. I have convinced members of my family or friends not to buy some products which are harmful to the environment.	.789	
	11. I have replaced light bulbs in my home with those of smaller wattage so that I will conserve on the electricity I use.	.768	
	12. I have purchased products because they cause less pollution.	.768	
	13. Whenever possible, I buy products packaged in reusable containers.	.876	
	14. When I purchase products, I always make a conscious effort to buy those products that are low in pollutants.	0.836	
	15. When I have a choice between two equal products, I always purchase the one, which is less harmful to other people and the environment.	0.832	
	16. I will not buy a product if the company that sells it is ecologically irresponsible.	0.658	
	17. I have purchased light bulbs that were more expensive but saved money.	0.586	
	18. I buy products that can be recycled.	0.501	
	19. To reduce our reliance on oil, I drive my car as little as possible.	0.726	
	20. I usually purchase the lowest priced product, regardless of its effect on society.	0.722	
	21. I do not buy household products that harm the environment.	0.662	
22. I buy high efficiency light bulbs to save energy.	.766		
Perceived consumer effectiveness	1. It is worthless for the individual consumer to do anything about pollution.	0.764	.812
	2. When I buy products, I try to consider how my use of them will	0.762	

		affect the environment and other consumers.		
Environmental concern	3.	Since one person cannot have any effect upon pollution and natural resource problems, it doesn't make any difference what I do.	0.743	
	4.	Each consumer's behavior can have a positive effect on society by purchasing products sold by socially responsible companies.	0.733	
	1.	Plants and animals exist primarily to be used by humans.	0.725	.835
	2.	We are approaching the limit of the number of people the earth can support.	0.698	
	3.	To maintain a healthy economy, we will have to develop a steady-state economy where industrial growth is controlled.	0.669	
	4.	The earth is like a spaceship with only limited room and resources.	.766	
	5.	Humans need not adapt to the natural environment because they can remake it to suit their needs.	.756	
	6.	The balance of nature is very delicate and easily upset.	0.762	
	7.	When humans interfere with nature, it often produces disastrous consequences.	0.743	
	8.	Humans must live in harmony with nature in order to survive.	0.733	
Liberalism Items	9.	Mankind is severely abusing the environment.	0.725	
	10.	Humans have the right to modify the natural environment to suit their needs.	0.698	
	1.	The government should control the profits of the high-tech industries.	0.669	.746
	2.	I am for a health insurance program covering men and women of all ages.	.789	
	3.	If unemployment is high, the government should spend to create jobs.	.768	
	4.	A government administered health insurance program is necessary to insure that everyone receives adequate medical care.	.765	
	5.	I am for less government regulation of business.	.802	

Table 111- Factor Analysis

### Sampling and Sample Size

The questionnaire was administered to a convenience sample of 249 students (only 241 usable response) at the university of Bahrain. The researcher adopted the snowball - or chain - sampling technique (Dwivedi et al., 2006a; Fridah, 2004). Although convenience sampling is limited in representing the whole population, it was the only viable alternative for the research. The respondents included both traditional and non-traditional (evening program) students. The subjects were given as much time as needed to complete the questionnaire. Referring to Table IV, the results indicate that out of the 241 respondents, 40.6% were males and 59.3% were females. The high percentage of females in the sample is reflecting its quota of female students in the college of Business Administration at the university of Bahrain. Over 78% of the respondents were below 30 years, as the sample consisted mostly of students. 13.2% were between the age of 30 and 39, with the remaining 9.9% being above 40. The majority of the respondents' income ranged between BD 750 and BD 1500. Only .05% of the sample fell below than BD 750, while 15.3% of the respondents were above BD 1500. Over 40% of the respondents were undergraduates, 24.4% were graduate respondents with 31.5% holding high school education, .03% of the responding were MBA and PhD holders.

### Analysis and Results

Following the data collection phase, the data were subject to statistical analysis using the SPSS 18.0 (Statistical Package for Social Sciences) and included the following sequence of statistical treatment: Factor Analysis, Regression Analysis, cluster analysis (K-means clustering) and one-way ANOVA. Using correlations, the preliminary analysis results showed that demographic variables gender, education

level, and income were significantly correlated with the ecological consumer conscious behaviour. Psychographic variables were also significantly correlated with the ecological consumer conscious behaviour. The correlations analysis results are shown in table V.

Respondents	Characteristics	Frequency	Percentage
<b>Gender</b>			
Male		98	40.6
Female		143	59.3
<b>Age of Respondents</b>			
Less than 20		34	14.1
20-29		155	64.3
30-39		32	13.2
Above 40		24	9.9
<b>Household Income</b>			
Less than 740		13	.05
751-1000		123	51
1001- 1500		68	28.2
More than 1500		37	15.3
<b>Education Level</b>			
High School		76	31.5
Undergraduate		98	40.6
Graduate		59	24.4
Postgraduate		8	.03

Table IV - Sample Characteristics

Correlation	ECCB	PCE	EC	Age	Gender	Income	Education	Uberalism
ECCB	1.000							
PCE	.313**	1.000						
EC	.340**	.611**	1.000					
Age	-.235**	-.198**	-.203**	1.000				
Gender	.004	.080	.123	-.228**	1.000			
Income	.010	.161**	.053	.069	-.047	1.000		
Education	-.037	-.031	-.055	.275**	.014	.031	1.000	
Uberalism	.075	.005	.100	-.160*	.115	-.024	-.005	1.000

\*. Correlation is significant at the 0.05 level \*\*. Correlation is significant at the 0.01 level (2-tailed).

Table V, Correlations of green consumer profile variables

Three separate regression models were developed. The first model consisted of the ecological conscious consumer behaviour construct and the four demographic variables (i.e, age, gender, income, and education). The results showed that only the gender as a demographic variable is insignificant ( $p > 0.05$ ). Results are shown in table VI. The three demographic variables indicate that age, income, and education are significant ( $p < 0.05$ ). The demographics-only model has an  $R^2$  of 0.055.

**Table VI. Regression of ECCE on demographic variables**

variables	Regression Coefficient	Significance
Constant	78.470	0.001
Ages	~2.926	.004
Gender	~1.651	.178
Income	1.351	.033
Education	.424	0.002

Notes: R2 = 0.055, F = 4.881, P = 0.001, df = 3, 403

The second regression model includes the psychographic-only predictor variables. **This analysis indicates that environmental concern; perceived consumer effectiveness and liberalism were significant (p < 0.05) as shown in Table VII.** The psychographics-only model outperformed the demographics-only model as indicated by an R2 value of 0.423, meaning that the psychographic variables explain the ECCB variable more.

**Table VII. Regression of ECCB on all psychographic variables**

Variables	Regression Coefficient	Significance
(Constant)	52.815	.000
PCE	1.168	.001
EC	.395	.004
EC	.265	.003

Notes: R2 = 0.423, F = 39.317, P < 0.001, df = 5, 919

The third equation included the entire predictor variables. The results (shown in table VI) indicate that gender was insignificant: On the other hand, age, income education, **perceived consumer effectiveness, economical concern and liberalism maintained their significance (p < 0.05).** The total variance explained by the full model (R2 = 0.464) represents a marginal (but significant) increase over the psychographics-only model (see Table VI).

**Table VIII. Regression of ECCB on all demographic and psychographic variables**

Variables	Regression Coefficient	Significance
(Constant)	61.328	.000
Age	-2.014	.005
Gender	-2.337	.10
Education	.475	.020
Income	.375	.003
Liberalism	.149	.001
PCE	1.066	.002
SC	.360	.005

Notes: R2 = 0.464, F = 16.435, P < 0.001, df = 7, 876

Variables	Cluster 1 Mean	Cluster 2 Mean	Cluster 3 Mean	Cluster 4 Mean
ECCB	2.9	2.6	2.1	1.9
PeE	3.01	2.87	2.3	2.2
EC	2.78	2.9	2.2	2.5
Liberalism	3	2.66	1.9	1.9
N	79 (32.7%)	38 (15.701)	84 (34.8%)	40 (16.5%)

**Table IX. Cluster Analysis**

Cluster	1	2	3	4
1		7.503	4.094	7.512
2	7.503		5.438	6.106
3	4.094	5.438		4.582
4	7.512	6.106	4.582	

**Table X. Distance between Final Cluster**

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A quick clustering approach (SPSS 18, k-means clustering) was selected, with the options of 3,4 and 5 clusters, given the size of the buyers' subgroup (refer to Table IX). The choice of four clusters (32.7%, 15.7%, 34.8% and 16.5% respectively) was **finally preferred, due to the greater number of discrimination between-cluster variables and the more straightforward profile development.** Discriminant analysis established clusters' accurate selection (Wilks' lambda 0.005 and F = 0.001), with 100 per cent of the cases correctly classified. Table X shows the differences between the four clusters. Bearing in mind the results obtained previously, through the various statistical procedures, it was decided that the four segments should be named, as follows:

Segment 1, *Green* - This segment consisted of 79 respondents representing 32.7% of the sample, showed high commitment towards the environment. The segment consisted of young individuals aged between 20 and 39 with the majority having a high education (undergraduate and Postgraduate); a monthly household income of above BD 1000, living in urban societies. The respondents included in this segment believe that the purpose of life is to live a life of virtue in agreement with nature. **The segment characteristics showed high orientation towards preserving the environment and natural resources.** Furthermore, respondents carry a high social responsibility towards pollution and their community, exhibited in their purchasing behavior and product choices. Additionally, respondents included in this segment were willing to pay more money to preserve the environment and showed knowledge about **environmental issues regarding helping the government to perform its activities in preserving the environment.**

Segment 2, *Ambiguous* - This segment consisted of 38 respondents (15.7% of the total population), falling in the high age group, with moderate educational and income levels. Although, the respondents were environmentally knowledgeable, such knowledge was not translated in their purchasing behavior. This segment views the government as the sole responsible of performing activities such as monitoring the market and setting the market tone. This is due to the low level of income individuals that are not willing to increase their spending to purchase eco friendly products.

Segment 3, *Un-devoted* - This segment consisted of 84 respondents (34.8%) from different age groups, with low income and educational levels. This segment seemed careless about the environment and consumption of harmful products, while relying on the government to take the needed action to preserve the environment. **The respondents were also skeptical about businesses claims made concerning the environment, to which it was not seen as, important among their worries.** The respondents' environmental knowledge was apparently low and hasty regarding the **environmental issues. They didn't consider their contribution towards improving the environment as important, as this is reflected in their purchases of products.** Most of the respondents included in this segment live in rural areas.

Segment 4, *Explorers* - This segment consisted of 40 respondents representing 16.5% of the population, dominantly young, with moderate-income level scattered all over the country. This segment showed high level of knowledge regarding the ecological environment, **had a positive attitude towards environmental issues. This segment scored high in environmental concern, resources saving, and willingness to pay more**

**to preserve the environment. However, they take a negative position towards government intervention in the business environment.**

#### ***Conclusion and Implications***

Many studies have highlighted the lack of demographic variables importance (Roberts, 1995; 1996b; Roberts and Bacon, 1997), the study at hand proves that age, income, education, although they do marginally variance still helps in defining the green consumer characteristics. The results also revealed that certain demographic variables are significant for differentiating between different segments of green consumers. Psychographic variables have proved to be more accurate and significant for segmenting and explaining different segment characteristics. The results indicated that psychographic measures are more accurate in explaining the different levels of **environmental conscious consumer. The results confirm that individuals should be convinced that their behavior would affect the environment, and businesses should perhaps link consumer benefit in choosing green products.** This is in line with the results of Roberts (1996b, 1999) with respect to the relative importance of PCE in explaining ECCB.

Although most of the Bahrainis support the government environmental policies, yet this is not usually reflected in their behavior. Their participation is often based on protecting the environment by saving electricity and water. Such concerns may be **more closely related with economic factors rather than with an environmental consciousness.**

Overall, most of the Bahraini consumers sampled demonstrated awareness of **environmental problems and resources scarcity even that it is not translated in environmental friendly behavior. However, there are consumers who are prepared to base their buying decisions on purchasing environmental friendly products.** There is a segment of 'greener' consumers in the sample that differs significantly in some aspects from the other market segments.

This study results also revealed business implication should be considered carefully. **Businesses should be assessing these segments' attractiveness while adopting the right positioning and tailoring adequate marketing program for each segment.** Furthermore, new businesses approaching the Bahrain market should perhaps pay more attention to the value of delivering process, which will be more than just delivering products' regular benefits, or possibly risking losing their market credibility. Consumers are becoming increasingly concerned about environmental **issues.**

#### ***Limitations and Future Research***

This study represents and exploratory research of green marketing in the kingdom of Bahrain. The objective of the study was to examine profiling opportunities among those consumers who represent the future of the green marketing movement. The sample was a convenience sample consisting of university students only from the same university. Last, the measures used, while validated measures, were self-report measures. Supporting these self-report measures with observational or behavioral measures would strengthen the findings. Such limitations give room for further investigation; besides Hofstede (1991) cultural dimensions can be included to shed **more lights on differences among segments.**

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