Green Car: A study of Customer's Preference

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Abstract: *The aim of the study is to understand the preference of the customers in the state of Maharashtra which is one of the most developed states of India. The study is being carried out to understand the customer awareness on environment friendly car (EFC). The study has been done with reference to the income level and based on the gender of the respondents. With reference to the income background it is observed that there is no significant difference in the awareness levels but with reference to the gender it is observed that there is significant difference in the preference with reference to the green car.*
Keywords: *Customer Preference, Environment Friendly Car, Green Car, Customer Awareness*

I. Introduction

The Indian automotive industry has been witnessing growth and that also in the car industry. This is reflecting the structural change in customer patterns driven by the strong economic performance adding strength to the income levels of the urban as well as rural customers. The volume growth (Pandey P. 2010 Sep 14) of the industry as on Sep 2010 has been around 26% with the passenger car segment growing ~34% and commercial vehicle segment growing at ~45% leading the way. The surprising and heartening trend can be ascertained from the fact that despite the OEMs having raised prices in response to higher commodity prices and newer emission norms, demand growth has not been deterred. One business area which has a good share in the economy of a country is the Automobile sector where environmental issues have received a great deal of discussion in the popular and professional press. Terms like *"Green Car"* and *"Environmental friendly car"* appear frequently in the press. This is one sector of the industry which takes care into account everything right from the idea generation to customer delight. It includes the production process, the raw material, the consumption and the disposal Many governments around the world have become so concerned about green automobile that they have attempted to regulate them. Wide spread public acceptance of the global environment crisis have caused a gradual shift in the focus of the environmental movement. For marketers, environmentalism has become a criterion influencing customer purchase behavior. Environmentally responsible consumption (Scott B.1999) emanated from criticism that the marketing concept ignored the impact of individual consumption upon the society as a whole. Terms like green marketing and green customer have evolved and a lot of work is being done to understand the awareness levels of the customer.

Every year people living on the earth throw away enough garbage to cover a huge part of the world. Most of the waste ends up in landfills which are very costly and which may have a major impact on the environment and on the health of the people living on this planet. Saving the environment has become a big issue in recent times. The messages are being promoted as REDUCE, RE-USE and RECYCLE. Consumer product companies (Sheryl Eisenberg, 2008) are always selling us a new bill of goods. The latest is that we can shop our way to a healthier planet. Over the years, it is told to us that cool cars would make us free and diet soda would make us popular. But there are some things money -- and advertising -- can't buy, and a clean environment is one of them.

The hard fact is that global warming, deforestation and other earthly ills cannot be solved by switching brands. It takes resources to manufacture and transport all products, even those made from recycled content. More often, it is greener to follow the old dictum: reduce, reuse, and recycle. Even if the phrase 3Rs has been heard a thousand times before, but with the "green" word now co-opted in the sales of services, the three R's are a phrase -- and a principle -- worth reviving.

This study focuses on customers and customer preference in relation to environmental friendly car. It starts from the assumption that environmental problems are closely related to individual customer preference, and that individual customer preference is one of the major causes for the existing environmental problems. Without substantial changes, in the long term these consumption practices present a serious threat to the environment and to society as a whole.

This study narrows down on one specific area and that is to measure the awareness level of the customers with reference to the green cars. Understanding the subject and the outcome of the study should help the marketers and the government to device the strategies which will motivate the customers to buy green

product and save the earth. In this approach, industry has a key-role to play. By means of innovative products and services it is possible to intervene in current unsustainable consumption practices and to provide alternatives to individual customers.

II. Review Of Literature

Many studies broach the issue of environmental concerns related to consumer preference and their purchase decision for personal cars. Many researchers (Ottman 1993, Michael Jay Polonsky1994) have studied that a majority of people believe that green marketing refers solely to the promotion or advertising of products with environmental characteristics. Jennifer Weeks (2008) studied that green buying choices can be complicated, and green products often cost more than conventional alternatives. Brower and Leon (1999) have urged the customers to take steps such as driving fuel –efficient, low polluting cars, eating less meat and making their homes energy efficient. Rothe and Benson's (1974) notion of "intelligent consumption" and Fisk's (1973) concept of "ecological imperatives" reflect the need to educate the consumer to become aware of environmental problems and their relation to his/her consumption patterns. Many believe that social marketing (A. R. Andreasen. 1994) can have a major impact on the society's myriad social problems. However, this impact can be seriously compromised if the technology is applied incorrectly or to areas in which is not appropriate. Consumers have more power than ever before. (Leon G. Schiffman, 2004). They can use intelligent agents to locate the best prices for the products or services, bid on various marketing offerings, bypass distribution outlets and middlemen, and shop for goods around the globe and around the clock from the convenience of their homes. To understand about the awareness of the consumers and their behaviors, in depth, study has been done on the various literatures available in the area of green marketing. From an empirical perspective a substantial academic and professional literature explores the areas like sustainable marketing, consumer preference and green car and its response in the marketplace. The methodologies of these studies vary widely but the major findings have been observed to define the research objective The above literature review gives an in-depth idea on the topic and it is also observed that not much work has been done in India in reference to the environment friendly car and customer's preference with reference to the eco friendly cars.

Rationale Of The Study

The concern for the environment has increased significantly during the past decades and at the same time people's values and attitudes towards nature have changed substantially. As far as the automobile Industry is concerned and that also the passenger cars many research results have shown that environmental awareness has more to do with the customer attitudes and values. In other words there is lack of involvement of the customer in greening the earth.

Vehicular pollution is a bigger threat to human health than any other type of air pollution because this pollution exists at that level from where humans use air to breath. Rapid increase in the number of personal cars is the major cause of deteriorated air quality in the metro and non metro in India. Cars have two opposite personalities. One is friendly and attractive the other is destructive and lethal. The desire to own a car is linked to pleasure, social status, convenience and freedom. There is a strong need for a joint effort of car manufacturers, the marketers, the government, the car customers and all the stake holders in the system to control and reduce the ever increasing problem of pollution and its impact on the earth.

Green marketing of environment friendly car important for the future

The mankind has limited resources on the earth, with which she/he must attempt to provide for the worlds' unlimited wants. In market societies where there is "freedom of choice", it has generally been accepted that individuals and organizations have the right to attempt to have their wants satisfied. As firms face limited natural resources, they must develop new or alternative ways of satisfying these unlimited wants. People do not realize where our future generation is going to live. The dumping yards in Japan are already full and similar is the state in Netherlands. It is the need of the hour that in India customer need to understands the importance of environment friendly car and start using it.

Objective of the study

The research focuses primarily on purchase behavior as well as awareness of the customers given to the eco friendly car while buying the car. The main objectives have been defined as:

- To study the awareness levels of the customer with reference to the gender of the respondent regarding their understanding about eco-friendly car.
- To study the awareness level of the customer regarding the environment friendly car with reference to the income group.

- To determine relationship between awareness level of customer towards green car and their willingness to buy it.

Research hypothesis:

The following Null hypothesis has been tested as a part of research:

H_{01}: There is no significant difference in the awareness levels of customers in the various income groups regarding the eco-friendly car.

H_{02}: There is no statistical difference in the awareness levels of the male and female customers regarding the eco-friendly car.

H_{03}: There is no relationship between customer's willingness to buy green car and their awareness level

III. Research Methodology

The study has been exploratory in nature and a sample survey method has been employed for data collection. Primary data has been used for the purpose of the study. Research design for this research is planned structure and strategy of investigation conceived so as to obtain answers to research question or objectives and also to control variances. The said study is conducted to understand the preference of the customers in Maharashtra. The scope of the research is limited to environment friendly car in Maharashtra.

Sampling Design

In the present study all the cars owners or prospective car buyer in Maharashtra is considered as the population. The prospective car owners could be all those people who intend to buy a car in near future or are visiting the car showroom for a test drive or for collecting the information of the cars. This population includes people from Mumbai and from non metros who own a car or who wish to purchase a car.

Based on the convenience Mumbai, Pune, Aurangabad and Nasik have been taken as Metros and other parts of the state has been taken as non-metro part of Maharashtra,. The domestic sales data of the passenger cars as per Society of Indian Automobile Manufacturers (SIAM) is 15.52 lakhs units for the year 2008-09 and it is assumed from the review that approx 10% of the customers may actually afford the green cars like Prius, Honda Hybrid etc.

The Sample

The sampling plan used has been consistent with the methodological guidelines provided for conducting survey research in marketing. The stratified random sampling technique has been used for the present work. A sample of 500 respondents was selected with the help of stratified random sampling method. The sample has been chosen at selected dealers of cars in Metros and few non metros. These included prospective car buyers and people who came to buy their next car. The sample consisted on the basis of demographical variables such as, age group, gender, income group, educational qualifications, and place of stay.

Data Collection Tools:

A non–disguised structured questionnaire has been used as the tools for collection of data from the field. It has been designed with utmost care so that accuracy of the work could be high. The five point likert scale has been used for the research purposes. A pilot study was undertaken first in order to determine whether the questionnaire and the scale is easily understood and responded to by the respondents.

Data Collection Process

The data for the present work has been collected personally by the researcher as well as helps has been taken from others in getting structured non- disguised questionnaire filled properly. A pilot study was also undertaken to pretest the questions in order to determine whether they are easily understood and responded to by the respondents. The automobile dealers were selected in both metros and non-metros as the ideal place for identifying the respondent who would be interested in buying a car. The people who had already owned cars or who are thinking of buying a car and have approached the showroom of a car dealer for buying a car have been considered as potential respondents.

Data Analysis

Data collected with the help of the structured questionnaire has been tabulated, analyzed and interpreted using suitable statistical tools including the t test, and simple percentages and ANOVA. Elaborate tables, diagrams charts have facilitated the representation of the data. The data has been analyzed using the SPSS (Statistical Package for Social Sciences).

While constructing the questionnaire researcher has made every effort to take the views of the prospective buyers towards the manufacturer. The flow of the questions is from the most general topic about the awareness about the environment, pollution by automobiles, car pooling, use of public transport etc to set the flow of the respondent. Customer's expectation from the government is also being measured as a part of the study. Role of the regulator and legislation which can prompt customers to buy EFC is also explored in the questionnaire. The various factors which are important in buying a car have been care fully considered after discussing with the buyers and the sellers in the market place. Customers were expected to rank these factors in the order of their preference. Environment friendly design has also been considered as a factor to understand where this factor stands in the order of the preference while buying the EFC.

All the filled up questionnaires have been screened for completeness and the ones in which responses of all the statements have been complete, were selected for analysis. The questionnaires incomplete in any respect have been rejected.

Limitations:

The research has made every effort to contribute best in his own capacity in spite of this there has been few limitations to the study.
1. The limited knowledge of the respondents
2. Sample size studied is a small.

IV. Data Analysis

Table 1: Hypothesis testing – Parametric Tests

Sl.No	Null Hypothesis	Test	Asymptotic Significance (Sig. Level=.05)	Decision
1	There is no significant difference in the awareness levels of customers in the various income groups regarding the eco-friendly car.	One way ANOVA	0.425 for F value 0.932	Accept Ho
2	There is no statistical difference in the awareness levels of the male and female customers regarding the eco-friendly car.	Independent sample T test	.170	Accept Ho
3	There is no relationship between customer's willingness to buy green car and their awareness level	Pearson Correlation	.000	Reject Ho

Source: Primary Data

Table 2: Correlation between Awareness level and willingness to buy green car

		Awareness	Willingness to buy Green Car
Awareness	Pearson Correlation	1	.419**
	Sig. (2-tailed)		.000
	N	500	500
Willingness to buy Green Car	Pearson Correlation	.419**	1
	Sig. (2-tailed)	.000	
	N	500	500
** Correlation is significant at the 0.01 level (2-tailed).			

Source: Primary Data

Above table 2 indicates that the relationship between awareness level of consumers towards green car and their willingness to buy it is significant at 99% confidence level. As the Pearson Correlation Coefficient value is 0.419 is indicates the relationship is moderate in strength and positively correlated.

Results:

Objective 1: To study the awareness levels of the customer in the various income groups regarding their understanding about eco-friendly car.

H01: There is no significant difference in the awareness levels of the customers in the various income groups regarding the eco-friendly car.

The result of the study show here as well that there is no significant difference in the awareness level of people with different income ranges for environment friendly car.

Objective 2: To study the awareness levels of male and female regarding their understanding about eco-friendly car.

H02: There is no statistical difference in the awareness levels of the male and female customers regarding the eco-friendly car

The results of study indicate that there is no significant difference in the awareness level of the respondents with reference to the two genders for environment friendly car. Both male and female respondents have similar level of awareness.

Objective 3sss: To determine relationship between awareness level of customer towards green car and their willingness to buy it.

H$_{03}$: There is no relationship between customer's willingness to buy green car and their awareness level
The result of study indicates that there is relationship between awareness level of consumers towards green car and their willingness to buy. As the strength of relationship is moderate and positive in direction it indicates that as the awareness amongst consumer will increase their willingness to buy Eco friendly car will increase.

V. Conclusion

It is concluded from the result that though customer's have an opinion that they are aware about the EFC but is very clearly from the results that more awareness has to be created in non metros. As India is growing in the rural and metros seems to be saturated it is more important to focus on non-metro. While testing the awareness of the customers on the income front there is no difference in the awareness level. The awareness levels are very generic and detail knowledge of the disposal of the car, the batteries and the tire etc is missing amongst the customer. These products are very damaging when it comes to the impact on the mother earth. The results indicate that the awareness amongst the various income group is similar and hence the marketer and the government should create the desired knowledge and effective use of media should be made so that people are made aware of the environment problem arising out of the cars being used. New papers being the most effective media the benefits regarding EFC should be made public. The result of the genders based study also indicated that there is no significant difference. This all indicates that car as a product is a mass product and use of media and promotions for creating he awareness can be the ones which are accepted by masses.

VI. Recommendations:

There is a need to create after sales services stations before the product is made available in huge quantity. An infrastructure for servicing and maintenance is also important for continual adoption of innovative environment friendly products. Re-fuelling stations or charging stations etc to be created well in advance so that positive word of mouth publicity can take place for the environment friendly cars.
There is a need to create servicing and maintenance facilities service the cars. There is also a need to train professionals for serving the green customer so that the continuity is built in the process itself.

The researcher further recommends that further studies and research is required to fully ascertain the attitudes of the car buyers in India and their preference for the environment friendly car. Attitudinal issues that require further investigation include vehicle technology; the impacts on the earth through the cars, ownership cost of the car etc which would help provide insights as to how messages are interpreted by the customer. This will further enable the marketers of these cars to improve the design and make the future educational campaigns for effective. The study will help the marketers to design the marketing strategies so that benefits of the environment friendly car are continuously demonstrated in their product promotion to the customer in the form he understands the best.

The efforts will have to be made by the manufacturers that the TCO (Total Cost of Ownership) of the environment friendly car should be made low to the extent possible to reduce the over all financial burden on the customer and this will enable the marketers to promote the cars easily in the market place.

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