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Pro-environmental behavior and socio-demographic factors in an emerging market

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Abstract We examine the role of socio-demographic factors on consumers' pro-environmental behavior (PEB)–a subset of ethical behavior and analyze its implications in an emerging market, with a sample study from India. Multivariate analysis of variance (MANOVA) was performed as research method. Results show that males display higher PEB than their female counterparts. Married consumers score more on PEB than single. Mid-age consumers (36–50) also score high on PEB than young and old-age consumers. Furthermore, highly educated consumers are more pro-environmentalist than graduates and post-graduates. The novelty of this study is that centers on the use of demographic variables interactively in order to form microsegments. For instance, married men score more on PEB scale than unmarried men and women and prefer green channels even more (i.e., public transportation). On the contrary, unmarried women display no hesitation in paying more for energy-efficient goods compared to married men and unmarried men. Marketers may aim in setting such PEBs as the moral standards among consumers being an easily identifiable segment as their prime target.

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Introduction

Consumer behavior and attitude toward the environment have been widely studied in developed countries (Bodur and Sarigöllü 2005; Shabnam 2013). Consumers behave ethically by purchasing or boycotting the product, to express their responsibility towards the environment (De Pelsmacker et al. 2005; Shaw and Shiu 2002). Many firms have invested in projects for producing environmental friendly products and are forced to change their marketing strategy (Chen and Chang 2013) because of increasing consumer interest toward such products (Sinkin et al. 2008). They are also aware that products are chosen because of its impact on the environment (Sridhar and Jones 2013) through their use or during the development (Bansal and Gangopadhyay 2003) that provides competitive advantage (Walls et al. 2011) with an improvement in corporate environmental performance (Hendry 2006) and corporate social performance, too (Meijer and Schuyt 2005).

In the last three decades, marketing managers strived to understand the emerging "green" market and its purchasing behavior (Albayrak et al. 2011) because green marketing (Menon and Menon 1997) and building the ethical image of a product (Mascarenhas 1995; Sierra et al. 2015) are a part of the overall corporate strategy. Additionally, many of the organizations in developing economies have started focusing on commitment to ethics and sustainability indicators like social, economic, and environmental concerns in branding and developing a competitive advantage (Enderle and Niu 2012; Sridhar and Jones 2013). The research in this domain area is essential for emerging markets (e.g., China, India) to gain insight into the ethical attitude and environmental psychology toward the product, which exert an enormous environmental impact (Soyez 2012), and also the consumers' smaller ecological footprints (Kahn 2007). Such green consumption behavior contributes significantly to society's impact on environment at a macrolevel. As many researchers underline the need to find a more sustainable production, consumption pattern and behavior thereof, for sustainable growth (Ählström et al. 2009), the success lies in how such green consumption can be adopted at all levels in society as standard behavioral code of conducts referred as "ethics." According to resourced-based view (RBV), companies being green can achieve sustainable competitive advantage (SCA) through positioning green behaviors as ethical behaviors serving as key resources and capabilities of companies in the long run (Chang 2011). Such green ethical behaviors should be displayed by consumers so often, which become more pronounced moral principles and standards that guide behaviors (Chan et al. 1998).

Consumer and social behavior towards the environment and environment-friendly products have started to emerge gradually in developing economies including Asia (Chen 2013). The outcomes of studies in a developed country context may not hold in developing country settings, where the economy is characterized by weak institutional environments, bureaucratic complexity and red tape, poor enforcement of the law, corruption and social insecurity; hence, the concept of environmental consciousness and its practices may have a different meaning in developing countries (Jamali and

Mirshak 2007). The Asian consumer market is considered a potential target market by international green marketers (Lee 2009) because of (a) its increasing environmental concern and pro-environmental attitude (Harris 2006; Cherian and Jacob 2012; Smith and Paladino 2010) and (b) an increase in the number of consumers willing to pay more for green products because of the impeccable economic growth in leading Asian countries (Li and Su 2007). The 2014 National Geographic/Globescan Consumer Greendex survey indicates that Indian tops the index on their sense of responsibility towards the environment (measured on the level of guilt) over their counterparts in Asian continents (Greendex 2014). Therefore, Indian consumers are expected to receive considerable attention from practitioners, academia, etc. and how they display environmental behaviors is the main research agenda.

Diverse sets of variables have been used as basis of segmentation as outlined in green consumer research literature that includes geographic measures (Tremblay and Dunlap 1978; Samdahl and Robertson 1989; Pickett et al. 1993; Gooch 1995), cultural measures (Anderson et al. 1974; Webster 1975; Laroche et al. 1996; McCarty and Shrum 2001; Bodur and Sarigöllü 2005), personality measures (Kinnear et al. 1974; Crosby et al. 1981; Balderjahn 1988; Straughan and Roberts 1999; Bloemer and Ruyter 2001; Moser and Uzzell 2003; Lee 2009), and last but not the least, socio-demographic characteristics (Roberts 1996; Klineberg et al. 1998; Diamantopoulos et al. 2003; Tang et al. 2004; Jain and Kaur 2006; D'Souza et al. 2007; Luchs and Mooradian 2012; Mtutu and Thondhlana 2016).

Researchers have used socio-demographic factors to profile green consumer due to measurement simplicity and application (Meyer 2016; Myers 1996; Diamantopoulos et al. 2003). However, it was found that results arrived by socio-demographic variables are either very weak predictors or are of conflicting nature (Shrum et al. 1994; Schultz et al. 1995; Klineberg et al. 1998). Therefore, some authors believe that the use of psychographic variables can explain eco-friendly consumer behavior more accurately than demographics (Wagner 1997; Straughan and Roberts 1999; Paul and Rana 2012). Additionally, researchers in the field of environmental psychology also insist on the importance of developing intervention tools that are adapted to target situations and audiences (Steg and Vlek 2009).

Since empirical research in developed countries, using psychographic variables has also shown inconsistent and many contradictory results, it is suggested that a combination of psychographic and socio-demographic characteristics (Getzner and Grabner-Kraüter 2004) to profile green consumers can yield better insights for green segmentation. There are sizable numbers of psychographic, such as environmental concern, environmental knowledge, ecologically conscious consumer behavior (Paco and Raposo 2009), environmental locus of control (Cleveland et al. 2005). With this purpose, an extensive review of literature was undertaken and finally pro-environmental behavior (PEB) (Straughan and Roberts 1999; Rice 2006; Kaida and Kaida 2016) was used along with socio-demographic variables to understand the behavior of green consumers in India, the second fastest growing developing economy.

Adding to these arguments, the vast pool of research has studied the main effects of socio-demographics factors only (Burton 2014; Marquart-Pyatt 2008; Tudor et al. 2007; Castro 2006). Discussion in academic circles has tended to focus more on application of main effects of these variables rather than interactive way. However, Tilikidou and Delistavrou (2014) has identified the number and size of relevant

consumer segments at the microlevel by examining the purchase component and disclosure of its clusters. However, their analysis has failed to formulate any particular demographic findings at a microlevel. In particular, Laroche et al. (2001) has examined the microlevel demographics for willingness to pay for ecologically compatible products in a North-American city and not very specific to PEB for emerging market like India. The demographically differentiated groups are now no longer providing any confidence to marketer to consider them as profitable and thus more accessible segments needs to be identified. However, no emphasis was put on how the integration of these demographic variables was made to understand pro-environmental behavior better for niche markets such as married women or educated men who potentially be new segments for targeting.

Considering this, an attempt is made in this paper to examine the link between consumers' PEB and their socio-demographic descriptions, individually as well as interactively, with the aim of providing intelligent insight for the marketers with eco-friendly products. For this, survey-based research has been conducted on 256 Indian consumers with a structured non-disguised questionnaire. The next section covers the extant literature on green marketing, PEB and socio-demographic factors, followed by research methodology. Thereafter, data analysis and findings of the study are presented. Subsequently, strategic implications and insights for green marketers are provided.

Literature review and hypothesis

The literature has been described and divided into "two major streams: studies focused on socio-demographic factors associated with environmentalism and studies of values, beliefs and other social psychological constructs related to environmentalism" (Dietz et al. 1998, p. 451). The former stream implies a pre-occupation with "discovering" who is more (or less) environmentalist—man, women, low income, high income individuals. Consistent results are, in this regard, that age and education are associated with ecological beliefs—the more educated and the younger expressing stronger agreement with ecological ideas—although the correlations are not very high (Dietz et al. 1998; Dunlap et al. 2000). It is not totally clear whether or not gender maintains positive associations with environmental concern, although Zelezny et al. (2000) recently defended that when measured by the NEP scale, women's pro-ecological orientation is stronger. As for the second stream, a consistent result has been that self-transcendent values, and a more liberal orientation show positive relations to more pro-environmental positions (Schultz and Stone 1994).

Green marketing as ethical consumption

In the early 1970s, Kassarjain (1971), Fisk (1973), and Kinnear et al. (1974) had linked marketing with environment, and after that, green marketing became a highly discussed topic especially since the late 1980s (Peattie and Crane 2005). Routed from social marketing, green marketing management integrates the concern of society for the natural environment (Prothero 1990) and became a "major trend for modern business" (Ishaswini and Datta 2011). Over this societal orientation, Johnstone and Tan (2015) noted that green consumption "has been viewed as a subset of ethical consumption

(Carrington et al. 2010)." Studies noted in literature revealed that people use ethics to align themselves to green consumption (McDonald et al. 2012; Newwholm and Shaw 2007). However, studies were rare which had established human-environment interaction as an ethical issue and fill the gap in projecting green consumption as well-articulated moral philosophies (Chan et al. 2008) to fine-tune with existing government and marketers' practices.

The majority of green marketing studies centers on defining green consumers and their characteristics for the purpose of segmentation (Paco and Raposo 2009). Studying and profiling the green consumer segment is very useful for marketers, as they are supposed to position their green product offering after segmenting their market accordingly (Schlegelmilch et al. 1996). It is felt that there is a lack of understanding and identification of the segment, which is ready to pay higher prices for environment-friendly products (Laroche et al. 2001). In this regard, the focus must be shifted to the purchaser for developing segmentation alternatives, especially at the microlevel (Molla et al. 2014), to tap the unprecedented potential for green products (Peattie 1999).

The pro-environmental behavior

PEB is commonly understood as such behaviors that "consciously seek to minimize the negative impact of one's actions on the natural and built world (e.g., minimize resource and energy consumption, use non-toxic substances, reduce waste production)" (Kollmuss and Agyeman 2002, p. 240). PEB specifically for individual levels includes composting organic waste, recycling in households, reducing car use, adopting less environmentally harmful cars, using biodegradable bags, rejecting aerosol based products, and conserving water and energy (Heath and Gifford 2002; Jansson et al. 2010; Albayrak et al. 2011; Bhatt and Sharma 2012; Kim et al. 2012).

The factors that motivate individuals to engage in PEB have been under investigation for many decades (Soyez 2012; Guagnano et al. 1995; Stern et al. 1993, Steg and Vlek 2009; Trivedi et al. 2015; Leeuw et al. 2015). As we are actively seeking solutions to our environmental problems, it is necessary for policy makers and researchers to understand why an individual has to undertake PEB (Clark et al. 2003). Two major streams of thought have investigated PEB of individuals. Economists examined the influence of external factors on individual behavior and therefore, their suggestion to environmental problems is based on reward or penalty.

On the other hand, psychologists prefer to link psychological variables to the behavior and therefore suggest tools such as awareness, education, and persuasion, for behavioral change (Clark et al. 2003). The pro-environmental behavior and pro-social behavior are promoted by fundamental beliefs, also observed in the study (McCarty and Shrum 2001). However, few researchers who sought to use an interdisciplinary approach and equal attention imply to cognitive as well as demographic variables (Van Liere and Dunlap 1980).

Demographic variables

There are two major streams in the literature for environmental concern and social values: studies of beliefs, values, and social psychological constructs associated with environmentalism, and the studies focused on socio-demographic factors associated

with environmentalism (Dietz et al. 1998, p. 451). It is observed that a socio-demographic stream implies a pre-occupation with "exploring" who is more environmentalist—high income/low income individuals, man/woman, rich/poor countries. In fact, education and age are positively associated with environmental concern, belief, and behavior—although the correlations are not very high. Even, the study has not observed any analysis of gender with environmental concern (Dietz et al. 1998; Dunlap et al. 2000). Scholars pointed that environmental concern is more complex structure of general and issue-specific attitudes, environmental values, and beliefs (Best and Mayerl 2013; Vining and Ebreo 1992; Axelrod and Lehman 1993) and required to understand the socio-demographics to predict the green and ethical behavior of consumer (Auger et al. 2003; De Pelsmacker et al. 2005; Diamantopoulos et al. 2003).

As for the former stream, results are consistent with the self-transcendent values, and a more liberal orientation shows a positive association with pro-environmental positions (Schultz and Stone 1994). The area of concern, therefore, is to have an in-depth study of social-demographic factors including income and gender with the age and education. Moreover, studies linking PEB with demographics demonstrated equivocal results (Schwepker and Cornwell 1991; Straughan and Roberts 1999; Laroche et al. 2001; Bui 2005; Rice 2006; Awad 2011; Akehurst et al. 2012). Considering this anomaly as outlined in Appendix Table 9, the next section presents an overall perspective of selected demographic variables as the segmentation bases and their relationship with PEB. Income is an important predictor in studies aiming to understand willingness to pay more for green products, and therefore not considered a predictor for PEB.

Gender

Many literatures underline the link between pro-environmental attitudes and pro-environmental behaviors (Poortiga et al. 2004; Schultz and Zelezny 1999). Besides this, many scholars argued that males and females, with their assumed varied attitudes, roles and skills, determine their PEB (Straughan and Roberts 1999; Kilbourne and Polonsky 2005), but the observed relationship to the variable gender is ambiguous. Some studies agreed that women are more aware of and concerned with the environment than men (Webster 1975; Banerjee and McKeage 1994). On the other hand, males generally spend their time outside their homes, and thus have more opportunities to become aware of environmental problems, which could lead to more knowledge than females (Grunert and Kristensen 1994; Lyons and Breakwell 1994; Meffert and Bruhn 1996).

Studies have shown that women are more environmentally conscious than men (Luo and Deng 2008; Oerke and Bogner 2010; Xiao and Hong 2010), and women have demonstrated greater participation in environmental behaviors inside the home (Xiao and Hong 2010). Another study by Lee (2009) analyzed the gender differences of adolescents in Hong Kong and concluded that female adolescents are more concerned with issues related to the environment than male adolescents. More specific to the context, gender has been significantly related to recycling behavior (Diamantopoulos et al. 2003; Chen et al. 2011) and other environmental friendly behaviors (Straughan and Roberts 1999; Diamantopoulos et al. 2003; Lee 2008; Xiao and Hong 2010; Kheiry and Nakhaei 2012; Lee et al. 2013; Chang and Wu 2015; Meyer 2016). However, a few studies showed no significant relationship with environmental

variables (Rice 2006; Chen et al. 2011). Thus, an exploratory (two-tail, rather than one-tail) hypothesis was proposed:

H_1: Males and females differ in relation to their PEB.

Age

When exploring the link between age and environmental behavior in green marketing research, results are demonstrating positive relationships (Rowlands et al. 2003; Lee 2008; Oerke and Bogner 2010; Chen et al. 2011; Chen et al. 2011; Pavalache-llie and Unianu 2012; Samarasinghe 2012). On the contrary, a few studies have also demonstrated negative relationships (Anderson et al. 1974; Zimmer et al. 1994). More surprisingly, few studies have concluded that there is no relationship at all (Kinnear et al. 1974; Kheiry and Nakhaei 2012). Many scholars (Roberts and Bacon 1997; Getzner and Grabner-Kraüter 2004) noted that environmental friendly consumers are younger, as opposed to older consumers (Roberts 1996). Moreover, most importantly, (Abeliotis et al. 2010; Tilikidou 2007) reported that increase in environmental friendly behavior and awareness is positively associated with increase in age.

An in-depth review of literature clearly indicates that age, as a demographic variable for discriminating green consumers, has not always found consensus. Following this discussion, we hypothesize:

H_2: Pro-environmental behavior is significantly different across various age groups.

Education

Level of education is another demographic variable in the existing research that it is linked more consistently to environmental behavior (Van Liere and Dunlap 1980; Aaker and Bagozzi 1982; Samdahl and Robertson 1989; Schwartz and Miller 1991; Zimmer et al. 1994; Roberts 1996; Newell and Green 1997; Roberts and Bacon 1997, Chen et al. 2011; Samarasinghe 2012). In existing research, this variable has gained more attention over other demographic variables in environmental marketing (Paco and Raposo 2009).

Among other demographic variables, the relation of education level with environmental behavior has been more consistent but still unclear and not definitive. Although some studies found a negative association between education level and environmental behavior (Samdahl and Robertson 1989), most of the studies observed a positive and significant relationship between high education level and pro-environmental behavior (Rowlands et al. 2003; Tilikidou 2007; Sánchez et al. 2015). Chen et al. (2011) observed that highly educated individuals gained knowledge about environmental issues through schooling (Scott and Willits 1994) and thus they are expected to act favorably towards the environment. Based on the discussion above, we postulate the following hypothesis:

H_3: Pro-environmental behavior significantly vary across education level.

Marital status

In a previous study, ecologically conscious consumer behavior was predicted well by marital status (Jacob et al. 2009). However, on another study, marital status is found to be a non-significant correlate of environmental behavior (Diamantopoulos et al. 2003; Kheiry and Nakhaei 2012; Samarasinghe 2012). In a study in China, Chen et al. (2011) showed that singles were more likely to participate in pro-environmental behavior. Based on this, we specify our fourth hypothesis:

> H_4: Married and unmarried people differ in relation to their pro-environmental behaviors.
>
> Literature on studying environmental behavior specified the testing of main effects of demographic variables. For instance, studies on ecofeminism advocates the active role in displaying environmental behavior by females more than males due to diverse biological, cultural, and social roles (Sakellari and Skanavis 2013). This probably affects how women demonstrate environmental behavior if they are married. In support to this, it is argued that combining demographic variables as a test variable would better help in shaping environmental education research and theory. We suggest that the interaction among these demographic variables can potentially help in explaining pro-environmental behavior, which was completely overlooked and needs to be explored.

Interaction of gender and marital status

Literature on interaction among demographic variables was unimpressive and highly fragmented on selection of variables in particular. For instance, Dobscha and Ozanne (2001) studied the ecological self of women, which affect their consumption by taking a sample of white women. Consumer behavior for pro-environmental products of young consumers (Witkowski and Reddy 2010) and women with children was examined to check ethical consumption and environmental belief in developed countries (Pickett-Baker and Ozaki 2008). Besides this, it was found that women having children felt that their motherly concern for children activates their environmental behavior (Bell and Braun 2010). However, literature signals the dominance of ecofeminism orientation in green consumption, prediction, and argued that ecofeminism inflates once a woman is married. Nevertheless, there is a dearth of empirical research on the effect of gender and marital status on green consumption in general, and on pro-environmental behavior in particular. Based on this discussion, we hypothesize that:

> H_5: Married men, married women, unmarried men and unmarried women differ on their pro-environmental behavior.

Research purpose

Cleveland et al. (2005) observed that there is a tendency among researchers to link general measures of consumers' attitudes and dispositions toward the environment,

purchase of environmental products, and environmental concern, to an aggregated set of environmentally responsible behaviors across a variety of situations. Earlier studies have not been effective in linking the demographic variables with all the related parts of PEB, such as recycling or waste disposal (Diamantopoulos et al. 2003). By exploring the underlying dispositions and nature of PEB combined with demographics, this study suggests a segmentation base and extends the green literature. Our main objective is therefore to test a relationship between socio-demographics and PEB allowing interaction.

Methodology

The sample

Data were collected from major cities of Western India, through an online survey using non-disguised structured questionnaire. Because Western India (Gujarat and Maharastra) contributed maximally in deteriorating environmental quality through emission which is higher than the norms prescribed in NAAQS- 2009 (Ministry of Environment, Forests and Climate Change Annual Report 2015), surveying it should be able to provide valuable insights. The target population for this study was working professionals (full-and part-time practitioners, and students) who were older than 18 years, as they have decision-making power. Working professionals were chosen as they have spending power and highly engaged and therefore can persuade their habits into others' life. The sample size was computed assuming a significance level of 5% and tolerance error of 6.5%, resulting in a minimum acceptable threshold sample size of 228. The questionnaire was administered on convenience sample of 256 consumers (more than the threshold of 228). The questionnaire was pre-tested on 20 respondents consistent with Manaktola and Jauhari (2007) and was modified to address minor changes in ambiguous questions.

Measures

The questionnaire contained two parts: (a) consumer demographics and (b) PEB. The 10-item, 5-point PEB scale aimed at capturing the respondents' PEB anchored by "strongly agree" (5) and "strongly disagree" (1). PEB items were adapted and modified from Cleveland et al. (2005) study, which aimed to relate PEB with environmental locus of control. The measures of behavior include activities aiming at the "3-Rs" (reduce, re-use, and recycle) such as use of energy, use of public transportation, regular servicing of appliances and vehicles, and recycling (refer to Appendix Table 10).

Results

Sample profile

The characteristics of the sample are depicted in Table 1. Of the 256 respondents, males dominated the sample with 68.8% (n = 176), while 31.2% were female respondents

(n = 80). The majority of participants could be ranged from young adulthood to middle-aged, representing 93.8% of the sample, with those in the age group of less than 20 and 20–35 (n = 162, 63.3%) and in the age group of 36–50 (n = 78, 30.5%). At the same time, respondents with high educational levels (postgraduates and doctorate) represented 71.5% (n = 183) of the sample as consistent with an Indian study by Siringi (2012) using sample of educated consumers.

Scale reliability

Before hypotheses testing, reliability should be observed to establish the strength of a scale. Scale reliability was assessed through internal consistency, which is measured by computing Cronbach alpha coefficient (Cronbach 1951). Internal consistency is the capacity of a scale to produce consistent results. The overall alpha (α) coefficient was found to be 0.841, with the Cronbach's alpha if item deleted of all 10 items ranging from 0.806 to 0.843, well above the threshold of 0.6 (Nunnally 1978) (Table 2).

As depicted in Table 3, the mean of all items was more than 3 which indicates that people are displaying higher than the average PEB.

Testing the hypotheses

The purpose of present research was to determine significant differences in PEB exist for socio-demographic variables (age, gender, education and marital status). To test the differential effect of one or more categorical independent variables on more than one metric-dependent variables, MANOVA is used which is an extension of ANOVA (Hair et al. 1998).

Before performing MANOVA, it is needed to check for the presence of outliers. Items 3, 4, 8, and 9 have one outlier, item 5 has two outliers, item 2 has four outliers, while items 1, 6, 7, and 10 have no outliers. Therefore, no case was dropped in further analysis as the effect of presence of such outliers was negligible (Daszykowski et al. 2007). The assumption of MANOVA such as linearity using scatterplots was established. The normality plots for PEB showed that only items 2 and 5 did depart significantly from normality and thus no transformation was made. Furthermore, the

Table 1 Sample characteristics

Variable	Range	Frequency	Percentage
Gender	Male	176	68.8
	Female	80	31.2
Marital status	Single	168	65.9
	Married	87	34.0
Age	<20 and 20–35	164 (~2 + 162)	64.1
	36–50	78	30.5
	More than 50	14	5.5
Education	Graduate and less	72 ~ (61 + 11)	28.2
	Postgraduate	162	63.3
	Doctorate	21	8.2

Table 2 Reliability statistics of dependent variable (PEB)

Variable name	Cronbach's alpha if item deleted	Cronbach's alpha
D1	0.836	0.841
D2	0.816	
D3	0.825	
D4	0.822	
D5	0.806	
D6	0.825	
D7	0.824	
D8	0.822	
D9	0.836	
D10	0.843	

correlations among these 10 items were ranging from 0.145 to 0.684 indicating the absence of multicollinearity.

As study contains 10 different PEBs as dependent variable and four demographic variables as independent variables, four separate MANOVA were performed. Considering gender, results of MANOVA test for PEBs were shown in Table 4. It was found that male and female display differential PEBs (Wilks' $\lambda = 0.913$; $F = 2.241$; $p < 0.05$; $\eta^2 = 0.091$). Partial eta squared (0.091) evidenced reasonable good effect size, indicating that gender explains 9.1% of variance in PEB. Therefore, H_1 was confirmed. Furthermore, from the mean analysis of items 1, 3, 4, 5, 6, 7, 8 and 9, it was found that male consumers reported a comparatively higher degree of PEB than their female counterparts. Interestingly, these items represent behaviors that are significantly less convenient than environmentally un-friendly equivalents. However, females have higher mean scores for item 2 (regular servicing) and 10 (checking the wrapper), which indicate that women were willing to tolerate a higher level of inconvenience physically and psychologically as well.

Moreover, MANOVA results for age and PEB were depicted in Table 5. It was found that PEB varies significantly across different age groups (Wilks' $\lambda = 0.814$; $F = 2.543$; $p < 0.05$; $\eta^2 = 0.098$). Thus, H_2 was supported. Furthermore, Tukey's post hoc test was performed to detect which group differs from other groups on study

Table 3 Pro-environmental behavior scale

Variable	Mean	Standard deviation	Variable	Mean	Standard deviation
D1	3.30	1.17	D6	3.61	1.18
D2	3.79	0.99	D7	3.65	1.19
D3	3.57	1.11	D8	3.49	0.93
D4	3.61	1.14	D9	3.36	1.09
D5	3.90	1.16	D10	3.08	0.90

Relating demographic variables to pro-environmental behavior (PEB)

Table 4 MANOVA results for gender on PEB

Effect			Value	*F* value	Significance
Multivariate results Gender	Pillai's trace		0.087	2.241[a]	0.016*
	Wilks' lambda		0.913	2.241[a]	0.016*
	Hotelling's trace		0.095	2.241[a]	0.016*
	Roy's largest root		0.095	2.241[a]	0.016*
Group means	Item 1	Item 2	Item 3	Item 4	Item 5
Male	3.35	3.75	3.67	3.62	3.94
Female	3.19	3.86	3.36	3.60	3.81
Group means	Item 6	Item 7	Item 8	Item 9	Item 10
Male	3.67	3.72	3.58	3.36	3.02
Female	3.45	3.48	3.29	3.35	3.23

Partial eta squared = 0.091

*$p < 0.05$

[a] Exact statistic

variables. Table 5 shows that the age group of 36–50 has the higher degree of PEB orientation compared to the age groups of less than 20 and 20–35, while age group of 50+ has higher degrees of PEB orientation compared to the age groups of less than 20 and 20–35 for item 5 and item 7. For the rest of the items, both groups displayed insignificant difference. The difference between age group of 36–50 respondents with the age group of 50 and more was statistically insignificant.

The multivariate main effect for education was significant, indicating variations in the various displayed PEBs as shown in Table 6. Results demonstrated that education creates significant difference in PEB (Wilks' $\lambda = 0.879$; $F = 1.560$; $p < 0.1$; $\eta^2 = 0.063$). This indicated that H_3 was supported. Furthermore, Tukey's post hoc analysis revealed that these groups were same on PEB orientations except for item 6 and item 8. For item 6, consumers with highest education (doctorate) displayed higher PEB compared to consumers who are post-graduates (PG) and graduates. In fact, consumers who are post-graduates are less pro-environmental than consumers with highest education for item 8. Moreover for item 8, consumers who are doctorate are more prone to PEB than PG.

For marital status (refer to Table 7), it was found that PEB is significantly different for married and unmarried consumers (Wilks' $\lambda = 0.843$; $F = 4.380$; $p < 0.05$; $\eta^2 = 0.151$). The mean score of the respondents indicates that from items 1 to 10, the mean score of the married individual is highly compared to the unmarried individual. Based upon this, we can clearly say that overall, married people have the highest orientation toward PEB compared to their unmarried counterparts.

An interaction effect between gender and marital status was computed by developing four groups: i.e., single men, single women, married men, and married women for pro-environmental behavior. MANOVA was performed. The results of this interaction effect was detailed in Table 8, which shows a significant effect (Wilk's $\lambda = 0.741$; $F = 2.464$; $p < 0.05$). To detect which sub-group creates the difference in general, post hoc analysis was carried. Married men displayed higher PEB than unmarried men for

Table 5 MANOVA results for age of respondent on PEB

Effect			Value	*F* value	Significance
Multivariate results Age	Pillai's trace		0.190	2.483	0.000*
	Wilks' lambda		0.814	2.543	0.000*
	Hotelling's trace		0.223	2.603	0.000*
	Roy's largest root		0.193	4.560[a]	0.000*
Group means	Item 1	Item 2	Item 3	Item 4	Item 5
A1 > A2	−0.46*	−0.45*	−0.69	−0.34**	−0.62*
A2 > A3	NS	NS	NS	NS	NS
A1 > A3	NS	NS	NS	NS	−0.73**
Group means	Item 6	Item 7	Item 8	Item 9	Item 10
A1 > A2	−0.58*	−0.76*	−0.49*	−0.48*	NS
A2 > A3	NS	NS	NS	NS	NS
A1 > A3	NS	−0.97*	NS	NS	NS

Partial eta squared = 0.098

A1 <20 and 20–35 age group, *A2* 36–50 age group, *A3* 50 + age group, *NS* not significant

* $p < 0.05$; ** $p < 0.1$

[a] Exact statistic

all items except item 4, item 9, and item 10. Unmarried men showed a higher PEB than unmarried women for item 3. As for rest of the items, they were indifferent.

Admittedly, married women displayed higher PEB than unmarried men for item 2 and item 7 and for rest of the item, they were indifferent. Married men displayed higher PEB than unmarried women for item 1, item 5, item 7, and item 8. However, unmarried women were more pro-environmental than married men for item 3 and item 6.

Table 6 MANOVA results for level of education on PEB

Effect			Value	*F* value	Significance
Multivariate results Education	Pillai's trace		0.125	1.565	0.057**
	Wilks' lambda		0.879	1.560	0.058**
	Hotelling's trace		0.134	1.556	0.059**
	Roy's largest root		0.079	1.865	0.051**
Group means	Item 1	Item 2	Item 3	Item 4	Item 5
Grad > PG	NS	NS	NS	NS	NS
PG > doctorate	NS	NS	NS	NS	NS
Grad > doctorate	NS	NS	NS	NS	NS
Group means	Item 6	Item 7	Item 8	Item 9	Item 10
Grad > PG	NS	NS	NS	NS	NS
PG > doctorate	−0.74*	NS	−0.53*	NS	NS
Grad > doctorate	−0.87*	NS	NS	NS	NS

Partial eta squared = 0.063

NS not significant

**Significant at 0.1 level

Table 7 MANOVA results for marital status on PEB

Effect			Value	*F* value	Significance
Marital status	Pillai's trace		0.157	4.380[a]	0.000*
	Wilks' lambda		0.843	4.380[a]	0.000*
	Hotelling's trace		0.186	4.380[a]	0.000*
	Roy's largest root		0.186	4.380[a]	0.000*
Group means	Item 1	Item 2	Item 3	Item 4	Item 5
Single	3.14	3.64	3.35	3.57	3.72
Married	3.62	4.07	4.00	3.68	4.25
Group means	Item 6	Item 7	Item 8	Item 9	Item 10
Single	3.41	3.42	3.33	3.25	3.05
Married	4.02	4.08	3.80	3.55	3.14

Partial eta squared = 0.152

*$p < 0.05$

[a] Exact statistic

Interestingly, married men and women showed indifference on PEB. Furthermore, married women displayed higher PEB than unmarried women for item 2, item 3, and item 7 and for rest of items, they were indifferent.

Table 8 MANOVA results for marital status and gender on PEB

Effect		Value	*F* value		Significance
Multivariate results	Pillai's trace	0.277	2.404		0.000**
Gender × marital status	Wilks' lambda	0.741	2.464		0.000**
	Hotelling's trace	0.325	2.522		0.000**
	Roy's largest root	0.230	5.424		0.000**
Group means	Item 1	Item 2	Item 3	Item 4	Item 5
Unmarried men > married men	−0.54*	−0.38**	−0.52*	NS	−0.56*
Unmarried men > unmarried women	NS	NS	-0.43**	NS	NS
Unmarried men > married women	NS	−0.69*	NS	NS	NS
Married men > unmarried women	0.63*	NS	−0.96*	NS	0.64*
Married men > married women	NS	NS	NS	NS	NS
Unmarried women > married women	NS	−0.62**	−0.98*	NS	NS
Group means	Item 6	Item 7	Item 8	Item 9	Item 10
Unmarried men > married men	−0.58*	−0.49*	−0.53*	NS	NS
Unmarried men > unmarried women	NS	NS	NS	NS	NS
Unmarried men > married women	NS	−0.62**	NS	NS	NS
Married men > unmarried women	−0.80*	0.83*	0.71*	NS	NS
Married men > married women	NS	NS	NS	NS	NS
Unmarried women > married women	NS	−0.96*	NS	NS	NS

NS not significant

*$p < 0.05$; **$p < 0.1$

Discussion and implications

"Going green" is now becoming a social norm for many people (Paul et al. 2016). We find that consumers can easily persuade and integrate various PEBs into their lifestyles and no longer stress the element of sustainability. Such environmental behaviors can have potential to become moral norms in a given society, which can guide the behaviors of many consumers. Therefore, the outcome of this study will have a positive impact on firms that formulate strategies based on PEB and engage in the development of market for green products.

The results are in line with the notion of role theory, which assumes that different groups of people driven by different roles display different behavior at the microlevel (Eagly et al. 2000). The study depicts that PEB is shaped differently among males and females due to varied expectations within the context. Regarding the behavioral domain, age, education, and marital status of consumers also behaved exactly as hypothesized. Furthermore, the results of interactive studies examining gender and marital status with PEB are somewhat more consistent at the microlevel than the other demographic variables.

A plausible explanation to why males display more PEB, compared to females, is the changing roles of men and women in India. Traditionally, "male approach to morality" is characterized by fairness, individual rights, individual autonomy, conflict of rights, hierarchy, logical, and abstract thinking and the "female approach to morality" is characterized by care, responsibility, self-in-relationship, hurt-avoidance, lateral networks, and fear of lack of connection (Stern et al. 2005) (Lee 2009, p. 92). Importantly, this variation in PEB is possibly attributed to the low level of awareness of environmental issues among women. Traditionally, males in India are deemed responsible for providing "economic security" to the family and are therefore concerned about all economic aspects of family. Therefore, pro-environmental behaviors such as "energy conservation" and "economical driving" can be established as a standard moral norm among males that has a potential to improve environmental quality. The findings of the study can help prevent marketers from considering the male and female segment as identical and help to determine and use these variables in environmental marketing segmentation under a broader business strategy. Since males are often more rationale and logical, green marketers can pursue their PEB orientation with centrally routed persuasion in their communications in order to facilitate market penetration. However, policy makers can develop programs for increasing the level of PEB among females. For gender-based environmental education, government can reduce the information asymmetry relating to the eco-labels and make them aware about the logo and credibility (Delmas and Lessem 2015).

Linking PEB and age, it was inferred that a more mature demographic (age group 36–50) has higher degrees in displaying PEB orientation; compared to the younger adults (age group 20–35 and less). Similar PEB found in consumption of green electricity for the mature demographic compared to younger adults (Welsch and Kühling 2009). This is inconsistent with the ideology reflecting: "since solutions to environmental problems often are viewed as threatening to the existing social order, possibly requiring substantial changes in traditional values, habitual behaviours, and

existing institutions." It is logical to expect youth to support environmental reform (Van Liere and Dunlap 1980). Government should encourage "value education" in schools and instill these PEB behaviors as "ethical behaviors" that help to develop formation of PEB at younger ages.

For marital status and PEB, it is reported that married people than unmarried people display green behaviors more. Possibly, spouses exert a social pressure by supporting husbands' environmental friendly attitudes, and eventually PEB (Macey and Brown 1983). Family life cycle marketing can be used to feel others about their increased responsibility and this responsibility orientation can be linked to their environmental responsibility. Companies can develop YouTube adverts featuring how this increased responsibility in family helps to enhance individual self-control and care for some PEB such as "economic driving & regular servicing," "energy conservation," and "purchase of energy efficient bulbs."

Interaction between gender and marital status provides valuable information to green marketer in order to identify niche markets. At a microlevel, married men compared to unmarried men and women use public transport and unmarried women, as they are the head of the household and responsible for their actions. The fact is that they have their better halves as companions on short trips. Policy makers must reinforce this behavior through canvasing in mass media communications with a view to have sustainable element in their lifestyles. Women always take care of their bike/car by regularly taking them to service stations and also drive slowly and consistently compared to unmarried men or married men. This act of conserving energy needs to be supported by offering incentives to consumers classified through solid credit/point mechanism.

Furthermore, in consumption of more energy-efficient bulbs, unmarried women display no hesitation in willingness to pay more for such products compared to married men and unmarried men. Because of not having many responsibilities, women, when single, can adjust their budget on such eco-friendly products. This family life cycle stage situation could be used in order to create an interest among other unmarried women and attempt should be made by electrical companies and government to communicate energy savings statistics loudly. As these people more targeted can act as future consumers and act as opinion leader once they get married for their husbands, children, etc., which promises sustainable and potential market to target. The government should motivate consumers by subsidizing energy-efficient equipments to establish the adoption of such alternatives as code of conduct in society. For example, the Government of India has successfully distributed 158.7 million subsidized LED bulbs under "Ujala Yojana" that helps to save energy up to 56 million kWh (National Ujala Dashboard 2016). The purchase of Ujala LED bulbs in India now become a more ethical choice as consumers are aware about their impact of such large-scale consumption of bulbs on environment.

Many environmental friendly products and brands have achieved disappointingly low levels of market share and to get rid of such issues the interactive results at the microlevel may be useful to target different categories of environmental friendly consumer products and brands to a particular segment

(Kalafatis et al. 1999). Therefore, the study appeals that companies should devise their strategies for different brands and products to encompass the market. Even companies that offer environmentally sustainable products, it is suggested that despite high levels of consumer concern for ethical consumption, effective communication strategies at the microlevel are important to increase consumers' likelihood of engaging in ethical consumption behaviors (e.g., choice of an environmentally sustainable product over a traditional alternative) (Bodur et al. 2014). Many prior studies underline that socially responsible firms adopt green policies and environmental friendly products. By adopting such policies, the quantifiable profit may not be generated in the short run, but it may have economic payoff in the long run (Hart and Ahuja 1996) because market trend is moving in a direction likely to result in more pro-environmental behavior (Pickett-Baker and Ozaki 2008).

Apart from the strategy of business, this study sheds light on practical insights for policy makers, in order to transform various PEBs displayed by specific consumer groups into more sustainable lifestyles. Developing appropriate messages and interventions targeted to the public by policy makers to create awareness about how such lifestyles minimize the negative impacts on environment, encourages these greener lifestyles. The interventions must highlight the sustainable element attached with each PEB weighed by consumers, in order to increase persuasion among the consumers. Government should reinforce certain PEBs whose impact on environment is major, such as adoption of hybrid vehicles by offering incentives may be offered or tax waiving or credits (Gallagher and Muehlegger 2011).

Limitations and directions for future research

All variables are measured on self-reported scales, imposing a limitation on generalizability of findings. Caution must be taken in generalizing the findings of the study. At the same time, only some demographic and psychographic variables were investigated, allowing interaction of gender and marital status. Other variables such as combination of demographic and socio-demographic factors (Grunert and Juhl 1995; Roberts and Bacon 1997) also have a significant impact on PEB. Furthermore, there are not enough respondents those who are above 50 in this study. (This study comprises only 14 consumers older than 50 and therefore caution should be exercised while generalizing results for elderly consumers).

It is worth-noting that increasing the number of relevant variables might help in deriving more reliable results in future studies and bring a new insight for marketers and researchers. Another possibility for future researchers is to understand the relationship between PEB and purchase intentions of consumers, especially considering demographic variables as intervening factors. There are opportunities to examine the cause and effect relationship between different variables too. It is also possible to develop new theories and test the existing theories using different variables, which will facilitate better understanding, which in turn, will help for prediction, etc.

Appendix I

Table 9 Literature summary of relationships between socio-demographics and environmental variables

Variable	Study (authors)	Country	Ecological value/ concern	Environmental knowledge/ literacy	Environmental attitude	Recycling behavior (and other pro-environmental behaviors)	Environmentally friendly behavior
Gender	Kheiry and Nakhaei (2012)	Iran	NS	NS	N/A	N/A	NS
	Chen et al. (2011)	China	N/A	N/A	N/A	S	N/A
	Chen, Hsu and Lin (2011)	Taiwan	N/A	NS	NS	NS	N/A
	Xiao and Hong (2010)	China	N/A	S	N/A	N/A	S
	Oerke and Bogner (2010)	Germany	S	N/A	N/A	N/A	N/A
	Braun (2010)	Victoria, Ballarat	N/A	N/A	S	N/A	N/A
	Jacob et al. (2009)	Berkeley, California, US	N/A	N/A	N/A	N/A	NS
	Lee (2008)	Hong Kong	N/A	N/A	N/A	N/A	S (+ve)
	Diamantopoulos et al. (2003)	UK	N/A	NS	S (+ve)	S (+ve)	S (+ve)
	Straughan and Roberts (1999)	US	N/A	N/A	N/A	N/A	S
	Lyons and Breakwell (1994)	UK	NS	N/A	N/A	N/A	N/A
Age	Kheiry and Nakhaei (2012)	Iran	NS	NS	N/A	N/A	NS
	Chen et al. (2011)	China	N/A	N/A	N/A	S	N/A
	Chen, Hsu and Lin (2011)	Taiwan	N/A	NS	NS	S	S
	Xiao and Hong (2010)	China	N/A	NS	N/A	N/A	S
	Oerke and Bogner (2010)	Germany	S	N/A	N/A	N/A	N/A
	Lee (2008)	Hong Kong	N/A	N/A	N/A	N/A	NS
	Diamantopoulos et al. (2003)	UK	N/A	S (−ve)	S (−ve)	S (+ve)	NS
	Straughan and Roberts (1999)	US	N/A	N/A	N/A	N/A	S

Table 9 (continued)

Variable	Study (authors)	Country	Ecological value/ concern	Environmental knowledge/ literacy	Environmental attitude	Recycling behavior (and other pro-environmental behaviors)	Environmentally friendly behavior
	Lyons and Breakwell (1994)	UK	S	N/A	N/A	N/A	N/A
Education	Kheiry and Nakhaei (2012)	Iran	NS	NS	N/A	N/A	NS
	Chen et al. (2011)	China	N/A	N/A	N/A	S	N/A
	Chen, Hsu and Lin (2011)	Taiwan	N/A	S	S	S	N/A
	Xiao and Hong (2010)	China	N/A	S	N/A	N/A	S
	Lee (2008)	Hong Kong	N/A	N/A	N/A	N/A	NS
	Diamantopoulos et al. (2003)	UK	N/A	S	NS	S	NS
Marital status	Kheiry and Nakhaei (2012)	Iran	NS	NS	N/A	N/A	NS
	Chen et al. (2011)	China	N/A	N/A	N/A	S	N/A
	Jacob et al. (2009)	Berkeley, California, US	N/A	N/A	N/A	N/A	S
	Diamantopoulos et al. (2003)	UK	N/A	NS	NS	NS	S (−ve)

NS non-significant, *S* significant, *N/A* not available

+ve Positive, -ve Negative

Appendix II

Table 10 PEB measures

PEB was measured using 10 items as following:

- "I use public transport (bus/train) whenever that option is available"
- "I keep my bike/car well-tuned by taking it for regular service"
- "I drive my bike/car more slowly and consistently"
- "I usually turn off the bike/car at the red signal at traffic point"
- "I turn off all electronic equipments when not in use"
- "I usually buy more expensive but more energy-efficient light bulbs"
- "I prefer to walk rather than drive to a store that is just a few blocks away"
- "I refuse to buy products from companies accused of being environmental polluters"
- "I take my own carry bags while shopping"
- "When buying something wrapped, I check that it is wrapped in paper or cardboards made from recycled material"

References

Aaker, D. A., & Bagozzi, R. P. (1982). Attitudes toward public policy alternatives to reduce air pollution. *Journal of Marketing, 1*, 85–94.

Abeliotis, K., Koniari, C., & Sardianou, E. (2010). The profile of the green consumer in Greece. *International Journal of Consumer Studies, 34*, 153–160.

Ählström, J., Macquet, M., & Richter, U. (2009). The lack of a critical perspective in environmental management research: distortion in the scientific discourse. *Business Strategy and the Environment, 18*, 334–346.

Akehurst, G., Afonso, C., & Helena, M. G. (2012). Re-examining green purchase behavior and the green consumer profile: new evidences. *Management Decision, 50*, 972–988.

Albayrak, T., Caber, M., Moutinho, L., & Herstein, R. (2011). The influence of scepticism on green purchase behaviour. *International Journal of Business and Social Science, 2*, 189–197.

Awad, T. A. (2011). Environmental segmentation alternatives: Buyers' profiles and implications. *Journal of Islamic Marketing, 2*, 55–73.

Anderson, T. W., Henion, K. E., & Cox, E. P. (1974). "Socially vs. ecologically responsible consumers". Paper presented at AMA Combined Conference Proceedings, Chicago, IL: American Marketing Association; 304–11.

Auger, P., Burke, P., Devinney, T. M., & Louviere, J. J. (2003). What will consumers pay for social product features? *Journal of Business Ethics, 42*(3), 281–304.

Axelrod, L., & Lehman, D. (1993). Responding to environmental concerns: what factors guide individual action? *Journal of Environmental Psychology, 13*, 149–159.

Balderjahn, I. (1988). Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns. *Journal of Business Research, 1*, 51–56.

Banerjee, S., & McKeage, K. (1994). "How green is my value: exploring the relationship between environmentalism and materialism". In Allen, C.T. and John, D.R. (Eds.), *Advances in consumer research*, Association for Consumer Research, Provo, 21, 147–152.

Bansal, S., & Gangopadhyay, S. (2003). Tax/subsidy policies in the presence of environmentally aware consumers. *Journal of Environmental Economics and Management, 54*, 129–145.

Bell, S. E., & Braun, Y. A. (2010). Coal, identity, and the gendering of environmental justice activism in central Appalachia. *Gender & Society, 24*, 794–813.

Best, H., & Mayerl, J. (2013). Values, beliefs, attitudes: an empirical study on the structure of environmental concern and recycling participation. *Social Science Quarterly, 3*, 691–714.

Bhatt, S., & Sharma, S. (2012). Going green. *International Journal of Management Research and Reviews, 2*, 1400–1404.

Bloemer, J., & de Ruyter, K. (2001). The impact of attitude strength on the acceptance of green services. *Journal of Retailing and Consumer Services, 9*, 45–52.

Bodur, M., & Sarigöllü, E. (2005). Environmental sensitivity in a developing country: consumer classification and implications. *Environment and Behavior, 37*, 487–510.

Bodur, H. O., Duval, K. M., & Grohmann, B. (2014). Will you purchase environmentally friendly products? Using prediction requests to increase choice of sustainable products. *Journal of Business Ethics, 129*(1), 59–75.

Braun, P. (2010). Going green: women entrepreneurs and the environment. *International Journal of Gender and Entrepreneurship, 2*, 245–259.

Bui, M. (2005). "Environmental marketing: a model of consumer behaviour". Proceedings of the Annual Meeting of the Association of Collegiate Marketing Educators; 20–28.

Burton, R. J. F. (2014). The influence of farmer demographic characteristics on environmental behavior: a review. *Journal of Environmental Management, 135*, 19–26.

Carrington, M., Neville, B., & Whitwell, G. (2010). Why ethical consumers don't walk their talk: towards a framework for understanding the gap between the ethical purchase intentions and actual buying behaviour of ethically minded consumers. *Journal of Business Ethics, 97*(1), 139–158.

Castro, P. (2006). Applying social psychology to the study of environmental concern and environmental worldviews: contributions from the social representations approach - Castro - 2006. *Journal of Community & Applied Social Psychology - Wiley Online Library, 266*, 247–266.

Chan, A., Wong, S., & Leung, P. (1998). Ethical beliefs of Chinese consumers in Hong Kong. *Journal of Business Ethics, 17*(11), 1163–1170.

Chan, A., Wong, S., & Leung, P. (2008). Applying ethical concepts to the study of "green" consumer behaviour: an analysis of Chinese consumers' intentions to bring their own shopping bags. *Journal of Business Ethics, 79*, 469–481.

Chang, C.-H. (2011). The influence of corporate environmental ethics on competitive advantage: the mediation role of green innovation. *Journal of Business Ethics, 104*, 361–370.

Chang, M.-C., & Wu, C.-C. (2015). The effect of message framing on pro-environmental behaviour intentions: an information processing view. *British Food Journal., 117*(1), 339–357.

Chen, F., Hsu, P., & Lin, T. (2011a). Air travellers' environmental consciousness: a preliminary investigation in Taiwan. *International Journal of Business and Management, 6*, 78–86.

Chen, X., Peterson, M. N., Hull, V., Lu, C., Lee, G. D., Hong, D., & Liu, J. (2011b). Effects of attitudinal and socio-demographic factors on pro-environmental behaviour in urban China. *Environmental Conservation, 38*, 45–52.

Chen, L. (2013). A study of green purchase intention comparing with collectivistic (Chinese) and individualistic (American) consumers in Shanghai, China. *Information Management and Business Review, 5*, 342–346.

Chen, Y. S., & Chang, C. H. (2013). Greenwash and green trust: the mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics, 114*(3), 489–500.

Cherian, J., & Jacob, J. (2012). Green marketing: a study of consumers' attitude towards environment friendly products. *Asian Social Science, 8*, 117–126.

Clark, C. F., Kotchen, M. J., & Moore, M. R. (2003). Internal and external influences on pro-environmental behaviour: participation in a green electricity program. *Journal of Environmental Psychology, 23*, 237–246.

Cleveland, M., Kalamas, M., & Laroche, M. (2005). Shades of green: linking environmental locus of control and pro-environmental behaviours. *Journal of Consumer Marketing, 22*, 198–212.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297–334.

Crosby, L. A., Gill, J. D., & Taylor, J. R. (1981). Consumer/voter behaviour in the passage of the Michigan container law. *Journal of Marketing, 45*, 19–32.

Daszykowski, M., Kaczmarek, K., Vander Heyden, Y., & Walczak, B. (2007). Robust statistics in data analysis—a review. *Chemometrics and Intelligent Laboratory Systems, 85*(2), 203–219.

De Pelsmacker, P., Driesen, L., & Rayp, G. (2005). Do consumers care about ethics? Willingness to pay for fair-trade coffee. *Journal of Consumer Affairs, 39*(2), 363–385.

Delmas, M. A. & Lessem, N. (2015). "Eco-premium or eco-penalty? Eco-labels and quality in the organic wine market". *Business & Society,* Available at SSRN: http://ssrn.com/abstract=2443145

D'Souza, C., Taghian, M., Lamb, P., & Peretiatkos, R. (2007). Green decisions: demographics and consumer understanding of environmental labels. *International Journal of Consumer Studies, 31*, 371.

Diamantopoulos, A., Schlegelmilch, B. B., Sinkovics, R. R., & Bohlen, G. M. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of Business Research, 56*, 465–480.

Dietz, T., Stern, P. C., & Guagnano, G. A. (1998). Social structural and social psychological bases of environmental concern. *Environment and Behavior, 30*, 450–471.

Dobscha, S., & Ozanne, J. L. (2001). An ecofeminist analysis of environmentally sensitive women using qualitative methodology: the emancipatory potential of an ecological life. *Journal of Public Policy & Marketing, 20*(2), 201–214.

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*, 425–442.

Eagly, A.H., Wood, W., Diekman, A.B. (2000). "Social role theory of sex differences and similarities: a current appraisal." The Developmental Social Psychology of Gender. 123–174.

Enderle, G., & Niu, Q. (2012). Discerning ethical challenges for marketing in China. *Asian Journal of Business Ethics, 1*(2), 143–162.

Fisk, G. (1973). Criteria for a theory of responsible consumption. *Journal of Marketing, 37*, 24–31.

Gallagher, K. S., & Muehlegger, E. (2011). Giving green to get green? Incentives and consumer adoption of hybrid vehicle technology. *Journal of Environmental Economics and Management, 61*, 1–15.

Getzner, M., & Grabner-Kraüter, S. (2004). Consumer preferences and marketing strategies for 'green shares. *The International Journal of Bank Marketing, 22*, 260–278.

Gooch, G. D. (1995). Environmental beliefs and attitudes in Sweden and the Baltic states. *Environmental Behavior, 27*, 513–539.

Greendex Survey (2014). 2014 Greendex Reports, Accessed from www.environment.nationalgeographic.com/environment/greendex/. Accessed on 14 Sep 2016, 3.00 pm

Grunert, S. C., & Juhl, H. J. (1995). Values, environmental attitudes, and buying of organic foods. *Journal of Economic Psychology, 16*, 39–62.

Grunert, S. C., & Kristensen, K. (1994). The green consumer: some Danish evidence. *Marketing Review, 19*, 138–145.

Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on attitude-behavior relationships: a natural experiment with curbside recycling. *Environment and Behavior, 27*, 699–718.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River: Prentice-Hall.

Harris, P. G. (2006). Environmental perspectives and behaviour in China: synopsis and bibliography. *Environment and Behavior, 38*, 5–21.

Hart, S. & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment, 5*, 30–37.

Heath, Y., & Gifford, R. (2002). Extending the theory of planned behavior: predicting the use of public transportation. *Journal of Applied Social Psychology, 32*, 2154–2189.

Hendry, J. R. (2006). Taking aim at business: what factors lead environmental non-governmental organizations to target particular firms? *Business & Society, 45*(1), 47–86.

Ishaswini, & Datta, S. K. (2011). Pro-environmental concern influencing green buying: a study on Indian consumers. *International Journal of Business and Management, 6*, 124–133.

Jacob, J., Jovic, E., & Brinkerhoff, M. (2009). Personal and planetary well-being: mindfulness meditation, environmental behaviour and personal quality of life in a survey from the social justice and ecological sustainability movement. *Social Indicators Research, 93*, 275–294.

Jain, S., & Kaur, G. (2006). Role of socio-demographics in segmenting and profiling green consumers: an exploratory study of consumers in India. *Journal of International Consumer Marketing, 18*, 107–117.

Jamali, D., & Mirshak, R. (2007). Corporate social responsibility (CSR): theory and practice in a developing country context. *Journal of Business Ethics, 72*, 243–262.

Jansson, J., Marell, A., & Nordlund, A. (2010). Green consumer behaviour: determinants of curtailment and eco-innovation adoption. *Journal of Consumer Marketing, 27*, 358–370.

Johnstone, M.-L., & Tan, L. P. (2015). Exploring the gap between consumers' green rhetoric and purchasing behavior. *Journal of Business Ethics, 132*, 311–328.

Kaida, N., & Kaida, K. (2016). Pro-environmental behavior correlates with present and future subjective well-being. *Environment, Development and Sustainability, 18*(1), 111–127.

Kalafatis, S. P., Pollard, M., East, R., & Tsogas, M. H. (1999). Green marketing and Ajzen's theory of planned behaviour: a cross-market examination. *Journal of Consumer Marketing., 16*, 441–460.

Kassarjain, H. (1971). Incorporating ecology into marketing strategy: the case of air pollution. *Journal of Marketing, 35*, 61–65.

Kheiry, B., & Nakhaei, A. (2012). Consumers' green purchase decision: an examination of environmental beliefs, environmental literacy and demographics. *International Journal of Marketing and Technology, 2*, 171–183.

Kahn, M. E. (2007). Do greens drive hummers or hybrids? Environmental ideology as a determinant of consumer choice. *Journal of Environmental Economics and Management, 45*, 333–355.

Kim, S., Yeo, J., Sohn, S. H., Rha, J., Choi, S., Choi, A., & Shin, S. (2012). Toward a composite measure of green consumption: an exploratory study using a Korean sample. *Journal of Family and Economic Issues, 33*, 199–214.

Kilbourne, W. E., & Polonsky, M. J. (2005). Environmental attitudes and their relation to the dominant social paradigm among university students in New Zealand and Australia. *Australasian Marketing Journal, 13*, 37–48.

Kinnear, T., Taylor, J., & Ahmed, S. (1974). Ecologically concerned consumers: who are they? *Journal of Marketing, 38*, 20–24.

Klineberg, S., McKeever, M., & Rothenbach, B. (1998). Demographic predictors of environmental concern: it does make a difference how it's measured. *Social Science Quarterly, 79*, 734–753.

Kollmus, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research, 8*, 239–260.

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*, 503–520.

Laroche, M., Toffoli, R., Kim, C., & Muller, T. E. (1996). The influence of culture on pro-environmental knowledge, attitudes, and behaviours: a Canadian perspective. In K. P. Corfman & J. Lynch (Eds.), *Advances in consumer research, 23* (pp. 196–202). Provo: Association for Consumer Research.

Lee, K. (2008). Making environmental communications meaningful for female - study in Hong Kong. *Science Communication, 30*, 147–176.

Lee, K. (2009). Gender differences in Hong Kong adolescent consumers' green purchasing behaviour. *Journal of Consumer Marketing, 26*, 87–96.

Lee, H., Kurisu, K., & Hanaki, K. (2013). Influential factors on pro-environmental behaviours–a case study in Tokyo and Seoul. *Low Carbon Economy, 4*, 104–116.

Leeuw, A., Valois, P., Ajzen, I., & Schmidt, P. (2015). Using the theory of planned behaviour to identify key beliefs underlying pro-environmental behaviour in high-school students. *Journal of Environmental Psychology, 42*, 128–138.

Li, J. J., & Su, C. (2007). How face influences consumption: a comparative study of American and Chinese consumers. *International Journal of Market Research, 49*, 237–256.

Luchs, M. G., & Mooradian, T. A. (2012). Sex, personality, and sustainable consumer behaviour: elucidating the gender effect. *Journal of Consumer Policy, 35*, 127–144.

Luo, Y., & Deng, J. (2008). The new environmental paradigm and nature-based tourism motivation. *Journal of Travel Research, 46*, 392–402.

Lyons, E., & Breakwell, G. M. (1994). Factors predicting environmental concern and indifference in 13- to 16-year-olds. *Environment and Behavior, 26*, 223–238.

Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour towards green practices in the lodging industry in India. *International Journal of Contemporary Hospitality Management, 19*(5), 364–377.

McCarty, J. A., & Shrum, L. J. (2001). The influence of individualism, collectivism, and locus of control on environmental beliefs and behaviour. *Journal of Public Policy & Marketing, 20*, 93–104.

Meffert, H., & Bruhn, M. (1996). Das Umweltbewußtsein von Konsunenten. *Die Betriebswirtsch., 56*, 621–658.

Meijer, M.-M., & Schuyt, T. (2005). Corporate social performance as a bottom line for consumers. *Business & Society, 44*(4), 442–461.

Macey, S. M., & Brown, M. A. (1983). Residential energy conservation: the role of past experience in repetitive household behaviour. *Environment and behaviour, 15*, 123–141.

McDonald, S., Oates, C. J., Alevizou, P. J., Young, C. W., & Hwang, K. (2012). Individual strategies for sustainable consumption. *Journal of Marketing Management, 28*(3/4), 445–468.

Marquart-Pyatt, S. T. (2008). Are there similar sources of environmental concern? Comparing industrialized countries. *Social Science Quarterly., 89*, 1312–1335.

Mascarenhas, O. A. J. (1995). Exonerating unethical marketing executive behaviors: a diagnostic framework. *Journal of Marketing, 59*(2), 43–57.

Menon, A., & Menon, A. (1997). Enviropreneurial marketing strategy: the emergence of corporate environmentalism as market strategy. *Journal of Marketing, 61*, 51–67.

Meyer, A. (2016). Heterogeneity in the preferences and pro-environmental behaviors of college students: the effects of years on campus, demographics and external factors. *Journal of Cleaner Production, 112*(4), 3451–3463.

Ministry of Environment, Forests and Climate Change (2015). Annual Report 2014–15. Accessed from http://www.moef.gov.in/sites/default/files/Environment%20Annual%20Report%20%20Eng..pdf, Accessed on 12 Sep 2016, 11.00 am

Molla, A., Abareshi, A., & Cooper, V. (2014). Green IT beliefs and pro-environmental IT practices among IT professionals. *Information Technology & People, 27*, 129–154.

Moser, G., & Uzzell, D. L. (2003). Environmental psychology. In T. Millon & M. J. Letter (Eds.), *Comprehensive handbook of psychology, 5: personality and social psychology* (pp. 419–445). New York: Wiley.

Mtutu, P., & Thondhlana, G. (2016). Encouraging pro-environemntal behaviour: energy use and recycling at Rhodes University, South Africa. *Habitat International, 53*, 142–150.

Myers, J. H. (1996). *Segmentation and positioning for strategic marketing decisions*. Chicago, IL: American Marketing Association.

National Ujala Dashboard (2016). Ministry of Power, Government of India, Accessed from: http://www.ujala.gov.in/, Accessed on 14.09.2016, 9.00 pm.

Newell, S. J., & Green, C. L. (1997). Racial differences in consumer environmental concern. *The Journal of Consumer Affairs, 31*, 53–69.

Newholm, T., & Shaw, D. (2007). Editorial: studying the ethical consumer: a review of research. *Journal of Consumer Behaviour, 6*, 253–270.

Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.

Oerke, B., & Bogner, F. X. (2010). Gender, age and subject matter: impact on teachers' ecological values. *Environmentalist, 30*, 111–122.

Paco, A., & Raposo, M. (2009). Green' segmentation: an application to the Portuguese consumer market. *Marketing Intelligence and Planning, 27*, 364–379.

Paul, J., & Rana, J. (2012). Consumer behaviour and purchase intention for organic food. *Journal of Consumer Marketing, 29*, 412–422.

Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services.* doi:10.1016/j.jrtconser.2015.11.006.

Pavalche-Ilie, M., & Unianu, E. M. (2012). Locus of control and the pro-environmental attitudes. *Procedia - Social and Behavioral Sciences, 33*, 198–202.

Peattie, K. (1999). Trapping versus substance in the greening of marketing planning. *Journal of Strategic Marketing, 7*, 131–148.

Peattie, K., & Crane, A. (2005). Environmentally responsible marketing: legend, myth, farce or prophesy? *Qualitative Market Research: An International Journal, 8*, 357–370.

Pickett, G. M., Kangun, N., & Grove, S. J. (1993). Is there a general conserving consumer? A public policy concern. *Journal of Public Policy & Marketing, 12*, 234–243.

Pickett-Baker, & Ozaki. (2008). Pro-environmental products: marketing influence on consumer purchase decision. *Journal of Consumer Marketing., 25*(5), 281–293.

Poortinga, W., Steg, L., & Vlek, C. (2004). Values, environmental concern and environmental behavior: a study into household energy use. *Environment and Behavior, 36*, 70–93.

Prothero, A. (1990). Green consumerism & the societal marketing concept- marketing strategies for the 1990s. *Journal of Marketing Management, 6*, 87–103.

Rice, G. (2006). Pro-environmental behaviour in Egypt: is there a role for Islamic environmental ethics? *Journal of Business Ethics, 65*, 373–390.

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 behaviour. *Journal of Business Research, 40*, 79–89.

Rowlands, I. H., Scott, D., & Parker, P. (2003). Consumers and green electricity: profiling potential purchasers. *Business Strategy and the Environment., 1*(2), 36–48.

Sakellari, M., & Skanavis, C. (2013). Environmental behaviour and gender: an emerging area of concern for environmental education research. *Applied Environmental Education & communication, 12*(2), 77–87.

Samarasinghe, D. S. R. (2012). A green segmentation: identifying the green consumer demographic profiles in Sri Lanka. *International Journal of Marketing and Technology, 2*, 318–331.

Sánchez, M., Natalia, L.-M., & Lera-López, F. (2015). Improving pro-environmental behaviours in Spain: the role of attitudes and socio-demographic and political factors. *Journal of Environmental Policy & Planning, 18*(1), 47–66.

Samdahl, D., & Robertson, R. (1989). Social determinants of environmental concern: specification and test of the model. *Environment & Behavior, 21*, 57–81.

Schlegelmilch, B. B., Bohlen, G. M., & Diamantopoulos, A. (1996). The link between green purchasing decisions and measures of environmental consciousness. *European Journal of Marketing, 30*(5), 35–55.

Schultz, P. W., Oskamp, S., & Mainieri, T. (1995). Who recycles and when? A review of personal and situational factors. *Journal of Environmental Psychology, 15*, 105–121.

Schultz, P. W., & Stone, W. F. (1994). Authoritarianism and attitudes towards the environment. *Environment & Behavior, 26*, 25–37.

Schultz, P. W., & Zelezny, L. C. (1999). Values as predictors of environmental attitudes: evidence for consistency across 14 countries. *Journal of Environmental Psychology, 19*, 255–265.

Schwartz, J., & Miller, T. (1991). The Earth's best friends. *American Demographics, 13*, 26–35.

Schwepker Jr., C. H., & Cornwell, B. T. (1991). An examination of ecologically concerned consumers and their intention to purchase ecologically packaged foods. *Journal of Public Policy & Marketing, 10*, 77–101.

Scott, D., & Willits, F. K. (1994). Environmental attitudes and behaviour: a Pennsylvania survey. *Environment and Behavior, 26*, 239–260.

Shabnam, S. (2013). Proposed Model for Predicting Environmental Purchase Behavior of Consumers come to the forefront with a very different meaning (Jamali and intended to outline an extended model based on theory of, I(4), 444– 466

Shaw, D., & Shiu, E. M. K. (2002). An assessment of ethical obligation and self-identity in ethical consumer decision-making: a structural equation modelling approach. *International Journal of Consumer Studies, 26*, 286–293.

Shrum, L. J., Lowrey, T. M., & McCarty, J. A. (1994). Recycling as a marketing problem: a framework for strategy development. *Psychology & Marketing, 11*, 393–416.

Sinkin, C., Wright, C. J., & Burnett, R. D. (2008). Eco-efficiency and firm value. *Journal of Accounting and Public Policy, 27*, 167–176.

Siringi, R.K. (2012). Determinants of green consumer behaviour of post graduate teachers. *Journal of Business and Management, 6*(3), 19-25

Smith, S., & Paladino, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal, 18*(2), 93–104.

Soyez, K. (2012). How national cultural values affect pro-environmental consumer behaviour. *International Marketing Review, 29*, 623–646.

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: an integrative review and research agenda. *Journal of Environmental Psychology, 29*, 309–317.

Stern, P. C., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment and Behavior, 25*, 322–348.

Stern, P. C., Dietz, T., & Kalof, L. (2005). Value orientations, gender and environmental concern. In L. Kalof & T. Satterfield (Eds.), *The Earthscan reader in environmental values* (pp. 188–206). Earthscan, London: Sterling.

Sierra, V., Iglesias, O., Markovic, S., & Singh, J. J. (2015). Does ethical image build equity in corporate services brands? The influence of customer perceived ethicality on affect, perceived quality, and equity. Journal of Business Ethics, 1–16.

Sridhar, K., & Jones, G. (2013). The three fundamental criticisms of the triple bottom line approach: an empirical study to link sustainability reports in companies based in the Asia-Pacific region and TBL shortcomings. *Asian Journal of Business Ethics, 2*(1), 91–111.

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

Tang, E., Fryxell, G. E., & Chow, C. S. F. (2004). Visual and verbal communication in the design of eco-label for green consumer products. *Journal of International Consumer Marketing, 16*, 85–105.

Tilikidou, I. (2007). The effects of knowledge and attitudes upon Greeks' pro-environmental purchasing behaviour. *Corporate Social Responsibility and Environmental Management., 14*, 121–134.

Tilikidou, I., & Delistavrou, A. (2014). Pro-environmental purchasing behaviour during the economic crisis. *Marketing Intelligence and Planning., 32*, 160–173.

Tudor, T., Barr, S., & Gilg, A. (2007). A tale of two locational settings: is there a link between pro-environmental behaviour at work and at home? *Local Environment., 12*, 409–421.

Tremblay, K. R., & Dunlap, R. E. (1978). Rural–urban residence and concern with environmental quality: a replication and extension. *Rural Sociology, 43*, 474–491.

Trivedi, R. H., Patel, J. D., & Savalia, J. R. (2015). Pro-environmental behaviour, locus of control and willingness to pay for environmental friendly products. *Marketing Intelligence and Planning, 33*(1), 67–89.

Van Liere, K., & Dunlap, R. (1980). The social bases of environmental concern: a review of hypotheses, explanations, and empirical evidence. *Public Opinion Quarterly, 44*, 181–197.

Vining, J., & Ebreo, A. (1992). Predicting recycling behaviours from global and specific environmental attitudes and changes in recycling opportunities. *Journal of Applied Social Psychology, 22*, 1580–1607.

Wagner, S. A. (1997). *Understanding green consumer behaviour: a qualitative cognitive approach*. London and New York: Routledge.

Walls, J. L., Phan, P. H., & Berrone, P. (2011). Measuring environmental strategy: construct development, reliability and validity. *Environment & Society, 1*, 71–115.

Webster, F. (1975). Determining the characteristics of socially conscious consumer. *Journal of Consumer Research, 2*, 188–196.

Welsch, H., & Kühling, J. (2009). Determinants of pro-environmental consumption: the role of reference groups and routine behavior. *Ecological Economics, 69*(1), 166–176.

Witkowski, T. H., & Reddy, S. (2010). Antecedents of ethical consumption activities in Germany and the United States. *Australasian Marketing Journal, 18*, 8–14.

Xiao, C., & Hong, D. (2010). Gender differences in environmental behaviours in China. *Population and Environment, 32*, 88–104.

Zelezny, L. C., Poh-Pheng, C., & Christina, A. (2000). Elaborating on gender differences inenvironmentalism. *Journal of Social Issues, 56* (3), 443– 457.

Zimmer, M., Stafford, T., & Stafford, M. (1994). Green issues: dimensions of environmental concern. *Journal of Business Research, 30*, 63–74.

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