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METHODOLOGY

Introduction

The Methodology adopted for the conduct of the study is presented in this Chapter. While on the one hand, the study aims at obtaining a complete and accurate description of the problem selected which is hither to not available, on the other hand, it seeks to substantiate quantitative evidence to the findings to the extent necessary. As such the study is a fact gathering expedition, assuming the characteristics of both descriptive and exploratory research.

Sources of Data

In tune with the objectives of the study, the researcher has to depend on both primary and secondary data. For the first two objectives, the data sources were as follows.

1) The makers, viz.
   M/s. Hindustan Motors Limited, Calcutta
   M/s. Maruti Udyog Limited, Gurgaon
   M/s. Premier Automobiles Limited, Bombay
   M/s. Standard Motor Products of India Limited, Madras and
   M/s. Sipani Automobiles, Bangalore.

2) Association of Indian Automobile Manufacturers, Bombay

3) Automotive Component Manufacturers Association of India, Bombay.

4) The Ministry of Industry, Government of India

5) Directorate General of Technical Development (Transportation Division), Government of India, and

6) The dealers
For the second objective, primary data was obtained by means of an interview schedule constructed for this purpose, the data source being the sample respondents.

**Construction of Tools and Pretest**

Initially an interview schedule was constructed by the researcher for the purpose of pretesting. The same was administered on a sub-sample of respondents drawn out of the ultimate sample. The sub-sample constituted 10% of the ultimate sample. In the light of the pretest every aspect of the interview schedule such as topic sequencing, question sequencing, ordering of alternatives, question format and the like were examined and revised to the extent necessary, and thereby greater accuracy of the final interview schedule was ensured for collecting primary data.

The interview schedule consists of five sections. The first section deals with personal details. The second section deals with personality details. The third section deals with present and previous ownership. The fourth section deals with purchase decision process and the fifth section deals with general issues associated with car ownership. A copy of the final interview schedule administered for collecting primary data is given in Appendix I.

For the purpose of collection of secondary data, the researcher made personal visits on prior appointments to the data sources. Apart from references to the published and unpublished documents and reports, some data could be collected through personal
discussions with selected functional heads in various organisations. Also some data were collected through correspondence with the concerned.

**Description of the Study Area**

In tune with the third objective of the study a survey in relation to buyer behaviour with respect to brand selection under existing market conditions was made. The area where the survey conducted was COIMBATORE district of TAMIL NADU State in SOUTH INDIA. The land area of the district is 7469 Sq.kms and the population as per the latest census account for 30.60 lakhs. In view of the vast infrastructural facilities available, the district account for significant progress with respect to production of Textile, Machinery and Machine Tools and Agricultural and Agro based Industrial products. The textile mills in the district provide employment opportunity for more than 19 lakhs persons.

With respect to transport, the district has developed significantly in respect of railways and roadways. Regarding road transport the district is being considered as one of the important regions which account for larger number of passenger cars registrations. The other regions are mostly state capitals. Also the district is within the easy reach of the researcher.
Sampling Design

The sampling procedure adopted for the study is as follows. The researcher by means of personal visits to the Regional Transport Office, Coimbatore, obtained the list of registered owners of passenger cars. From the list so obtained individuals on whose name car/s have been registered were selected as the population. Also it was decided to have the population consisting of individuals who have obtained ownership of car within the period of two years immediately preceding the year of study (1987) on the assumption that they would be in a position to respond to the questionnaire as accurately as possible out of their memory, and this fact was noted as a result of the pretest. Also the population was confined only to the five Indian brands of cars viz. Ambassador, Contessa, Dolphin, Fiat and Maruti since the owners of other brand of cars formed a negligible percentage of the total.

The sampling technique adopted being stratified random sampling technique. Accordingly the population is stratified into stratum which are mutually exclusive. Then a simple random sampling technique being employed to select samples from each stratum. This technique helped to ensure representativeness to a greater extent. The sample so arrived which account for more than 25% of the population, as follows:
### Field Work and Collection of Data

The responses for the interview schedule were obtained by the researcher himself by personal visits to the respondents at their convenience. While interviewing necessary clarifications have made in vernacular to enable the respondents to answer as accurately as possible without any ambiguity. Simultaneously the responses to the various questions in the interview schedule were recorded by the researcher in most of the cases. In some cases the respondents themselves have recorded the responses under the guidance of the researcher. All these process took sufficiently larger period of time for collecting the data.

The filled up interview schedules, were thoroughly checked and thereby accuracy, consistency and completeness of data were ensured. The data thus collected were categorised and processed further manually as well as through computers.
Frame Work of Analysis

For the purpose of studying the buyer behaviour with respect to brand choice among other things the major characteristics influencing brand choice have been identified and grouped as under:

1. PRODUCT RELATED CHARACTERISTICS

i) Comfort ($P_1$)
ii) Exterior design ($P_2$)
iii) Fuel efficiency ($P_3$)
iv) Interior design ($P_4$) and
v) Maintenance cost ($P_5$)

2. MARKET RELATED CHARACTERISTICS

i) Availability ($M_1$)
ii) Guarantee ($M_2$)
iii) Price ($M_3$)
iv) Resaleability ($M_4$) and
v) Terms of sales ($M_5$)

3. BUYER RELATED (PERSONAL) CHARACTERISTICS

a) Demographic Characteristics

i) Age ($B_{a_1}$)
ii) Economic status ($B_{a_2}$)
iii) Educational status ($B_{a_3}$)
iv) Family size ($B_{a_4}$)
v) Marital status ($B_{a_5}$)

vi) Occupational status ($B_{a_6}$) and

vii) Sex ($B_{a_7}$)

b) Psychographic Characteristics

i) Challenge consciousness ($B_{b_1}$)

ii) Change consciousness ($B_{b_2}$)

iii) Enjoyment consciousness ($B_{b_3}$)

iv) Family consciousness ($B_{b_4}$)

v) Image consciousness ($B_{b_5}$) and

vi) Status consciousness ($B_{b_6}$)

The Brand choice for an automobile can be presented as follows

$$Brand\ choice = f [P_1, P_2, \ldots, P_5; M_1, M_2, \ldots, M_5; \ B_{a_1}, B_{a_2}, \ldots, B_{a_7}; B_{b_1}, B_{b_2}, \ldots, B_{b_6}]$$

With regard to the psychographic characteristics the consciousness or otherwise of a respondent is determined by the extent of his agreeability of the concerned statement presented in the interview schedule. While respondents who have strongly agreed, and agreed are grouped as conscious those who disagreed and strongly disagreed are grouped as not conscious. Those who are in between these two groups are categorised as neutral.
The statistical techniques employed in this study include simple descriptive statistics, \( X^2 \) (Chi-square) test and correlation analysis. Further it is to be noted that the percentages calculated are only approximate.

\( X^2 \) (Chi-square) Test

The chi-square test has been employed in order to find out the relationship between the independent characteristics viz product, market and buyer related and the dependent characteristic viz brand choice separately.

\( X^2 \) test is one of the commonly used test to determine the existence of relationship between two variables inferred from a sample data. The test involves computing the statistic \( X^2 \) from the sample data and comparing this value with the values given in the table for its theoretical sampling distribution, chi-square. The computation of the statistic \( X^2 \) involves computing expected frequency for each cell and taking the sum of the squared differences between the observed and expected frequencies for each, all divided by the expected frequency for each cell. Then the contingency table is prepared to determine by means of a \( X^2 \) test whether the two variables considered are related or not. The \( X^2 \) test has no parameters except degrees of freedom.
Degrees of Freedom

Degrees of freedom denote the number of classes to which the values can be assigned arbitrarily or at will without violating the restrictions, that are placed on them. The number of degrees of freedom is obtained by subtracting from the number of classes the number of degrees of freedom lost in fitting. The degrees of freedom is noted as follows.

\[ V = n - k \]
where \( k \) refers to number of independent constraints.

Accordingly depending on the nature of the data \( X^2 \) test has been employed in this study throughout.

Scoring Pattern

In order to facilitate the \( X^2 \) test, the level of importance assigned by each respondents to the product characteristics and the market characteristics on brand choice have been assigned scores as follows.

<table>
<thead>
<tr>
<th>Level of importance</th>
<th>Score Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most important</td>
<td>4</td>
</tr>
<tr>
<td>Important</td>
<td>3</td>
</tr>
<tr>
<td>Less important</td>
<td>2</td>
</tr>
<tr>
<td>Least important</td>
<td>1</td>
</tr>
</tbody>
</table>
Point Biserial Correlation

This measure of correlation is used to analyse the extent of influence of previous ownership of the respondents in their present brand.

Out of the 150 respondents, 63 respondents have previously owned cars while 87 respondents have not owned car prior to the present ownership.

Accordingly the sample respondents were divided into two groups viz. "Yes group" which stands for respondents whose previous ownership is car and "No group" stands for respondents whose previous ownership is not car.

The "Yes group" is arbitrarily numbered as "1" and "No group" is arbitrarily numbered as "0". The score value obtained by both the groups for the product and market characteristics on the brand choice distributed on the basis of previous ownership (The scoring pattern is same as discussed in previous pages) and the same ranges between 25 to 40.

This has been subjected to point biserial correlation by using the formula below:

\[ r_b = \frac{\bar{X}_1 - \bar{X}_0}{SD_x} \cdot (pq)^{1/2} \]
Where $X_1$ = means score of 'Yes group'
$X_2$ = means score of 'No group'
SD = Standard deviation of entire group
p = Proportion of 'yes group'
q = 1-p or proportion of 'no group'

Significance of \( r_{pb} \) is found by converting into 't' value using the formula

\[
t = \frac{r_{pb} (N - 2)^{\frac{1}{2}}}{(1 - r_{pb}^2)^{\frac{1}{2}}}
\]

with \( N-2 \) degrees of freedom.

**Limitations of the study**

The study has the following limitations

1. This study is the first of its kind and not much of recorded information is available. As such the researcher had to depend on available secondary data which is of recent origin. The makers of automobiles in India also were in a position to supply only limited literature.

2. As regards the opinion survey of automobile buyers the study is based on the sample size of 150 respondents of one city. The sub-sample size for certain sub-groups is also small. This particular aspect limits the generalizability of the study findings. A replication of this study in another geographical setting (some other part of India) may
or may not yield similar results. However since almost similar market and buyer conditions prevail throughout India there is enough scope for generalising the findings of the study.

(3) Due to two types of recording of responses one in English and the other in vernacular there is a chance for bias to crop in and thereby questioning the validity of the findings. However every care has been taken to minimize such bias while translating the questionnaire.

(4) Another limitation of the study is that in a situation of limited choice the relevance of the study is questionable. However in the light of the product and price mix differences as between various brands the study is expected to be of considerable utility to the producers as well as to the prospective buyers.

(5) Lastly the sample buyers consist of first time buyers and those who have made repurchases. Out of the sample the former consist of 25% and the latter 75% (Table No. 5.15 Page 111). That being the case in all probability the opinions of such different buyers may lead to some bias in the final findings. This could have been avoided by stratifying the sample but the source for the sample was devoid of such information.
Chapter Scheme

The thesis is made up of Seven Chapters. The first chapter deals with the introduction and design of the study. It covers introduction, statement of the problem, review of literature, objectives of the study, hypotheses and operational definitions.

The second chapter deals with the methodology adopted for the study which includes introduction, sources of data, construction of tools and pretest, description of study area, sampling design, field work and collection of data, frame work of analysis, limitations of the study and the chapter scheme.

The third chapter deals with the historical perspective of passenger car industry of India. It covers the origin of the industry, growth, profile of the makers production, sales trend and the like.

The fourth chapter deals with the problems of the industry.

The fifth & sixth chapters deal with the results of analysis and interpretation of data collected. While the fifth chapter deals with the profile of the sample users, the sixth chapter deals with the brand selection process and the characteristics influencing the brand choice.

The seventh chapter deals with summary of findings, recommendations and directions for future research.