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Ecolabel: Consumer Perception and Meaning

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Abstract:
This study makes preliminary exploratory enquiry on how consumers perceive ecolabel. With growing concern for environment protection and ushering in environment friendly technology, the use of ecolabel has come up as a means to incentivize marketers for adopting environment friendly technology and for promoting such products to consumers. Through administration of questionnaire-technique based survey among consumers in Delhi for gathering primary data, the study analyses consumers' opinion on four interrelated dimensions of ecolabeling viz. Environment concerns, perceived importance of ecolabel, perception of manufacturers, and government regulations.

Keywords: *Label, Labeling, ecolabel, sustainability, marketing, social marketing*

1. Introduction

Labels are used ubiquitously by marketers and manufacturers for product identification, differentiation, information dissemination, product and brand promotion etc. According to Caswell and Padsberg (1992) label contributes to the completeness and accuracy of a consumer's assessment of products for all three types of attributes viz. *search;* attributes that can be verified by inspection, *experience*; attributes that can be verified after purchase and use, and *credence;* those attributes that are difficult to verify even after purchase and use. Their study noted that on the broader aspect labels are designed for the whole marketing system and not simply as consumer information because, *one*, labels have a significant influence on product design, once labeling regulations are established it can influence product formulation and reformulation, like manufacturers reducing or eliminating particular inputs of a product in order to conform to some specified standards, or adopting new process deemed desirable. *Two*, label have impact on the advertising of the product, for example food label and advertising are closely linked and firms coordinate labeling and advertising messages to produce consistent product image. *Three*, label provide assurance of public surveillance, labels have *existence value* and provides reassurance to consumers that someone is watching, increasing consumer confidence about product quality. Teisl and Roe (1998) posits that labeling policies can circumvent market inefficiencies by making the information initially held by the firm also available to the consumer, market efficiency is eroded when the flow of information among market participants is impeded or when information becomes costly, thus they contended that this removal of information asymmetries or subsidization of search cost is clearly beneficial to consumers as they become more informed about product attributes, and choices can be made more in line with their preferences, and uncertainties regarding product attributes are minimized.

In recent times labels are being increasingly used to highlight non-observable product qualities. An ecolabel is a special kind of labeling that seeks to highlight environment friendly features of a product, which are otherwise non-observable under normal circumstances. Ecolabels are now commonplace in India; popular examples include BIS Ecomark, BEE Energy Efficiency Label, EcoCert, BEST etc. As of January 7 2010, the BEE Energy Efficiency Label has been made mandatory for *homes appliances* like room air conditioners, frost free refrigerators, fluorescent lamps etc., and other electrical appliances.

In the wake of growing consumerism and rising concern of environment and sustainability issues, this study makes and exploratory enquiry into how consumers perceive ecolabel, what meaning to they derive from it, and how they feel about the role of government in regulating ecolabels.

2. Background to the Study

Ecolabels are manifestation of industries' effort to become or to be perceived as environment friendly (Nimon & Beghins, 1999). Ecolabels are directed to consumers so that they can take into account environmental concerns when shopping. A product's ecolabel makes environmental claims and represents credence attributes about the product. The goal of ecolabel is to provide easily interpretable information and thereby elicit increased demand for products perceived as environmentally favourable. The success of ecolabel depend on its ability to command a price premium so as to offset the higher cost of improved environment sustainability practices; however, observation of actual consumer behaviour along this line is still limited (Bjorner, Hansen, & Russell, 2004). Examples of ecolabels include Organic labels for agricultural products, the Energy Star label for energy appliances, Forest Sustainability Stewardship label for lumbers etc. Recent empirical literature on the effectiveness of ecolabels has indentified changes in consumer awareness after exposure to the label (Loureiro & Lotade, 2005; Leire & Thidell, 2005) and consumer inclination to change their behaviour in favour of ecolabels has been observed.

Eco-certification means the certification of environment friendly practices of a company by a third party. Organizations that have obtained eco-certification usually insert such certifications into their labels as part of eco-labeling programme. Eco-certification is categorized as validation that management practices are meeting minimum codified standards and certification of adherence (Terlaak, 2007). To be eco-certified an organization needs to adopt codified environmental management practices and obtain third-party verification. Eco-certification is aimed at advancement of best practices at the supply side. The international environmental management standard ISO 14001 is an example of eco-certification without label because the standard certifies environmental management practices but does not allow use of the ISO logo on their products (Barla, 2007). Past researches have shown that ISO 14001 certification of a manufacturing facility affects both its operation and management processes and help harmonization of environmental management practices in a coherent and more efficient framework (Nimon & Beghins, 1999). They also demonstrated that adoption of ISO 14001 standards can lead to improved product quality.

Green products are credence goods, that is, consumers are not able to ascertain their environmental friendliness during purchase or use, the role of eco-labeling is thus to reduce information asymmetry between producers of green products and consumers by providing credible information related to the environmental attributes of the product and to signal that the product is superior in regard to a non-labelled product (Crespi & Marette, 2005). According to Leire and Thidell (2005), ecolabels are intended to prompt informed purchasing choices by environmentally responsible consumers. The presence of ecolabels can also lead to consumer confusion, as in some cases, the ecolabels are verified by independent third-party, while in other cases, ecolabels merely represent claims by the manufacturer. According to Ibanez and Grolleau (2008), the presence of unsubstantiated claims can result in adverse selection if some producers provide false or misleading labeling about environmental attributes and underlying production practices.

Ecolabel also has close association with business ethics, i.e. as a means of manifestation of ethical work practices. Business Dictionary (2012)[1], defines ethics as 'The basic concepts and fundamental principles of right human conduct. It includes study of universal values such as the essential equality of all men and women, human or natural rights, obedience to the law of land, concern for health and safety and, increasingly, also for the natural environment'. Any product, the making (manufacturing) of which does not violate the definition of ethics can be termed as 'ethical product". The objective of marketing of 'ethical products' can be described as aiming to 'transform their markets into institutions which place people and the environment at the centre of production, trade and consumption' (Taylor, 2005). According to Hartlieb and Jones (2009), labeling is a market-based tool which turns ethical qualities into a product characteristic: intrinsically practical arrangement aimed at making 'ethical' products widely available and visible. The aim is to provide consumers with additional useful and credible information so their preference for products which are more ethical can be realized with greater ease and adverse and iniquitous environmental, social and human consequences of trading and consumption will be discouraged. Concerning consumer's attitude toward ecolabel and its acceptances as a signal of product quality, it is likely that ecolabel will operate similar to social labels. According to Zadek, Lingayah and Forstater (1998), social labels operate through the window effect and the mirror effect. The window effect concerns with informing the consumers of how the product was or was not produced, while the mirror effect involves the function of consumers in securing self-expression and positive social identity through purchase and use of such products that carries social labels.

3. Design of study

The study is exploratory in nature and makes preliminary inquiry on how consumers perceive ecolabel. The study makes use of survey for collecting primary data. The questionnaire employed in the survey consisted of two parts; Part-I gathered demographic information, while Part-II contained nine 5-point likert scale item, developed to gauge consumers perceptions and opinions regarding ecolabels.

Convenience sampling method was employed in administering the survey, which was carried out during the months of September and October 2014, hardcopies of the questionnaire were distributed to respondents in Delhi, particularly in and around Delhi University. Out of the total 200 questionnaires circulated a total of 119 responses were obtained, out of which 10 were found to be incomplete and unusable. Thus after sorting 109 questionnaire responses were used for the purpose of data analysis and hypotheses testing. Demographic profile of respondents in this study is shown in Table 1.

Demographic Factor		Frequency	%
Gender	Female	41	38
	Male	68	62
Age group	18-25 years	31	28
	26-40 years	38	35
	41 +	40	37
Education	Undergraduate	59	54
	Graduate	50	46
Marital Status	Married	40	37
	Unmarried	69	63
Total		**109**	**100**

Table 1: Sample Profile Source: Survey conducted for this study

[1]Business Dictionary, Definitions, Ethics, 2012, Accessed October 15, 2012, Available from http://www.businessdictionary.com/definition/ethics.html

In part II of the questionnaire, the nine 5-point likert scale items we used two assess consumer opinion regarding four interrelated dimensions of ecolabeling and environment protection, these dimensions are Environment concerns; to examine the level of environment consciousness among respondents, Perception of manufacturers; to assess consumer opinion about manufacturers in terms environment friendly practices, Perceived importance of ecolabel; to examine whether consumers consider ecolabels to be important and valuable, and finally Government Regulation; to measure the feeling of consumers toward government regulations in ecolabel. For the purpose of assessing consumer's environment concerns the scale items used were: Sustainability is an important current issue; more attention must be given to environment protection. To gauge consumer's opinion toward businesses, and their responsibility towards the environment the following scale items were use: Manufacturers can be expected to behave responsibly towards the environment; Manufacturers can be expected to promote sustainability. To ascertain the perceived importance of ecolabel, three scale items were employed: Ecolabels are important for my purchase decisions; Ecolabels are just another gimmick to charge more money (item reverse coded); Ecolabels help me make environment conscious choice. To measure consumers feeling toward government regulation of ecolabels, the following scale items were use: Government regulation is more reliable than industry self regulation; Government must monitor claims made on ecolabels. These 5-point likert scales ranged from -2 (Strongly Disagree), -1 (Disagree), 0 (Neither Agree Nor Disagree), +1 (Agree), and +2 (Strongly Agree).
The primary data collected through the survey were analysed using statistical tools like mean, standard deviation, analysis of variance (ANOVA), and correlation analysis. Cronbach alpha was used to measure reliability of each of the multi-item scales.

4. Data Analysis

4.1. Aggregative Results
From the result presented in Table 2, respondents are observed to show appreciable concern for the environment. this indicates growing environmental awareness for environment protection among consumers in Delhi. On the aspect of trusting manufacturers to be environmentally responsible in the course of their business activities, the general perception among the respondents was observed to be negative. With regards to the importance of ecolabel, respondents were observed to agree that they are important and provide useful information that is required for making environment conscious choices. Respondents were also observed to favour active government regulation in the use and promotion of ecolabels in the market.

Scale*	Cronbach Alpha	Mean Score	Std. Deviaton
Environment concerns	0.78		
Sustainability is an important current issue		0.52	0.76
More attention must be given to environment protection		0.68	0.78
Summed scale		0.60	0.70
Perception of manufacturers	0.71		
Manufacturers can be expected to behave responsibly towards the environment		-0.52	0.79
Manufacturers can be expected to promote sustainability		-0.38	0.83
Summed scale		-0.45	0.71
Perceived importance of ecolabel	0.79		
Ecolabels are important for my purchase decisions		0.54	0.66
Ecolabels are just another gimmick to charge more money (R)		0.42	0.80
Ecolabels help me make environment conscious choice		0.48	0.67
Summed scale		0.48	0.60
Government regulation	0.70		
Government regulation is more reliable than industry self regulation		0.86	0.67
Government must monitor claims made on ecolabels		0.83	0.65
Summed scale		0.85	0.58

Table 2: Consumer perception of ecolabel (aggregative result)
Notes
**Multi item scale with 5-point likert scale items ranging from -2 (Strongly Disagree) to +2 (Strongly Agree)• (R)Item reverse coded*
(R)Item reverse coded
Source: Survey conducted for this study

4.2. Demographic Analysis
Analysis of demographic factor influence was carried out using one-way analysis of variance. In terms of *gender* it can be observed from Table 3 that respondents demonstrated significant difference in the perceived importance of ecolabel, while there were no significant difference in environment awareness, perception of manufacturers and govt. regulation. On the aspect of perceived importance of ecolabel, it is seen that female respondents registered a significantly higher mean score (0.71) as against male respondents (0.34).

Scale*	Aggregative mean score (n=109)	Disaggregative mean score		p-value**
		Female (n_f=41)	Male (n_m=68)	
Environment concerns	0.60	0.60	0.60	0.97
Perception of manufacturers	-0.45	-0.49	-0.43	0.66
Perceived importance of ecolabe	0.48	0.71	0.34	0.00
Government regulation	0.85	0.86	0.85	0.94

Table 3: Gender Analysis

Notes:

**Composite of multi item scale with 5-point likert scale items ranging from -2 (Strongly Disagree) to +2 (Strongly Agree)*

***Level of Significance @ 5%*

Source: Survey conducted for this study

In the *age group* analysis of the survey data, significant age-based variations were observed in the perceived importance of ecolabel. As can be seen from Table 4, the mean score gradually increased from lower to upper age groups. This indicates that consumers in the upper age groups are more likely to appreciate the importance of ecolabels as compared to consumers in the younger age group.

Scale	Aggregative mean score (n=109)	Disaggregative mean score			p-value**
		18-25 yrs (n_1=31)	26-40 yrs (n_2=38)	41 yrs + (n_3=40)	
Environment concern	0.60	0.45	0.55	0.69	0.16
Perception of manufacturers	-0.45	-0.45	-0.45	-0.45	0.99
Perceived importance of ecolabel	0.48	0.15	0.57	0.65	0.00
Government regulation	0.85	0.77	0.92	0.84	0.58

Table 4: Age group analysis

Notes:

**Composite of multi item scale with 5-point likert scale items ranging from -2 (Strongly Disagree) to +2 (Strongly Agree)*

***Level of Significance @ 5%*

Source: Survey conducted for this study

Analysis for influence *level of education* provided significant results on two aspects; respondents were found to differ on environment consciousness and perceived importance of ecolabels. Respondents belonging to graduates (or higher) group registered higher mean score for both the aspects.

Scale*	Aggregative mean score (n=109)	Disaggregative mean score		p-value**
		Undergrad (n_u=59)	Graduate (n_g=50)	
Environment concerns	0.60	0.57	0.63	0.03
Perception of manufacturers	-0.45	-0.42	-0.49	0.59
Perceived importance of ecolabel	0.48	0.38	0.57	0.03
Government regulation	0.85	0.78	0.93	0.10

Table 5: Level of Education Analysis

Notes:

**Composite of multi item scale with 5-point likert scale items ranging from -2 (Strongly Disagree) to +2 (Strongly Agree)*

***Level of Significance @ 5%*

Source: Survey conducted for this study

In terms of *marital status* as the demographic factor, differences were observed in the perceived importance of ecolabels (Table 6), With Married respondents registering significantly higher mean score for this aspect as compared to respondents in the unmarried segment.

Scale*	Aggregative mean score (n=109)	Disaggregative mean score		p-value**
		Unmarried (n_{um}=69)	Married (n_{ma}=40)	
Environment concerns	0.60	0.55	0.69	0.33
Perception of manufacturers	-0.45	-0.45	-0.45	0.99
Perceived importance of ecolabel	0.48	0.33	0.73	0.00
Government regulation	0.85	0.88	0.79	0.40

Table 6: Marital Status Analysis

Notes:

**Composite of multi item scale with 5-point likert scale items ranging from -2 (Strongly Disagree) to +2 (Strongly Agree)*

***Level of Significance @ 5%*

Source: Survey conducted for this study

4.3. Correlation Analysis

In order to examine whether consciousness of environment issues makes a consumer develop a more favourable attitude towards ecolabel a correlation analysis using Pearson's correlation test was carried out on the summed scales for Environment Consciousness and Perceived importance of ecolabel. From the result obtained as shown in Table 7, a weak but significant (at 5% level of significance) correlation is observed between the two aspects.

Scale*	Aggregative mean score (n=109)	Pearson's correlation coefficient	p-value**
Environment concerns	0.60	0.19	0.03
Perceieved importance of ecolabel	0.48		

Table 7: Correlation analysis

Notes:

**Composite of multi item scale with 5-point likert scale items ranging from -2 (Strongly Disagree) to +2 (Strongly Agree)*

***Level of Significance @ 5%*

Source: Survey conducted for this study

5. Conclusion

Concerns for environment degradation, especially among developing countries are widely documented. As a fast developing country also face the challenge of managing environment and putting in place an effective environment protection policy framework, while maintaining its growth trajectory. Ecolabels can be seen as a tool for garnering mass participation in the area of environment protection, for example with increased awareness people and availability of sufficient information and choices, people are likely to gradually move away from energy inefficient products and adopt energy efficient products. Thus ecolabels have an important role to play as a channel of information dissemination between regulators, businesses and consumers. Besides providing more choice to consumers (Nimon & Beghin, 1999), ecolabels are a means to incentivize businesses for adopting environment friendly practices, and also fuels product quality improvement on the supply side (Terlaak, 2007).

While the study had minute scope in terms of survey administration for collecting primary data, being restricted to Delhi, and the respondents being mostly from the academic field consisting of students and faculties, providing a skewed sample, it was able to elicit some interesting results. Statistical analysis provided encouraging trend of awareness for environement concerns and generally favorable attitude toward ecolabels. This is consistent with the results of past researches in similar areas that documented the importance of labels in consumer's decision process (Teisl &Roe, 1998; Jeddi & Zaiem, 2010). The study also established correlation between concern for environment and perceived importance of ecolabels which is consistent with the findings of past studies (Loureiro & Lotade, 2005; Leire & Thidell, 2005), however it must be noted that the strength of correlation is weak, which may be due to lack (or minimal penetration) of social marketing efforts. The study also indicated general distrust among consumers towards businesses with regards to environment friendly practices, and respondents favored intensive government regulation in this field. The study also confirmed demographic factor based variations in consumer's perception toward ecolabel.

The results obtained in this study suggests that consumers are suspicious of manufacturers' sincerity toward safeguarding the environment, also as they positively welcome active government regulation of ecolabel, especially in monitoring its use and information content, it is likely that consumers will distrust environmental claims on product labels made my marketers unless it is certified or endorsed by regulators or other independent third-party.

While this study is simply a preliminary enquiry on consumer's perception of ecolabel (in Delhi, India) it is pertinent to point out its limitations. As stated earlier, as the sample sized is small, and skewed due to use of convenience sampling, the findings of this study cannot be generalized and requires further enquiry. Other limitations include the use of only one language (English) in the survey instrument which may have caused language barrier, and use of cross-sectional data to draw the conclusions, Use of longitudinal study may allow comparison between different time periods which would take into account the effects of changes in

the marketplace. The cross-sectional data may be affected by the respondent's predisposition to any event that has happened in the past or by the mental position and other situational factors at the time of filling the questionnaire.

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