Factors Affecting Buying Behavior of Ecofriendly Cars

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Abstract: **The aim of the customer study is automobiles. The study is being carried out to understand the awareness of customers on environment friendly cars. The study has been conducted keeping in mind age group, geographical area and other factors of the respondent.**

Key words: **Eco friendly cars, buying behaviour, car purchase, environmental consciousness**

I. INTRODUCTION

The research paper is an attempt to discuss a managerial problem where the manager of an automobile company is worried about the change in buying behavior of the consumers who are becoming environment conscious and accordingly, are deciding not to purchase automobiles. He is worried about the awareness level of consumers towards environment friendly and will this increasing awareness impact the sales.

The research talks about the factors considered by consumers before purchasing a car, their awareness level towards hybrid car and willingness to pay an opportunity cost for purchasing an ecofriendly car or a hybrid car.

II. REVIEW OF LITERATURE

Multiple studies have been carried out to understand the consumer behavior towards automobiles but there has been considerably less research done on echo friendly cars and factors responsible for their purchase in relevance with Indian market. There has been multiple research carried out to understand the awareness level and factors considered before purchase of hybrid cars (Potter, 2007) but Indian market is different. Indian customers are price sensitive and with increasing purchasing power, Indian market is one of the most lucrative markets in world in fact in 2016 it has become third largest market for automobile in World with growth rate of more than 16.7 % (IBEF, 2016)with the growth rate of more than 6% for hybrid cars. Respondents considered were from various backgrounds, gender, occupation and were of various income levels. One of the prominent research carried out for Indian market is available (Shende, 2014). The research paper has been directive for this research. Similar to the directive research this research also considers customer purchase parameters like price, safety, comfort, power and pickup, mileage, max speed, styling, after sale services, brand name, spare parts cost etc. were also considered. Data assortment was made through direct interaction and customer survey using questionnaire. Accordingly, analysis was done and the outcome so generated was that, while purchasing car customer give much importance to safety, brand name and seating driving comfort. Word of mouth publicity, advertisements in car magazines are some of the effective communication tools used for promotion of cars. Descriptive analysis was used to transform the data and factor analysis was conducted for identification of factors influencing customer inclination towards buying a car. A study conducted by (Monga et. al., 2012) attempts talks about the shifting environment for automobile. This research attempts to address some of the questions regarding ecofriendly cars in India by steering the market research for measuring the customer satisfaction and determining the customer perception towards automobiles. The study shows that brand perception is the building block before the purchase of cars. It can also be seen that even though a customer might not be the owner of a car but shall still hold perceptions about the same. Study demonstrates that people evaluate the quality of a product based on the country from where it comes and where it is made. Various factors have impacted the consumer purchase intentions regarding purchase of automobiles. Research have shown that though consumers can assess all the inherent product characteristics by articulating the product, the effect of extrinsic signals has more influence on consumer product evaluation. Hence, the manufactures should identify the needs, wants, tastes and preferences of consumers in order to design the products. Fuel economy and driving comfort are the most important parameters followed by availability of spares and their price. Another study by (Menon et. al., 2012) talks about the fuel and price relation quotient. The research results showed that about one seventh of car for the city drive for family usage, while using the second car for office and business usage It talks about the customer psych for purchasing a car. Another research by (Verma, and Rathore, 2015), talk about the luxury car segment of India. The study revealed that the luxury car market is growing at a steady speed of 25% per annum growing number of luxury cars entering Indian car market. HNI wants to differentiate themselves from crowd for various reasons. Change in attitude of the customer accounts for the sudden acceleration in the luxury car market in India, as the emphasis has been shifted from price consideration and affordability to design, quality, pleasure and environment consciousness

III. RATIONALE OF THE STUDY

Rationale of the study is the increasing concern for the environment nowadays. The automobile industry is also concerned for the environment and also tend to change the attitude of people towards green environment.

It is a concern area because of the layer pollution forms in the ozone layer which human beings breathe. With the increase in per capita income of individuals, number of vehicles owned by them is also increasing and this is having a major effect on the metro cities who are being highly pollution affected. Nowadays, car manufacturers focus more on style speed mileage which affects the fuel consumption. There lies a strong need where the car manufacturers and the policy makers need to make efforts towards reducing this impact on the environment. The study wants to address the gap in the literature as many studies have focused on the factors affecting car/automobile purchases but few have highlighted the importance of environmental consciousness as a factors affecting the car purchase.

IV. RESEARCH PROBLEM AND OBJECTIVE OF THE STUDY

The gap in the literature shows that we have dearth of studies conducted on the purchase behaviour of consumers while purchasing cars and their consciousness and awareness towards eco-friendly features/options available in different cars. The study aims to identify along with other factors the importance of environmental factors affecting the car purchase of the consumers.

V. RESEARCH METHODOLOGY

The type of research that will be used is quantitative in nature. Data was collected from the city of Indore being an automobile hub of MP where you can find all type of customers driving Jaguar to Nano. A sample of 150 customers were approached out of which 100 completely filled questionnaire where retained for the purpose of the study. The customers were asked about the factors which affect their purchase for a car. The questions revolved around various factors taken from literature such as:

Variables taken:

1. Price on Road
2. Brand Name
3. Engine Capacity
4. Looks & Design
5. Fuel Efficiency
6. Discount Scheme
7. Resale Value
8. After Sale Services
9. Running and Maintaining Cost
10. Convenience Features
11. Purpose of Purchase
12. Performance Information Available
13. Driving Pleasure
14. Car Image & Positioning
15. Economical
16. Colors Available
17. Advertising & Marketing
18. Safety

VI. DATA ANALYSIS

Data was analyzed using the factor analysis. The KMO test measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values lies b/w 0.5 to1.0 that indicates factor analysis is appropriate. Values below 0.5 indicates that factor analysis is not appropriate. our sampling adequacy value is .883 that indicates our factor analysis is appropriate (Malhotra and Dash 2011).

Bartlett's test is used to examine the hypothesis that the variables are correlated or not. if r=0 means no correlation with in the variables and if r=1 means variables are correlated each other and here values are very high means variables are correlated each other (Malhotra and Dash 2011).

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.883
Bartlett's Test of Sphericity	Approx. Chi-Square	1128.232
	df	120
	Sig.	.000

After conducting the KMO and Bartlett's test Rotated Factor Matrix was computed on the data and four factors were identified:

Rotated Component Matrix				
	Component			
	1	2	3	4
Fuel efficiency	.924	.055	.006	.050
Brand name	.921	.120	.103	.119
After sale service	.920	.054	.140	.124
Looks and design	.915	.041	.176	.152
Running and maintenance cost	.887	.039	.144	.058
Convenience features	.865	.061	.109	.142
Price	.852	.028	.167	.016
Resale value	.806	.010	-.013	.104
Engine capacity	.019	.737	.157	-.256

Safety	.151	.670	.016	.199
Economical	-.010	.621	.162	.121
Discount scheme	.025	.606	-.093	.337
CNG availability	.162	.094	.916	.075
Environment friendly technology	.223	.145	.887	-.018
Color availability	.122	.088	.058	.876
Driving pleasure	.225	.215	.017	.756
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

- Fuel efficiency, brand name, after sale service, looks and design, running and maintenance cost, Convenience features, price and resale value these variables are loaded on factor 1. This factor is renamed as "Vehicle Utility" with a factor load of 7.01 and 43.86% of variance.
- Engine capacity, safety, economical and discount scheme these variables are loaded on factor 2. This factor is renamed as "Techno-Commercial" with a factor load of 2.08 and 13.04% of variance.
- CNG availability, environment friendly technology theses variables are loaded on factor 3. This factor is renamed as "Environmental Concerns" with a factor load of 1.59 and 9.99% of variance.
- Color availability and driving pleasure these variables are loaded on factor 4. "Customer Joy" with a factor load of 1.09 and 6.84% of variance.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.018	43.861	43.861	7.018	43.861	43.861	6.462	40.386	40.386
2	2.087	13.046	56.906	2.087	13.046	56.906	1.857	11.603	51.989
3	1.599	9.991	66.898	1.599	9.991	66.898	1.811	11.320	63.310
4	1.095	6.841	73.738	1.095	6.841	73.738	1.669	10.429	73.738
5	.891	5.567	79.306						
6	.724	4.523	83.829						
7	.602	3.761	87.589						
8	.402	2.511	90.100						
9	.381	2.383	92.483						
10	.270	1.690	94.173						
11	.227	1.416	95.589						
12	.215	1.346	96.935						
13	.182	1.136	98.071						
14	.140	.877	98.948						
15	.099	.619	99.568						
16	.069	.432	100.000						
Extraction Method: Principal Component Analysis.									

- At least 60-80% variation is explained by factors this indicates that model is good. In our analysis 73.738 variation is explained by four factor means our model is reasonably good.
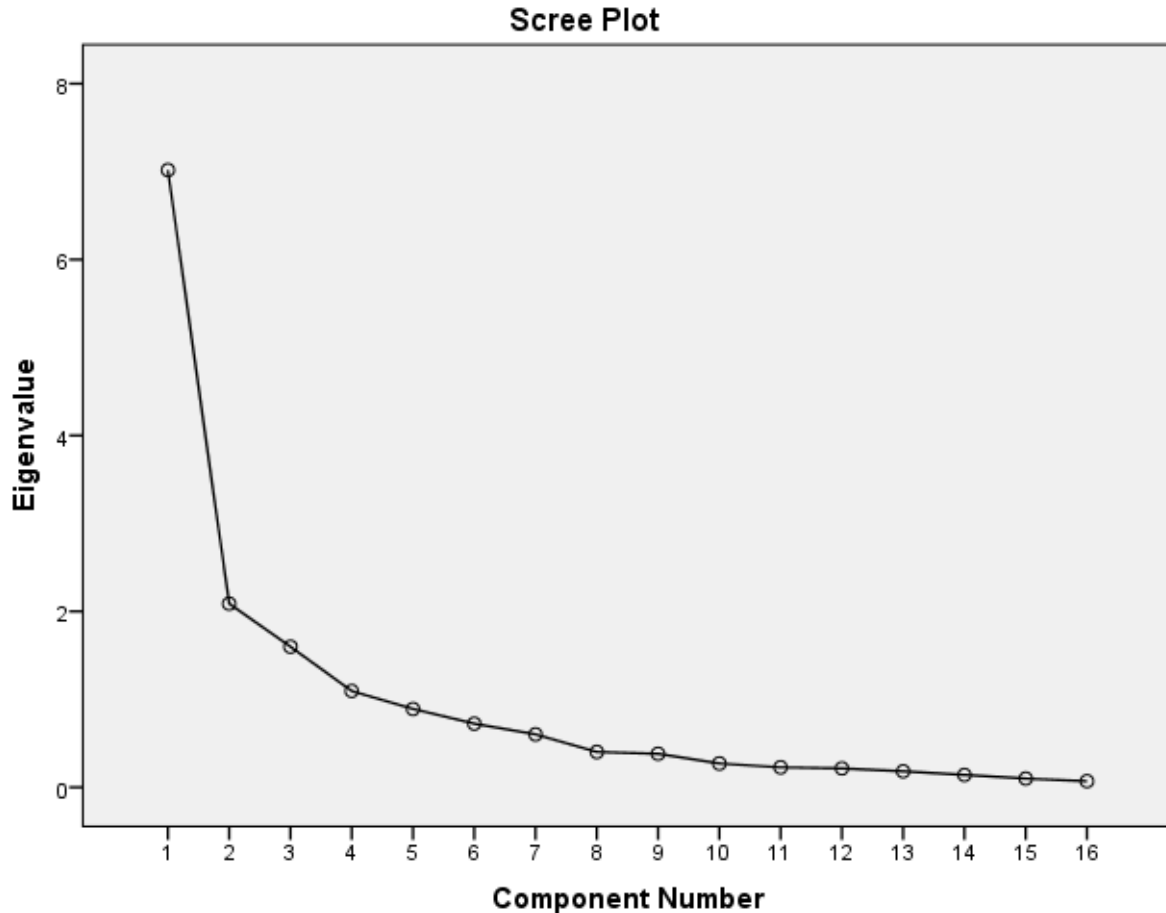
Scree Plot

- Scree plot is a plot of the Eigen values against the number of factors in order of extraction scree plot also shows after four factors direction are change(Malhotra and Dash 2011).

VII. DISCUSSION AND CONCLUSION

Although the awareness level of customers is increasing and they want to contribute their part in preventing the environment still price and style along with utility is their top priority. In this paper we analyzed to what extent consumers are willing to support public policies promoting energy-efficient cars. As found in the study the voluntary pro-environmental behavior brought on by'intrinsic motivation' to enforced compliance due to financial and legalincentives (extrinsic motivation) from a theoretical viewpoint takingcar purchase decisions as an example by (Ozaki and Sevastyanova, 2011) also proofs that customers are now conscious about the environment while purchasing cars. It was found in a study conducted by (Noblet et. al., 2006) that environmental attributes of an eco-labeled passenger vehicle are significant in the purchase decision. The eco-information is considered in the vehicle purchase decision, but is generally not considered at the class-level decision.

Every market has group of innovators who are ready to try the new technology and the word of mouth publicity is increasing day by day thus slow but steady introduction of ecofriendly technology can be an alternate solution for automobile companies as a hybrid car can be expensive and may push customer away, a car with established brand and feature having an addition ecofriendly quotient can be the best option. I think the manager can also start generating awareness about ecofriendly care provided by his firm because even though the group is very small but there is an existent group of customer who would like to by ecofriendly car.These findings of the present indicates that there lies an opportunity for car makers to influence consumer perceptions and though process by including an educational component for selling of eco label vehicle.

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