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Pro-environmental behaviour, locus of control and willingness to pay for environmental friendly products

Introduction

In the past few decades, the focus of research relating to consumer and environment has shifted from energy conservation in 1970s (Koenig, 1975) to emergence of green marketing in early 1980s. Even green marketing has passed through several ups and downs: from the backlash in 1990s (Lee, 2008) to an upswing in the western markets from 2000 onward (Ottman et al., 2006). With the rising awareness about green issues even in the developing markets of Asia (Gurău and Ranchhod, 2005), it is imperative to understand how consumer behaves, not only from the environmental perspective, but also from the business perspective (Jansson et al., 2010) in the context of green marketing.

Business firms find it difficult to adopt green marketing practices readily because of the following reasons.

- It is difficult to predict consumers' reaction to green products since no market information is available (Lee, 2009).
- Profiling environmentally concerned consumers has given mixed results (Roberts, 1996; Shrum et al., 1995).
- Findings arrived at in one geographic area may not apply to other locations, i.e. they cannot be universalized (Bodur and Sarigöllü, 2005).
- Studies on factors that influence green purchasing decisions have come up with conflicting results when they are based on different frameworks (Kollmuss and Agyeman, 2002).
- The segment willing to pay a premium for purchasing environmentally less harmful products has not even been identified, let alone understood (Laroche et al., 2001).

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In the stream of research for profiling, measuring and understanding consumer behaviour for environmentally friendly products, systematic attempts have been made for over two decades by various researchers to identify and define inter-relationships between various demographic, attitudinal and personality variables (Bodur and Sarigöllü, 2005). Chief among them are environmental concern (Dietz et al., 1998), environmental awareness or knowledge (Arbuthnot, 1977; Arbuthnot and Lingg, 1975), ecological consciousness (Roberts, 1996), participation in environment protection activities (Granzin and Olsen, 1991), environmental locus of control (Cleveland et al., 2005), pro-environment behaviour (Smith-Sebasto, 1992; Smith-Sebasto and Fortner, 1994; Straughan and Roberts, 1999), willingness to pay premium for products that are less damaging to environment (Berger and Corbin, 1992; Coddington, 1993), and willingness to purchase product packaged in eco-friendly way (Schwepker and Cornwell, 1991).

These studies have identified two important constructs to understand green consumer behaviour, viz. *pro-environmental behavior* (PEB) (Karp, 1996; Laroche et al., 1996; Schlegelmilch et al., 1996; Shrum et al., 1996; Green-Demers et al., 1997; Swenson and Wells, 1997; Pelletier et al., 1998; Pelletier et al., 1999; Stern, 1999; Kaplan, 2002; Kollmuss and Agyeman, 2002; Pelletier, 2002; Clark et al., 2003; Rice, 2006; Wurzinger and Johansson, 2006; Birgelen et al., 2008; Lee, 2008; Cooke and Fielding, 2010; Lee, 2009) and *locus of control* (Henion and Wilson, 1976; Arbuthnot, 1977; Tomera, 1979; Champeau, 1982; Hines et al., 1987; Balderjahn, 1988; Schwepker and Cornwell, 1991; Smith-Sebasto and Fortner, 1994; Cornwell and Schwepker, 1995; Allen and Ferrand, 1999; McCarthy and Shrum, 2001; Bodur and Sarigöllü, 2005; Cleveland et al., 2005).

Jain and Kaur (2004) in their literature review reported that care for environment and environmental behaviour converge among customers in the area of pro-environment behaviour. This finding is useful for marketers as they are supposed to segment their market according to the level of pro-environmental purchase behaviour before positioning their green product offerings and targeting the green consumer segments (Schlegelmilch et al., 1996). Similarly, Cleveland et al. (2005) have opined that Environmental Locus of Control (ELOC) is an important construct to capture consumer's perceived multifaceted control over the environment.

ELOC is the degree to which people believe they have an impact on environment through their behaviour. McCarthy and Shrum (2001) have found that consumers with higher ELOC are comparatively easy targets for marketers offering environment-friendly products.

A review of literature indicates that very little attention is devoted to understanding the relationship between PEB and ELOC exhibited by consumers and their Willingness to pay more (WTP) for environmentally friendly products. One study, conducted by Laroche et al. (2001), has found that environmentally friendly behaviour is an important factor that influences consumers' willingness to pay a higher price for environmentally friendly products. However, this issue has rarely been examined in Asian context. Various research studies have linked ELOC with ecologically responsible behaviours (Swan, 1970; Kinnear et al. 1974; Trigg et al. 1976; Huebner and Lipsey, 1981; Busseri et al., 1998; Bradley and Sparks, 2002; Bamberg and Moser, 2007), however, its relationship with willingness to pay is yet to be explored. Thus, the chief objective of this study is to fill this gap by examining the relationship between pro-environmental behaviour (PEB) and environmental locus of control (ELOC) with willingness to pay (WTP) among a set of Indian consumers. By doing so, this study attempts to extend the environmental marketing literature forward, as a combination of ELOC and PEB provides a new framework for studying consumer's willingness to pay premium for environmentally friendly product (Figure III). Thus, the more specific objectives of this study are

- to assess the impact of PEB and ELOC on willingness to pay a premium for environmentally friendly products among Indian consumers, and
- to examine the segment formed by clustering respondents according to their PEB and ELOC to determine if they have differential effect on willingness to pay or not.

The paper is divided into three parts. In the first part, literature on green marketing in the Asian context, pro-environmental behaviour, and environmental locus of control is reviewed and linked with willingness to pay. The next section provides research methodology and data analysis. Finally, findings of the study and their practical implications have been provided along with limitations of this research and direction for future research.

Literature Review

Green Marketing in Asia

With environmental threat looming large in Asian countries and the resultant increase in its awareness (Harris, 2006), forces of "Going Green" are now extending to Asian region as well (Ottman et al., 2006). Review of literature reveals that though there is substantial research addressing consumer behaviour and attitude towards environment in the context of western markets, it is still in the nascent stage in the emerging Asian economies, India being one of them. Lee (2009) has opined that lack of research and market information acts as one of the major hindrances to international green marketers in launching green products in emerging Asian economies. This lack of information has also made effective market segmentation for green products difficult (Keegan and Green, 2000). In the developed countries, various tools for segmenting green consumers are already well-established such as the NMI's proprietary segmentation model with attitudinal variables from the LOHAS-Lifestyle and Health Sustainability survey (Natural Marketing Institute, 2008). The NMI (2011) report stated that there are almost 96 million consumers with green orientation in India alone as compared to just 44 million in USA. Segmenting green consumers is especially important since the demand for green products has been uneven across different market segments (Ottman, 1992; Peattie, 1992) and "[f]or organizations to position green products, or communicate their environmental efforts to members of the population who are likely to be concerned about environmental issues, green consumer segments need to be identified" (Bohlen et al., 1993: p. 415).

To address the issue of segmentation, Schlegelmilch et al. (1996) have listed two major categories of variables used by researchers to profile and segment green consumers, viz. socio-demographic characteristics and personality measures of psychographic variables. A number of studies have found that results arrived using socio-demographic variables are either very weak predictors or they tend to conflict (Schleglmilch et al., 1994; Shrum et al., 1994; Schultz et al., 1995; Klineberg et al., 1998). Straughan and Roberts (1999) have examined various constructs and found that consumer segmentation based upon environment-specific variables is more stable than the one which primarily depends upon demographic criteria. In other words, pro-environmental behaviour and locus of control have been found to be superior to demographics in describing environmentally concerned consumers (Balderjahn, 1988; Schwepker & Cornwell, 1991).

Green Consumer Segmentation

Considerable efforts have gone into identifying the common needs or patterns in the green marketing domain. These patterns of market heterogeneity (Smith, 1956) explain market segmentation -- a fundamental principle of marketing (Kotler, 1997) requires a special attention for selecting segmentation variable. The need for suitable "segmentation, targeting and positioning" strategies appears to be equally important aspect to which marketers must pay due attention as many businesses are entering green marketing arena.

Studies have already indicated that traditional market segmentation is not appropriate in case of green marketing practices, for example, Straughan and Roberts (1999) have established that environmental segmentation alternatives are more stable than demographics and psychographic profiles of consumers. Likewise, some researchers have experienced "difficulty in choosing the proper segmentation base or criteria stemming from the fact that many segments cannot be detected in the market place in their original forms." (Paco and Raposo, 2009: p. 366)

To segment effectively green consumers, over and above demographic and socio-economic variables, we can use variables such as environmental concern, perceived behavioral control, environmental knowledge, environmental affect, environmental commitment, ecological consciousness, subjective norms, activism, information search, and recycling practices/habits as identified by Paco and Raposo (2009). However, they have not examined Environmental Locus of Control (ELOC) and Pro-environmental Behaviour (PEB) as influencing variables; the present study investigates ELOC and PEB as a basis for green consumer segmentation and will thus enhance the understanding of environmental variables.

In the Asian context, Zhang and Wu (2012) have attempted to segment consumers of green electricity among urban Chinese residents of Jiangsu Province using largely demographic

factors. Albayrak et al. (2010) clustered consumers according to their environmental concerns and skepticisms and found three clusters, viz. Keen Skeptics, Fanatics and Hesitant.

In the Indian context there are very few studies which attempt to segment consumers for green products based upon environmental variables. Chitra (2007) segmented green consumers based upon level of their eco-friendliness and was able to distinguish four segments, viz. Aspirants, Addicts, Adjusters and Avoiders. Manaktola and Jauhari (2007) surveyed consumers of Indian hotel industry and found that they were aware of environmentally friendly practices in India. In an attempt to identify the segment of urban Indians positively motivated towards eco-labeled garments, Goswami (2008) found that demographic and psychographic variables were useful for segmentation purpose. Jain and Kaur (2004) have assessed the extent of environmental awareness, attitudes and behaviour prevalent among consumers in India. However, none of the above mentioned studies have used environmental variables as the basis for consumer segmentation in India in a major way.
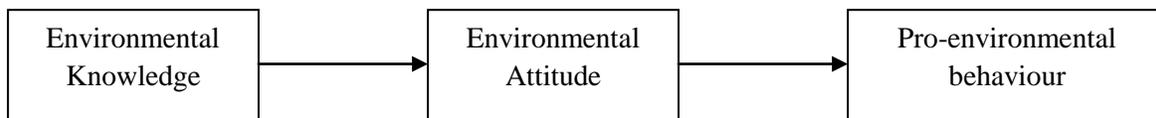
Pro-Environmental Behaviour

Since socio-demographic approach lacks predictability to profile and segment green consumers effectively, Schlegelmilch et al. (1996) suggest that levels of pro-environmental purchase behaviour should be used as a basis. Then the "greener" consumer segments should be targeted with proper positioning strategy. Suchard and Polonski (1991) have stipulated that environmentally conscious consumers will try to protect the environment in different ways (e.g., recycling, checking that recycled material is used in packaging, and purchasing only green products) and thus will try to contribute positively to protect the environment or at least save it from further degradation. Bamberg and Moser (2007) added that researchers who view environmental behaviour primarily as pro-socially motivated often use the norm-activation model (Schwartz, 1977) while those who view self-interest as the more important motive frequently rely on the theory of planned behaviour (Ajzen, 1991).

As stated by Kollmuss and Agyeman (2002), three most influential theoretical frameworks used by researchers to understand pro-environmental behaviour are

- Early US linear progression models,
- Altruism, empathy and pro-social behaviour models, and
- Sociological models.

Early US linear models are the oldest and simplest models to understand pro-environmental behaviour; in these models a linear progression is established from environmental knowledge to environmental attitude, finally leading to pro-environmental behaviour (Figure I).

Figure I Linear progression models to understand PEB

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┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│ Environmental│─────▶│ Environmental│─────▶│Pro-environmental│
│  Knowledge   │      │   Attitude   │      │   behaviour  │
└──────────────┘      └──────────────┘      └──────────────┘
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It was soon realized that an increase in awareness and knowledge does not always lead to more intense pro-environmental behaviour. Rajecki (1982) has identified four gaps in the model: a) direct experience has stronger impact on people's behaviour than indirect influence, b) social norms shape people's attitudes, c) people's attitudes change over time, i.e. temporal discrepancy, and d) often the measured *attitude* is broader in scope than measured *actions*, which leads to larger discrepancies in results (Newhouse, 1991).

Altruism, empathy, and pro-social behaviour models are the second genre of models which largely use a different set of frameworks to analyse pro-environmental behaviour of customers. Pro-social behaviour is defined by Eisenberg and Miller (1987) as "voluntary intentional behaviour that results in benefits for another: the motive is unspecified and may be positive, negative, or both" (quoted in Lehmann, 1999: p. 33), while altruism is a part of pro-social behavior. According to Kollmuss and Agyeman (2002), the hypothesis "people who have satisfied their personal needs are more likely to act ecologically because they have more resources (time, money, energy) to care about bigger, less personal, social and pro-environmental issues" is considered to be a base for various frameworks (e.g., Allen and Ferrand, 1999; Lehmann, 1999).

Among sociological models, (Kollmuss and Agyeman, 2002), the model of Fietkau and Kessel (1981) extensively uses the sociological as well as psychological factors to explain pro-environmental behaviour; its variables as represented in Figure II.

Figure II Model of ecological behavior (Fietkau&Kessel, 1981)
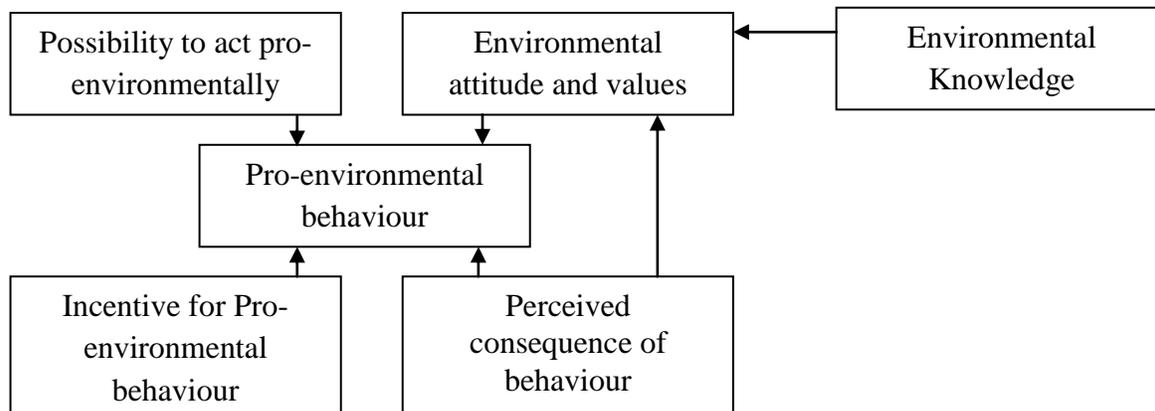
Fietkau and Kessel (1981) believe that pro-environmental behaviour is the result of four variables, viz. possibility to act pro-environmentally, environmental attitudes and values, incentives for pro-environmental behaviour, and perceived consequence of behaviour. Whereas these four variables are assumed to be independent of each other, environmental knowledge is assumed to influence environmental attitudes and values.

However, after analysing various models and frameworks, Kollmuss and Agyeman (2002) are of the opinion that it is nearly impossible to draw a single framework to understand how pro-environmental behaviour is shaped. One reason for this could be the difference in the approaches and types of pro-environmental behaviour measured by researchers ranging from generalized behaviour (Lee et al., 1995) to behaviour based on a specific industry (Suchard and Polonski, 1991; Macdonald and Vopni, 1994) to linking environmental issues and purchase decisions (Balderjahn 1988; Bratt 1999).

Laroche et al. (2001) have opined that it is not clear how consumers' willingness to pay more for green products is correlated with other ecologically favorable behaviour. Birgelen et al. (2009)

tried to establish a relationship between PEB and consumers' willingness to pay higher airfare to protect environment and found a positive relationship. MacKerron et al. (2009) have explored willingness to pay for carbon-offset certification among young adults in the U.K. and Oreg and Katz-Gerro (2006) have established a positive relationship between willingness to pay and pro-environmental behavior in a 27-country sample.

In Asian context, a study was conducted by Chan (1999) among Chinese consumers, and it was found out that though Chinese consumers display higher PEB, they are only ready to pay 4.5 per cent more for environmental friendly products. On other hand, a study conducted by Bowman (2007) in India reported that about 50 per cent of the respondents were willing to pay 10 per cent more for products that were environmentally friendly.

Following the discussion, it is hypothesized that:

H_1: *Pro-environmental behaviour is positively related to willingness to pay more for environmentally friendly products.*

Environmental Locus of Control

According to Rotter's (1966) concept of LOC, externally controlled people perceive events in their life to be beyond their own control (i.e. result of destiny), while internally controlled people believe that what happens in their life is the result of their own action. Huebner and Lipsey (1981) have done pioneering work in this regard taking Rotter's (1966) Internal-External (I-E) locus of control into consideration.

The concept of LOC is applied in the context of environment as well to study ecologically responsible behaviour and attitudes by a large number of researchers (Swan, 1970; Kinnear et al., 1974; Levenson, 1974a, 1974b; Trigg et al., 1976; Arbuthnot, 1977; Huebner and Lipsy, 1981; Guagnano, 1995; Allen and Ferrand, 1999; McCarty and Shrum, 2001; Bodur and Sarigöllü, 2005; Cleveland et al., 2005).

Whereas people with internal environmental locus of control believe that their behaviour has some impact on the environment, those with external ELOC believe that situation is beyond their own control. Therefore, an internally controlled person is generally found to be more environmentally concerned (Schwepker and Cornwell, 1991). Further, it has been reported that people with internal locus of control may exhibit a positive attitude toward ecologically-aware living, and, consequently, there is a higher probability of their purchasing ecologically packaged products. Conversely, those with external locus of control may experience learned helplessness and this feeling of helplessness may inhibit them from seeing that purchasing ecologically packaged goods can help restore environmental resources. Hines et al. (1987) concluded in a meta-analysis that environmentally responsible behaviour is positively influenced by internal locus of control and therefore people believe the worth of their environmentally friendly actions. Paulhus and Selst (1990) pointed that consumers purchase recycled paper based products if they have higher degree of locus of control. Whereas there is a discussion on the above issue, there is a dearth of research which establishes empirical relationship between ELOC and willingness to pay (WTP). Therefore, it is hypothesized that:

H_2: *Environmental locus of control is positively related to willingness to pay more for environmentally friendly products.*

Moreover, several studies have also reported a positive relationship between environmental locus of control and pro-environmental behaviour (Balderjahn, 1988; Schwepker and Cornwell, 1991; McCarty and Shrum, 2001). Recently, Cleveland et al. (2005) linked environmental locus of control and pro-environmental behavior and found that economic motivation is a major antecedent of PEB. Cleveland et al. (2005) also reported that other specific components of ELOC like biospheric-altruism was positively related to pro-environmental behavior like recycling and also found a positive relation between attitude towards recycling and product usage habits and energy conservation efforts. Therefore, it is hypothesized that:

H_3: *Environmental locus of control is positively related to pro-environmental behaviour.*

Based on the discussion above, a model (Figure III), which considers the effects of pro-environmental behaviour and environmental locus of control on willingness to pay more for environmentally friendly product is proposed.

Figure III Conceptual model for willingness to pay for environmentally friendly products
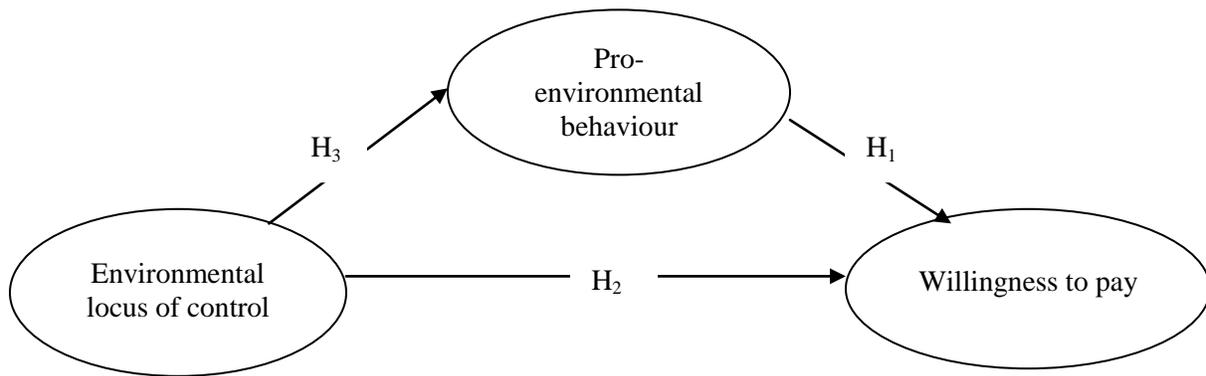
Furthermore, literature on green segmentation classifies consumers according to their environmental commitment in terms of their attitudes and behaviour (Roper Organization, 1992; List, 1993). Extending this, Ozanne and Vlosky (1997) grouped green product consumers into five clusters and found that these clusters showed differential WTP. In another study, Vlosky et al. (1999) have classified consumers into five distinct segments based upon awareness and commitment to green products. They have described these consumer segments as True-Blue Greens, Greenback Greens, Sprouts, Grousers, and Basic Browns. More importantly, these clusters displayed uneven willingness to pay for green products, and amongst them True-Blue Greens were ready to pay a premium. Chitra (2007) has segmented Indian consumers on the level of eco-friendliness and assessed their willingness to recommend green products to others. Goswami (2008) has also assessed WTP for eco-friendly products across three segments. Further, an attempt is also made to find out whether clusters of consumers based on ELOC and PEB exhibit differential willingness to pay higher prices for environmentally friendly products.

In this context, a comprehensive empirical research was conducted by Schelegelmilch et al. (1996) and found a significant relationship between PEB and purchase behavior among general public. On the similar line, Schweppes and Cornwell (1991) also reported that consumers with higher environmental concern and depicting pro-environmental behavior have more intentions to purchase ecologically-packaged products. Therefore, to find out whether consumers depicting different levels of PEB behave differently in terms of WTP, cluster analysis was performed, and it was hypothesized that:

H_4: Consumers with high PEB significantly differ in their willingness to pay from those with low PEB.

In addition, another cluster analysis was performed to find out if consumers with high-ELOC and low-ELOC behaved differently in terms of WTP, hypothesizing that,

H_5: Consumers with high-ELOC significantly differ in their willingness to pay from those with low-ELOC.

Methodology

The data reported in this paper were collected as part of a larger study designed to test the relationship between pro-environmental behaviour, environmental locus of control, environmental consciousness, environmental knowledge, and willingness to pay for environmentally friendly products. The survey approach was adopted. Reisenwitz and Iyer (2007) have argued that convenience sampling is appropriate for such a study since it is intended to test the relationships among variables, and not to provide point estimates (Calder et al., 1981). To determine minimum sample size required for the study, the researcher has taken 95% level of confidence at 6.5% tolerance error since the population standard deviation was unknown (Zikmund, 2007). It was found that the required sample size was about 228 while the actual number of respondents was 256. According to Sekaran (2009), sample size between 30 to 500 is adequate for most of the research of this nature.

A structured non-disguised questionnaire was designed to collect data. A pilot test was carried out among 20 respondents and minor modifications were made based on the findings. Data were collected from four major cities of western India during January-March, 2011. Population for the study largely consisted of working professionals, older than 18. Working professionals were selected because they are expected to have the required decision-making authority to purchase environmentally friendly products.

The sample had 68.3 percent males and 31.2 percent females, they were highly educated (71.5 percent postgraduates and doctorates), with the family size of 4-5 persons (68.8 percent), 65.6 percent of them were single and 34.0 percent of them were married, 63.3 percent were from the age group 20-35 and 30.5 percent were between 35 to 50. As many as 41.8 percent respondents were working full time. Table I details the profile of respondents.

-- Please include Table I here --

Measures of Constructs

The survey questionnaire was divided into following sections: the first section comprised basic demographics of the sample; the second section included pro-environmental behaviour scale (PEB) followed by scale for environmental locus of control (ELOC) and willingness to pay for green products (WTP). Prior to administering the survey, pre-testing was done and minor modifications were made in wording, the general flow and the structure of the instrument. Questionnaires were circulated at their work place and respondents were given as much time as they needed to complete the questionnaire.

To measure the variables, a ten-statement PEB scale was used which was aimed at capturing the respondents' pro-environmental behaviour. PEB was measured by the indicants of 3-R activities, elaborated as reduce, recycle and reuse, focusing on public transit use, automobile use, maintenance, energy use, and conservation. The ten PEB statements were adapted from the study carried out by Cleveland et al. (2005).

Environmental locus of control was assessed using 13 items, developed and used by Cleveland et al. (2005). The scale, covering the internal locus of control and external locus of control perceptions was modified to fit the purpose. Willingness to pay was adapted from Laroche et al. (2001) study and was measured by four statements. The answers were recorded on a five-point Likert-type scale, anchored by "strongly agree" (5) and "strongly disagree" (1) in which the rating (3) was for "neutral response".

Reliability and Validity Statistics

Each construct was subject to reliability analysis and the coefficient alpha was computed to determine the internal consistency of the items. Most alpha values (0.841 for PEB, 0.736 for ELOC and 0.855 for WTP) were found to be higher than the threshold (Nunnally, 1967; Hair et al., 1998) (refer Annexure I). To establish content validity, the researcher had requested four senior academicians and researchers in the marketing area and two industry practitioners to review the scale that was developed through relevant literature review. They found the items both relevant to and adequate for the constructs. To test the nomological validity of the constructs, multiple linear regression (MLR) was used. The results obtained with SPSS 16.0 were found to be significant and are presented in Table II.

-- Please include Table II here --

Analyses and Results

Test of the hypotheses: Structural Equation Modeling

To test H_1, H_2, and H_3, the three hypotheses, Structural Equation Modeling (SEM) was employed. This analytical technique allows evaluation of overall fit of the proposed model and estimation of all corresponding path coefficients simultaneously (Hair et al., 1995). Confirmatory factor analysis was first performed to validate all three constructs under investigation (PEB, ELOC and WTP). The model was proposed and analyzed using maximum likelihood fitting functions in

AMOS 16.0 as it is found well suited for theory testing and development (Anderson and Gerging, 1988; Joreskog and Sorbom, 1993; Hair et al., 1998). The overall fit of the model was excellent: (χ^2=264.4 with 274 degrees of freedom, CMIN/DF = 0.965, CFI = 0.980, GFI = 0.930, AGFI = 0.904, p < 0.001, and RMSEA = 0.024).

Further, composite reliability and convergent validity of the proposed model have been tested based upon the results arrived from Confirmatory Factor Analysis. It was found that the composite reliability values were above the recommended level of 0.70: composite reliability for ELOC was 0.70, PEB, 0.83, and WTP, 0.85 (see Annexure 1). These results are evidence of the scale's convergent validity. In addition, the average variance extracted for each dimension was higher than the minimum acceptable level of 0.50 (Hair et al., 1998).

Because no particular problem was observed in the measurement model, SEM was then employed to analyze overall fit of the proposed model, and to estimate the relevant path coefficients (Anderson and Gerbing, 1988). Major findings are summarized in Figure IV. Overall fit of the model is acceptable since all the measurements of fit reach an acceptable limit (χ^2=259.4, df=274, p = 0.001; GFI = 0.931; AGFI = 0.905; CFI = 0.985; RMSEA = 0.012).

Figure IV Structural model for willingness to pay for environmentally friendly products
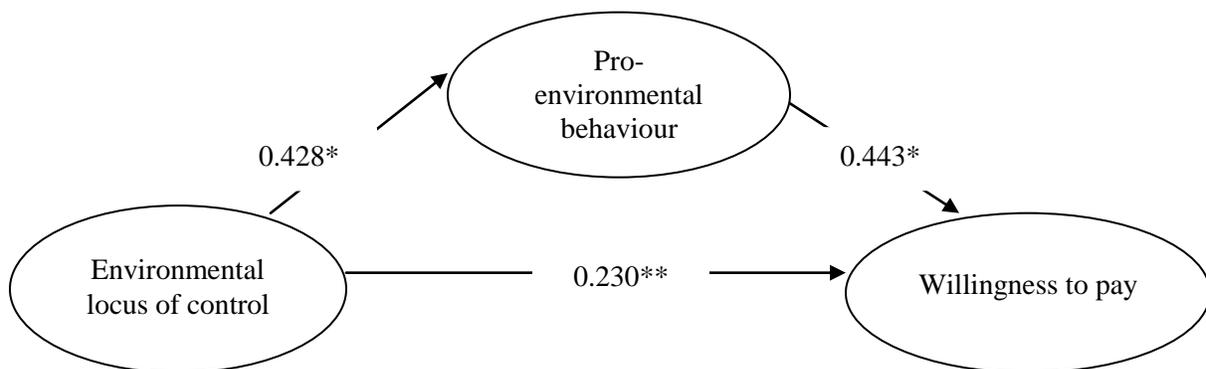
Note: * denotes significant at p < 0.001, ** denotes significant at p < 0.05

From Figure IV and Table III, it can be observed that the relationships hypothesized by H_1 and H_3 are significant at p<0.001 level, while those hypothesized by H_2 are also significant at p<0.05.

-- Please include Table III here --

Further, beyond hypothesis testing respondents were categorized in different clusters based upon their pro-environmental behaviour and environmental locus of control to segment them as per the second objective of the study.

Categorization of respondents based on their pro-environmental behaviour and its relationship with WTP

In order to group respondents according to their pro-environmental behaviour, cluster analysis (explorative data analysis) was used. It computes groups in such a way that their homogeneity is maximal within the group, while it is minimal between the groups. All ten statements of pro-environmental behaviour were then subjected to a two-step cluster analysis to identify possible segments according to respondents' pro-environmental behaviour. In cluster analysis, squared Euclidian distance and Ward's method were used. The results of cluster analysis are presented in Table IV which shows the number of clusters formed and the number of cases included in each cluster with their mean and standard deviation when each variable is crossed with every cluster.

-- Please include Table IV here –

Reading Table IV it is found that Cluster 1 has lower scores on all the variables defining different pro-environmental behaviour and is therefore identified as consumers exhibiting low PEB, while Cluster 2 has high scores on all the statements depicting pro-environmental behaviour and is therefore labelled consumers exhibiting high PEB. To test whether willingness to pay for green products was significantly different in the means of clusters; multivariate analysis of variance (MANOVA) was used. For analysis, clusters obtained were treated as independent variables and WTP was used as dependent variable which consists of four items. The results of Wilks' lambda, *F* statistics and significant levels are displayed in table V.

-- Please include Table V here --

Table V indicates that there is statistically significant difference between the two clusters in relation to pro-environmental behaviour; consumers with high-PEB are found to have higher willingness to pay for environmentally friendly products.

Categorization of respondents based on their environmental locus of control and its relation with WTP

To find out whether groups of consumers with varying intensity of environmental locus of control differ in their willingness to pay a premium for environmentally friendly product or not, cluster analysis followed by MANOVA is used.

Cleveland et al. (2005) proposed that environmental locus of control corresponds to external LOC (biospheric altruism– EXLBA and corporate skepticism–EXLCS), and internal LOC (individual recycling efforts– INLIR). Respondents were grouped based on average of these three factors of ELOC through cluster analysis. Squared Euclidean distance method for determining average linkage and the Ward method were applied. For completeness, two clusters were formed that appear to be reasonably appropriate in their interpretability. Results of cluster analysis (number of clusters formed, each cluster with the number of cases included, mean and standard deviation when each variable is crossed with clusters) can be observed in Table VI.

-- Please include Table VI here --

Reading Table VI it is found that Cluster 1 (high ELOC) has higher scores on all three variables defining environmental locus of control in comparison of Cluster 2 (low ELOC). In order to test whether these clusters formed have different willingness to pay for green products, MANOVA test was performed. For analysis, clusters obtained were treated as independent variables and WTP was used as a dependent variable which consists of four items. The results of Wilks' lambda, *F* statistics and significant levels are displayed in table VII.

-- *Please include Table VII here* --

Table VII indicates that there is statistically significant difference between the two clusters in relation to environmental locus of control; consumers with high ELOC are found to have higher willingness to pay for environmentally friendly products as compared to consumers depicting lowELOC.

Findings and Discussion

One of the chief objectives of this study was to understand how pro-environmental behaviour and environmental locus of control determine willingness to pay more for environmentally friendly products; the results will validate the use of these two constructs to segment and influence the behaviour of target consumers for eco-friendly products.

With the help of structural equation modelling -- as per the results mentioned in Figure IV and Table II-- it was found that Hypothesis$_1$(*Pro-environmental behaviour is positively related to willingness to pay more for environmentally friendly products)* was supported, and pro-environmental behaviour has strong impact on willingness to pay more for environmentally friendly products (0.443). This clearly indicates that by affecting consumers' pro-environmental behaviour with the help of education, awareness creation, and provision of relevant environmental information, marketers can influence them to purchase environmentally friendly products even though they come at a higher price.

Moreover, results also exhibit that environmental locus of control has a significant positive impact on willingness to pay (0.230) and thus Hypothesis$_2$ (*Environmental locus of control is positively related to willingness to pay more for environmentally friendly products)* is supported. This implies that marketers should target consumers with high ELOC for green products. In relation to Hypothesis 3 (*Environmental locus of control is positively related to pro-environmental behaviour*), it is found that ELOC has a significant positive impact on pro-environmental behaviour (0.428).

For marketers working with environmentally friendly products, this is one of the most important findings as the finding identifies consumers they need to target, i.e. those who have higher PEB and ELOC as the chances of green products being purchased by these consumers are higher.

To meet the second objective, clusters were formed and MANOVA was used to understand group differential effects of PEB and ELOC on WTP (Hypothesis$_4$: *Consumers with high PEB significantly differ in their willingness to pay from those with low PEB,* and Hypothesis$_5$: *Consumers with high ELOC significantly differ in their willingness to pay from those with low ELOC*). It was found that for pro-environmental behaviour, consumers exhibiting low PEB significantly differ on willingness to pay for green products from those with high PEB (Wilks' Lambda=0.865, p=0.000). Thus, overall it can be said that consumers depicting higher PEB with subsequent higher ELOC must be offered green value proposition, as they are more likely to spend a premium on environmentally friendly products.

It can thus be inferred that the degree to which consumers recognize or display pro-environmental behaviour will define their initiation in terms of acquiring green products. The PEB construct captures the internal disposition related to recycling and other environmental issues (McCarty and Shrum, 2001), and thus functions as a catalyst for green marketers to pursue the consumer groups displaying higher PEB. Moreover, for those consumers who do not manifest higher PEB, it is recommended that marketers should continuously advertise messages containing PEB behaviour which may result in increased awareness in the long run and bring about attitude changes which in turn may result in behavioural changes regarding green product purchase.

Cluster analysis of environmental locus of control has indicated that Cluster 1 has a higher score on external LOC and internal LOC than Cluster 2. (External LOC refers to biospheric-altruism and corporate skepticism and internal LOC refers to individual recycling efforts.)Consumers falling in Cluster 1 depicting higher ELOC are expected to purchase green products on a regular basis and show environmentally responsible actions. This finding supports the growing body of evidence that shows that environmental locus of control represents a more fruitful basis for marketers and advertisers to segment the target market. However, they must consider the

heterogeneity presented in various Asian countries, it is required to observe environmental locus of control of each country's consumers to deal with conflict between "country's expansionist approach" and "man's relationship with nature" (Chan and Lau, 2000; Cleveland et al., 2005, p. 209). For instance, a country like China is on rapid expansion (Cleveland et al., 2005, p. 209) and thus nature is secondary issue of concern which would reflect in their willingness to pay for environmentally-friendly products. As depicted in Table VII, these clusters were found to differ significantly on willingness to pay for green products (Wilks' Lambda=0.878, p=0.000).

Managerial Implications

While the importance of these findings to marketing and public policy practices is evident, the findings also advance the body of knowledge. For green marketers, understanding pro-environmental behaviour and incorporating iteffectively implies a potentially great marketing value-return in long run. Consumers who are not pro-environmental are mostly insensitive to environmental messages and do not respond positively to communications because it is inconvenient (Ottman 1997, p. 23), and involves higher cost in terms of money and time. Therefore it would be fruitful to educate these consumers; for this, especially in Asian context looking at regional and language diversity and problem of illiteracy especially in semi-urban and rural areas, the company should design simple but informative campaigns which provides them environmental protection information and motivate them to act in environmental-friendly way while making purchase decision.

These programmes should focus on various issues like environmental preservation, avoiding use of environmentally-harmful products in production and consumption, recycling etc and should be repeated at regular intervals to create subjective interest. It may help convincing people that their small but significant contribution may strengthen the environmental quality. This can be demonstrated by narrating various stories of their own region by using various audio-visual aids and prompting them to discuss in group how they can also adopt similar practices in their daily purchase and consumption behavior to preserve environment.

For pro-environmental consumers, the study suggests to policymakers that a reward system could be devised for those who display higher pro-environmental behaviour and a sense of environmental responsibility and for those do not, punitive measures. This can be adopted by subsidizing the sales of environmental friendly product in Asian countries with support from local/international aid agencies and NGOs who are dedicated in the task of environmental preservation. Moreover, it has been also observed that consumers who are pro-environmental find it difficult to identify genuinely green products. Marketers should therefore make efforts to communicate effectively which products are genuinely green and gear up to increase their sales. The governmental agencies in Asian countries should also gear-up the task of certifying environmental friendly products and popularize use of the same so as to authenticate the claims of true green marketers and enhance the demand for environmental-friendly products.

Marketers should utilize the notion of biospheric-altruism, i.e. non-human elements of the environment (Stern et al. 1993). They should project their products as minimally destructive of nature (as they are non-polluters) and thus create an image of a socially responsible company in the minds of consumers which will stimulate them to purchase green products. In case of corporate skepticism, marketers can embrace consumers' environmental concern and keep their promises to foster trust. Consumers with internal locus of control need only be reminded that their behaviour such as recycling will make a difference to environment quality.

Lastly, there is enormous pressure on marketers for going green. They should recognize the high level of environmental concern and behaviour (Goswami, 2008) and act upon pro-environmentalism displayed by consumers by developing products that best suit the requirements of customers, albeit with a small premium.

Those companies which are ready to commit their resources to developing green products but have not gone green yet are advised to evaluate pro-environmental behaviour of their target segments before developing products. During product development, they should target consumers with higher ELOC, so that they can convert those who are environmentally conscious, but do not take environmental issues so seriously. It is reasonable to provide incentives to these consumers since their behaviour needs to be reinforced through rewards.

Limitations and future research

The current study is subject to certain limitations that should be noted. First, the generalizability of the results is limited since the study was conducted in India and with a sample that may not be representative. Secondly, the results have demonstrated the suitability of two-step cluster analysis, but more research is necessary to be confident about the most appropriate clustering method in the context of current study. Thirdly, in this study, convenience-sampling method was used to draw the sample, so the limitations of sampling method are applicable.

Future studies may explore consumers' price elasticity with regard to green product purchase. In other words, one needs to look into the questions such as of how much more would the consumer be willing to pay for green products and which price level is optimum. In the context of willingness to pay for green products, future research might look into additional variables related to brand image, advertisements and product quality that might influence consumers' willingness to pay for green products. Finally, this study was conducted on general green products and must be followed by studies related to specific industries.

-- Please include Annexure I here --

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