

A STUDY OF CONSUMER BEHAVIOR CONSIDERING VARIOUS ATTRIBUTES TOWARDS PURCHASING A CAR

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ABSTRACT

Background & Objectives: *Cars became a need rather than a choice. It is a need of everyone to purchase luxurious commodity for their comfort. Moreover added features attract the consumer attention. As a result, it is important that individuals gather more information to purchase a car. The present paper has empirically investigated two objectives: first, to find out the major factors that affect consumer perception towards different brands of car and second to develop a model framework for various decision areas of consumers while purchasing a car. The study is mainly primary data based with a sample of 300 respondents from Hisar district of Haryana state and applied statistical tools of factor analysis and Discriminant analysis to achieve the objectives of the study.*

Major findings & Policy Implications: *The results of factor analysis reveal five factors named as: product strategies, technology know-how, and level of satisfaction, workshop features and lastly service orientation. Factor analysis discloses that consumers are more influenced by product strategies, technology know-how and level of satisfaction. Hence consumers need USP of a commodity that makes a difference. Further results of discriminant analysis reveal that consumers are more influenced by product strategies, followed by technology know how and up to some extent level of satisfaction and service orientation. On the other hand consumers are least influenced by the factor workshop features.*

Keywords: *Academic Problem, Discriminant Analysis, Empirically, Factor Analysis, Strategies.*

I. INTRODUCTION

The automobile industry in India is the eleventh largest in the world with an annual production of approximately 2 million units. The industry employs 13 million people and contributes 3.1% towards country's GDP. Maruti Suzuki is the largest passenger vehicle company. TATA Motors is the largest commercial vehicle company and Hero Honda is the largest motorcycle manufacturing company in India (www.tatamotors.com)

Consumer behavior is the study of how a consumer thinks, feels, and selects between competing products. Moreover, the study of attitudes is critical to understanding the motivation and decision strategies employed by consumers. The combination of beliefs, attitudes, and behaviors influence how a consumer reacts to a product or service. Marketers develop relative, compelling marketing messages using the same combination of information, and ultimately influence consumer behavior.

Consumer attitudes are both a barrier and an advantage to a marketer. Choosing to discount or ignore consumers' attitudes of a particular product or service—while developing a strategy—guarantees limited success of a campaign. In contrast, perceptive marketers leverage their understanding of attitudes of consumers to predict their behavior. These smart marketers know exactly how to distinguish the differences between beliefs, attitudes, and behaviors while leveraging all three in the development of marketing strategies.

II. REVIEW OF LITERATURE

The way someone selecting and decide to purchase car have been widely studied from different types of studies. So far the vehicles planners are always interested to understand deeper about the choice of car type and how much the number of cars purchased by domestic consumers and how the designation of the use of vehicle, and actually there are a lot of research have been done by previous expert regarding such matter. As an example, a similar study carried out by Manski and Sherman (1980), multinomial logit frameworks have been developed to investigate how many cars have purchased and how the way to select such purchased car. Several car type selection models have been developed for individual and household owner of one or some cars in their house (Manski and Sherman, 1980). Mannering and Winston (1985) model the number of cars, car type and the use of cars within an interconnected framework; they form a separate model for an individual or family ownership of a car or some cars. Hensher and Le Plastrier (1985) using nested logit structure to model car ownership structure based on basic composition variety of options before buying an automobile. Brownstone et al. (1996) has developed buying a car tendency using selection of stated-preference data. Their study has used six alternative hypotheses with a different specific attributes. Yamamoto et al. (1999) developed consumer transactions competition period risk model by estimating economic risks maybe occur for every transaction in order to determine bargaining transaction separately considering choice differences possibility between survey respondents and somebody who are not respondent observed during the study. Relatively new research conducted by Mohammadian and Miller (2002b, 2003a, 2003b) developed a study regarding dynamics of car selection and selection of transaction type of car using nested logic, mixed logic, and various machine learning methods.

It's true that a consumer may not necessarily go through all the decision making process for every purchase he or she makes. At times, consumer makes his decision automatically and the decision may be based on heuristics or mental shortcuts. Other times, in case of high involvement products consumer may take a long time before making a final purchase decision. It depends on consumers' preference of the products like purchase of a car or home. More over consumers try to make an estimated brand universe on the basis of available information about the brands, and to make a tentative utility function on the basis of past consumption experience.

III. STATEMENT OF PROBLEM

Nowadays, car has become a necessity and forms a part of life. Therefore, there is a significant scope to examine the perception and buying behavior of the consumers of cars. The study is restricted to Hisar District of Haryana. Due to their increasing purchasing power, the people of this district have started to buy cars for business or personal use or the prestige and maintenance of social status. Knowledge of the buying behavior of

the different market segments helps a seller to select their target segment and evolve marketing strategies to increase the sales. Advertisers and marketers have been trying to discover why consumers buy and what they buy. This study tries to analyze the influence of perception in the consumers mind and how this information can be used successfully by marketers to gain entry into the minds of the consumers.

IV. THE MAIN REASONS OF STUDY

The purpose of this research is to study the behavior of consumers, their importance in the aspects of life style, perception of product attributes and level of satisfaction. Hence, the study is aimed at the following objectives.

- To find out the major factors that affect consumer perception towards different brands of car.
- To develop a model framework for various decision areas of consumers while purchasing a car

V. RESEARCH METHODOLOGY

The present study is an empirical research to examine the factors affecting consumer perception towards different brands of car. The study is based on the sample of 300 respondents of Hisar district of Haryana state. The data was collected in January-March 2014. Convenient sampling method is adopted for collecting the sample. Questionnaire was the research instrument used for data collection. It was divided into two sections. Section A consist of question related to demographical variables for the purpose of describing the sample and it consist of questions pertaining to age, income, marital status, occupation, qualification, fuel variant and price range whereas, Section B consists of statements related to major factors that affect consumer perception towards different brands of car. The adapted versions of standardized instruments were used with necessary modification to elicit the consumer buying behavior of Hisar area. All the 16 questions from section 2 of the questionnaire is based on Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The data is analyzed using SPSS version 13.0. The study employs factor analysis to determine the factors that are considered important while under stress. Factor analysis is a set of technique to identify underlying factors from the collection of seemingly important variables. It trims down the total number of variables into fewer factors and also shows the correlation between the factors. Secondary data has been collected through research papers, journals, websites, magazines and books.

Table 1: Demographic Profile of Respondents

S. No.	Demographic Profile	Frequency	Percent
Age	20-30 years	165	55.0
	30-40 years	63	21.0
	40-50 years	48	16.0
	above 50 years	24	8.0
Income	Below 4 lac	72	24.0
	4-6 lac	102	34.0
	6-8 lac	81	27.0
	above 8 lac	45	15.0
Marital Status	Married	159	53.0

	Unmarried	141	47.0
Occupation	Businessman	108	36.0
	Serviceman	153	51.0
	Any other	39	13.0
Qualification	PG	105	35.0
	Graduate	165	55.0
	Diploma/10+2	18	6.0
	Matric	12	4.0
Brand preference	Maruti Suzuki	63	21.0
	Tata	48	16.0
	Hyundai	57	19.0
	Honda	36	12.0
	Mahindra	48	16.0
	Toyota	21	7.0
	any other	27	9.0
Fuel Variant	Petrol	114	38.0
	Diesel	159	53.0
	LPG	21	7.0
	CNG	6	2.0
Price range	Below 4 lac	33	11.0
	4-8 lac	129	43.0
	8-12 lac	108	36.0
	Above 12 lac	30	10.0

The demographic characteristics of the respondents are summarized in Table 1. It is clearly being shown from the table regarding gender information which shows that 90% of the respondents were male and 10% respondents were female. The survey shows majority of the respondents were male and the main reason for this is because majority of men drive a car than female in India, especially in Hisar. Sample has been selected randomly without any bias and all the respondents are basically car owners. Furthermore the table provides the respondents age-group information. The first age group (20 to 30 years) accounted for 55% and next 30 to 40-years-age-group accounted for 21%, the 40 to 50-years-age-group were 16% and the above 50 years age group respondents were 8%. Hence it is clearly shown from the results that respondents were in the age group of 20-40 years. The table also explains the respondents' income. Data shows that 24% respondents' annual income are below 4 lakh and 34% respondents annual income is between 4 to 6 lakh and 27% respondents earn annually between 6 to 8 lakh and 15% respondents' annual income is above 8 lakh. All respondents have a different brand car, matching their individual income level. It is clear that 53% respondents are married and 47% respondents are unmarried.

From the table (Table: 1) it is also clear that 51% respondents are in service and 36% respondents run their own business and 13% respondents were belongs to other occupation. From the table it is also clear that 35% respondent qualification is P.G, 55% respondent qualification is Graduate, 6% respondent qualification is

Diploma/+2 and 4% respondent qualification is matriculation. Hence it can be concluded that majority of the respondents were highly qualified. Regarding the brand preferences of consumer, 21 % respondent prefer Maruti Suzuki followed by Tata Motors (16%), Hyundai (19%), Honda (12%), Mahindra (16%), Toyota (7%)& other brand (9%). Further, 38% respondents preferred petrol variant followed by 53% respondents preferred diesel variant, 7% respondent preferred LPG variant and 2% respondent preferred CNG variant.

In the above table it is also clear that 11% respondent prefer below 4 lakh price range, 43 % respondent prefer between 4-8 lakh price range, 36% respondent prefer between 8-12 lakh price range and 10 % respondent prefer above 12 lakh price range.

Table2 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.647
Bartlett's Test of Sphericity	Approx. Chi-Square
	397.690
	Df
	120
	Sig.
	.000

In order to know the various factors considered important for the car buyers, two tests were conducted under the factor analysis to judge the reliability of data,i.e.,Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett test of sphericity. The results so obtained in Table 2 were subjected to both these tests. The value of KMO statistics in all the factors is >0.5. Hence, all the factors are not considered equally important for measuring the brand preferences. Therefore, null hypothesis is rejected. Bartlett’s test of sphericity shows the value of Chi-square which is significant at 0.000 levels in all the dimensions of service quality. These two tests show that the data is fit for conducting the factor analysis. The Cronbach’s alpha value for the 16 statements is 0.628, which is also significant in the Table 3 mentioned as below:

Five factors were extracted which accounted for 61.383 %of variance explained by factor 1to 5 are 18.303,12.693,11.717,10.492,8.178 percent respectively. This is represented in the Table 4 given below.

Table 3: Reliability Statistics

Cronbach's	
Alpha	N of Items
.628	16

Table 4: Factor Names and Their Labels

Factor Names	Statements	Factor Loading	Cron-bach Alpha	% of Variance	
Product Strategies (F1)	A11 Discounts Available	.776	.762	19.55	3.12
	A15 Comparative Price	.759			
	A7 Promotional Strategies	.714			
	A1 Marketing Influence	.565			
	A5 Guarantee/Warranty	.553			
	A12 Re-Sale Value Of Carin Markets	.534			

	A10 Acquaintance with Retailer	.505			
Technology	A3 Imported Technology	.861	.651	13.67	2.18
Know-How (F2)	A6 Technology advancement	.714			
Level Of Satisfaction (F3)	A8 Friend & Relative Recommendation	.765	.557	11.81	1.89
	A9 Level of Satisfaction with Old Car	.730			
Workshop Features (F4)	A14 Availability Of Spare parts	.753	.419	9.56	1.53
	A16 Location of Workshop	.705			
Service Orientation (F5)	A4 After Sales Services	.752	.286	6.77	1.08
	A2 Brand Reputation	.522			
	A13 Pick & Serve Facility	.513			

VI. RESULTS AND INTERPRETATION

Factor analysis yielded 5 factors, which throw light on the car buying behavior & their attributes. The process of extraction was stopped where the size of Eigen value has gone less than 1.084 and that level it explain 61.383 of total variance as mentioned in Table 4. The method of principal component analysis has been applied to draw the results of factor analysis.

The factor names, variables loaded on the respective factors and their factor loadings and Eigen values of the factors may be seen in Table 4. Derived five factors are as follows:

Factor 1: Product Strategies

Factor 2: Technology Know-How

Factor 3: Level of Satisfaction

Factor 4: Workshop Features

Factor 5: Service Orientation

6.1 Product Strategies (Factor 1)

This is an important factor, which account for maximum percentage of variations equal to 19.553. Three out of 16 variables have loaded on this factor and named as product strategies. The Eigen value more than 3.128 also highlights that it is most important factor in respect of identifying brand preferences of consumers while purchasing a car. The components included in this factor are discounts availability, comparative price, promotional strategies, marketing influence guarantee/warranty, re-sale value of car in markets, acquaintance with retailer, imported technology and lastly technology advancement plays an important role in the purchase of a car.

6.2 Technology Know-How (Factor 2)

The second factor, which account for 13.671 percent of variations, has been named as Compliant. Two out of 16 variables have loaded on this factor and named as technology know-how. The Eigen value more than 1 i.e. 2.187 also highlights that it is also an important factor in respect to purchase a car by the consumer. The statements included in this factor are imported technology & technology advancement.

6.3 Level of Satisfaction (Factor 3)

This factor also accounts for maximum percentage of variations equal to 11.819. Two out of 16 variables have been loaded on this factor and named as level of satisfaction .The Eigen value more than 1.891 also highlights that it is slightly an important factor in respect to our main objective as per factor analysis. The variables included in this factor are friend & relative recommendation and level of satisfaction with old car.

6.4 Workshop Features (Factor 4)

The fourth factor that emerges from the factor model has been designated as workshop features, which account for 9.568 percent of variations. Two out of 16 variables have loaded on this factor. The Eigen value more than 1.531 also highlights that it is moderately important factor in respect to our objective as per factor analysis. The statements included in this factor are availability of spare parts and location of workshop

6.5 Service Orientation (Factor 5)

This factor, which account for 6.773 percent of variations is named as service orientation. Three out of 16 variables have loaded on this factor. The Eigen value more than 1.084 also highlights that it is slightly important factor in respect to take decision regarding purchasing a car. The variables included in this factor are after sales services, brand reputation, pick & serve facility.

Objective 2: To Develop a Model Framework for various Decision Areas of Consumers While Purchasing a Car

To attain the above said objective, this study focuses on various decision areas of consumers while purchasing a car. In developing a model framework where, dependent variable is taken as consumers are satisfied with car purchase or not? While five factors i.e. product strategies, technology know-how, level of satisfaction, workshop featuresand lastly service orientationare considered as independent variables. Likert 5 point scale has been used in the study where strongly disagree =1, disagree =2, uncertain =3, agree =4, strongly agree =5. Higher the mean value reflects higher agreement towards that statement.

In Table 5 results of Canonical Discriminant Function coefficients yields coefficients of various factors. The equation of Discriminant is mentioned below:

$$\text{Discriminant Score} = 0.816(\text{Product Strategies}) + 0.489(\text{Technology Know-How}) + 0.259 (\text{Level Of Satisfaction}) + 0.189(\text{Service Orientation}) - 0.099(\text{Workshop Features}) + .000(\text{Constant}).$$

The results of Discriminant Equation presented in Table 5 explains that consumers are more influenced by product strategies, followed by technology know how and up to some extent level of satisfaction and service orientation. On the other hand consumers are least influenced by the factor workshop features.

Table 5: Canonical Discriminant Function Coefficients

Regression Coefficients	Function
-------------------------	----------

	1
Product Strategies	.816
Technology Know-How	.489
Level Of Satisfaction	.259
Workshop Features	-.099
Service Orientation	.189
(Constant)	.000

Unstandardized coefficients

Table 6: Functions at Group Centroids

Are you satisfied with the services of automobile sector?	Function
	1
Yes	-.032
No	.647

Unstandardized canonical discriminant functions evaluated at group mea

Moreover to authenticate the outcomes of equation, the values of Group centroid mentioned in Table 6 are used for comparing the score of Discriminant equation. In Table 6 the results are interpreted that if the score of the equation is greater than -0.032 then the respondents are expected to be under less stressed and if score is less than 0.647 then they are not expected to be satisfied with the services.Nothing can be said with certainty in case of Discriminant score between -0.032 and 0.647.

Table 7: Classification Results (a)

Classification Results(a)					
Are you satisfied with the services of automobile sector?			Predicted Group Membership		Total
			Yes	No	
Original	Count	Yes	213	73	286
		No	06	08	14
	%	Yes	74.5	25.5	100.0
		NO	42.9	57.1	100.0

a 73.7% of original grouped cases correctly classified.

The results of the classification mentioned in Table 7 offer strength to Discriminant equation. Here, the respondents are divided into two groups using Bernoulli function and 70% of the cases are selected for predicting Discriminant equation. The rest 30% cases are used for checking the strength of the Discriminant equation. The result confirms that 74% of the selected cases are correctly classified and 36% of the unselected cases are correctly classified. Discriminant equation with correctly classifying more than 70% of cases is judged as of good quality. As a result, it can be concluded that consumers are more influenced by product strategies, followed by technology know how and up to some extent level of satisfaction and service

orientation. On the other hand consumers are least influenced by the factor workshop features. Hence it can be concluded that consumers are more influenced by the discounts availability, comparative price, promotional strategies, marketing influence guarantee/warranty, re-sale value of car in markets, acquaintance with retailer, imported technology and lastly technology advancement plays an important role in the purchase of a car.

VII. CONCLUSION

In conclusion, the current study was conducted in order to advance research on buying car behavior. Five decision making areas (Product Strategies, Technology Know-how, Level of satisfaction, Workshop Features, Service Orientation) of car buying behavior & their attributes resulted in this research. The purpose of this paper was to find out the major factors that affect consumer perception towards different brands of car. In order to comply with this a questionnaire administered survey has been conducted among 300 respondents and data revealed that product strategies have strong influence on purchase decision. The study also focuses on the model framework for students to manage the stress. As a result, the study shows consumers are more influenced by the discounts availability, comparative price, promotional strategies, marketing influence guarantee/warranty, re-sale value of car in markets, acquaintance with retailer, imported technology and lastly technology advancement plays an important role in the purchase of a car.

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