

## Identification of Factors Using Factor Analysis for Purchase Decision- Automobile Industry



## Management

KEYWORDS :

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Today, the Indian automobile industry is the world's largest motorcycle manufacturer, the second largest two-wheeler and tractor manufacturer, the fifth largest commercial vehicle manufacturer and the fourth largest car maker in Asia. Apart from serving the domestic market, the Indian auto sector has also become a sourcing hub for the global auto giants. In 2009, India emerged as Asia's fourth largest exporter of automobiles, behind Japan, South Korea and Thailand. The Government of India has introduced an ambitious project of setting up world-class automotive testing and R&D infrastructure to place India in the global automotive businesses.

The consumer decision-making process consists of five steps, which are need recognition, information search, evaluations of alternatives, purchase and post-purchase behavior. These steps can be a guide for marketers to understand consumers communicate effectively to them. Purchase decision is not a static concept. No marketer can predict with certainty the behavioral pattern of the consumers. If the marketer carries out a detailed analysis of the various determinants of buyer behavior and brings out the product to satisfy the specific of the buyer, he may be successful

### OBJECTIVES OF THE STUDY

To Study the socio economic profile of car users in Coimbatore and Tirupur District, the method of purchase, and their influence in purchase decision.

### PRE-TEST:

A pre-test was conducted with 20 samples so as to find out the suitability of the questionnaire. Based on the results certain items were included and few items were excluded depending on its applicability and few questions were reworded to reduce confusions and improve better understanding of the respondents. Pre testing thus enhanced the dependability, accuracy and adequacy of the instrument

### RESEARCH DESIGN

Research Design constitutes the blue print for the collection, measurement and analysis of data. This study is mainly focus on Descriptive research design as base. Descriptive research design is one that simply describes something such as demographic characteristics of consumers who use the product.

### TYPE OF RESEARCH:

Empirical research is data based, coming up with conclusions that are capable of being verified, by observations or by experiment. In this kind of research, the researcher should collect enough data to prove or disprove his hypothesis. Empirical research is appropriate when proof that certain variables affect other variables in some way is sought. It is considered that evidence gathered through experiments or empirical studies provides the most powerful support possible

### DATA COLLECTION:

The Direct-Structured type of data collection method was used for data collection. The Interview schedule was adopt-

ed for the collection of data. Statistical investigation requires systematic collection of data. The data is collected by the researcher through the following sources.

### PRIMARY DATA:

A well-structured pre- tested Questionnaire was administered by the researcher to elicit primary data.

### SECONDARY DATA

The researcher collected the secondary data through sources such as Books, Journals, Newspapers, Magazines, Publications and Websites.

### POPULATION:

The customers of automobile industries in Coimbatore and Tirupur districts constitute the population of the study. A total of 10 showrooms in Coimbatore and Tirupur districts contributed to the study.

### SAMPLE DESIGN

A Sample is a subset from the total population. It refers to the techniques or the procedures the researcher would adopt in selecting items for the sample. Sample design may lay down the number of items to be included in the sample (i.e.) the size of sample. In this study Systematic random sampling procedure will be adopted as the universe is larger and completed in nature.

Systematic sampling is a procedure which first categorizes the universe into subgroups based on designated criteria and then the sample is drawn. Samples are selected in a systematic manner from the list of customers.

### ANALYSIS OF OPINIONS

Factor analysis is bodies of techniques used for the study of interrelationships among variables. Inter-relationships are studied with the help of linear combinations of the variables. The principal component analysis is applied to transform a set of inter-related variables into a set of unrelated linear combinations of the variables. But the principal component analysis cannot be easily interpreted in terms of simple dimensions. Turnstone argues that it is necessary to rotate factor matrix if one wants to interpret them adequately. In order to obtain a simple structure factor matrix is rotated. The number of factors retained for rotation is restricted to those principal components, which have Eigen values greater than unity. In this analysis the sum of squared factor loadings is called an Eigen value. The initial run of the variables indicates that five factors are sufficient to convey all the 82 per cent of the information contained in the original data.

### ANALYSIS OF SELECTED FACTORS AND STATEMENTS:

The study of the selected factors would be of great help in understanding the important aspects related to purchase decision in automobile market. The four statements selected through factor analysis are dealt with in detail one by one in the following.

**INTUITION FACTORS**

Several factors are intuition to the customers in buying decisions such as own intuition, relatives and family members, friends and existing users. Own intuition is the first factor involved in buying decisions. Most of the buyers are conscious. Such people want to buy only branded goods. Many of the buyers are induced by their relatives and family members because obtaining a car is a one of the social status. In some cases friends are motivational factors, while one's friend obtain a car he also eager to purchase a car. Some buyers are specific about the existing users feedback is an induced factor.

**TABLE - 1**  
**Mode of Investment**

S.No	Mode	Number of Respondents	Percentage
1.	Own Intuition	212	42.40
2.	Relatives and Family members	150	30.00
3.	Friends	50	10.00
4.	Existing Users Feedback	88	17.60
	Total	500	100

Source: Primary data

**TABLE - 2**  
**Buying Decisions through Intuition Factor**

Intuition Factor	Ranks				Garret's Rank	Average	Rank
	1	2	3	4			
Own Intuition	285	147	35	33	32720	65.44	I
Relatives and Family members	130	250	23	97	28068	56.13	II
Friends	47	48	302	103	22477	44.95	III
Existing users feedback	12	23	140	314	17082	34.16	IV

Source: Primary data

**INTIMATION FACTORS**

Intimation factors are vital for the automobile industry and it is an important promotional tool for the respondents. The aim of the respondents is to promote their spending. Consumer needs to be conscious of the companies and their recital. Company performance should be monitored closely in order to track the customers' satisfaction. "Intimation Factors" has got the highest factor loading.

**TABLE -3**  
**Opinions of the Respondents on Buying Intimation Factors**

Intimation Factor	Ranks				Garret's Rank	Average	Rank
	1	2	3	4			
Peer Group Influence	275	137	47	41	30905	61.81	I
Festival Season/Special Occasion	147	230	35	88	29773	59.54	II
Personal Conveniences	55	62	292	91	27363	54.72	III
Financial Institution/Assistance	18	40	135	307	24048	48.09	IV

Source: Primary data

**INFLUENCING FACTORS**

The market conditions and trend are very imperative for a consumer so as to make proper analysis and judgment before taking his buying. Numbers of factors to motivate the consumers such as safety, social, esteem and self-actualization are available for the consumer notice.

The third factor of the rotated matrix has given importance with higher factor loadings to the reasons for buying motives. The statement, "influencing factor", has got the highest factor loading. Table -4 gives the opinions of the respondents on the statement "Influencing factors".

**TABLE-4**  
**Opinions of the Respondents Influencing Factors regarding Car**

Influencing Factor	Ranks				Garret's Rank	Average	Rank
	1	2	3	4			
TV Advertisement	260	138	37	65	33075	66.15	II
News Paper Advertisement	147	242	40	71	30895	61.79	I
Show Room Displays	63	65	267	105	29973	59.95	III
Demonstration	28	40	167	265	28060	56.12	IV

Source: Primary data

**IMAGE FACTORS**

Table-5 gives the opinions of the respondents on the statement "Image factor Preference as to Buying Decision".

**Table -5**  
**Opinions of the Consumers Buying Process**

Influencing Factor	Ranks				Garret's Rank	Average	Rank
	1	2	3	4			
Dealers Reputation	147	233	23	87	28068	56.13	I
Brand Image	268	163	35	34	32720	65.44	II
Manufacturers Reputation	63	65	268	104	22477	44.95	III
Warranty and Guarantee	12	40	123	325	17082	34.16	IV

Source: Primary data

**TABLE -6**  
**The Statements with the Highest Factor Loadings**

Factors	Selected Statements	Factor Loadings
Intuition Intimation Influence Image	Own Intuition	0.925
	Festival Season/Special Occasion	0.942
	News Paper Advertisement	0.955
	Brand Image	0.966
Average factor loading		0.947

To understand the effective functioning of automobile industry, it is essential to study the opinions of the respondents regarding the influence of the factor like buying decisions.

**FINDINGS**

\* From the Table-1 it is clear that, 212 (42.40 per cent) of the respondents have induced only through own intuition.

tion, 150 (30 per cent) respondents have induced through their relatives and family members, 50 (10 per cent) of the respondents have their involvement through their friends suggestions, 88 (17.60 per cent) of the respondents have their association through existing users feedback.

\* A significant observation from Table-2 is the buying decisions through intuition by the respondents, Own intuition which ranks first with an average Garret score of 65. The second ranked mode of relatives and family members, which has an average Garret score of 56. s. Friends and existing users feedback stands third and fourth respectively with an average score of 44 and 34.

\* A significant observation from Table-3 is the buying decisions through intimation factors by the respondents, peer group influence which ranks first with an average Garret score of 61. Festival season occupies the second rank with 59 score. Personal convenience stands third and Financial Assistance occupies fourth respectively with an average score of 54 and 48.

\* Table 4 reveals that the buying decisions through influencing factors by the respondents, TV advertisement which ranks first with an average Garret score of 66. News paper advertisement occupies the second rank with 61 score. Show room displays stands third and Demonstration occupies fourth respectively with an average score of 59.95 and 56.

\* A significant observation from Table-5 is that the preference as to brand image of an unfulfilled need by the respondents, which ranks first with an average Garret score of 65.44. The second ranked the preference as to dealers' reputation, which has an average Garret score of 56. Having recognized his need, as the next step, the persons will proceed to collect information on the various brands and models available in the market. Manufactures reputation and warranty and guarantee come third and fourth with an average score of 45 and 34 respectively. The opinions of the respondents are further analyzed on the basis of the measures taken to protect buyers in automobile market.

## CONCLUSION

A study on Identification of factors using Factor Analysis for Purchase decision in Automobile Industry reveals that the Intuition factors, Intimation factors, Influence factors, and Image play a major role. The selected statements are highly correlated to the factors they represent. Among the factors Influencing factor has got the highest factor loading. Majority of the respondents felt that own intuition ranks first in the buying decisions, in the intimation factors peer group influence ranks first, and in the influencing factors TV advertisement which occupies a major role. A significant observation is that the majority of the respondents prefer brand image as the major influencing factor in purchase design.

## REFERENCE

1. Adomavicius, G., & Tuzhilin, A. (2001). Expert-driven validation of rule-based user models in personalization applications. *Data Mining and Knowledge Discovery*, 5, 33–58.
2. Aggarwal, C. C., Procopiuc, C., & Yu, P. S. (2002). Finding localized associations in market basket data. *IEEE Transactions on Knowledge and Data Engineering*, 14, 51–62.
3. Anderson, J. L., Jolly, L. D., & Fairhurst, A. E. (2007). Customer relationship management in retailing: A content analysis of retail trade journals. *Journal of Retailing and Consumer Services*, 14, 394–399.
4. Baensens, B., Verstraeten, G., Van den Poel, D., Egmont-Petersen, M., Van Kenhove, P., & Vanthienen, J. (2004). Bayesian network classifiers for

identifying the slope of the customer lifecycle of long-life customers. *European Journal of Operational Research*, 156, 508–523.

5. Changchien, S., Lee, C. F., & Hsu, Y. J. (2004). On-line personalized sales promotion in electronic commerce. *Expert Systems with Applications*, 27, 35–52.
6. Chen, M.-C., Chiu, A.-L., & Chang, H.-H. (2005). Mining changes in customer behavior in retail marketing. *Expert Systems with Applications*, 28, 773–781.
7. Chen, Y. L., Kuo, M. H., Wu, S. Y., & Tang, K. (2009). Discovering recency, frequency, and monetary (RFM) sequential patterns from customers' purchasing data. *Electronic Commerce Research and Applications*, 8, 241–251.