Chapter IV

RESEARCH METHODOLOGY & DESIGN

4.1 Introduction to the research problem

Indian economy has grown tremendously with the advent of policy of liberalization, privatization and globalization since 1991. Almost all sectors of the economy have achieved noteworthy progress and achieved the distinction of second fastest economy of the world after only China. With the modest beginning in 1949, Indian car manufacturing and marketing has attained the important milestone.

During this period income of people has also increased manifold and significant and discernible change has also been noticed in the attitude and aptitude of the people in the form of shift from propensity to save to propensity to consume and spend. Banks and other financial institutes have contributed positively in the form of making available easy loans and financing facilities. Consequently India became a favorable and hot destination for foreign car manufactures and marketers. Almost all foreign car manufacturers like Hyundai, Toyota, and Chevrolet. Volkswagen, Honda and many more have set up their manufacturing facilities in India. A number of Indian car manufactures entered in foreign collaboration and started car manufacturing facilities in India. This resulted in availability of a number of makes and models of cars, both big and small, in Indian car market.

Conditions of roads have also improved and many new mega highways, highways and express ways have been constructed. Not only internal city roads have improved but cities are well connected with small towns and even with villages. Entire country is connected with the help of national triangles and quadrangles. All of the sudden a flood of big and luxury cars is witnessed on Indian roads. More and more people started buying big cars irrespective of fact whether their means permit them to do so partly due to demonstration effect and partly due to availability of easy financing facilities. Meanwhile income and purchasing power of central and state government officials increased substantially due to their pay revision by V and VI pay
commissions, IT companies started paying huge salaries and incentives to their employees. These all culminated in buying of big and luxury cars by more and more number of people and Indian roads started flooding with the big cars.

In such a backdrop it was but natural to think and raise the doubts that under such a changed scenario “are small cars still sustainable in Indian automobile sector”. This has prompted the researcher to undertake this study.

4.2 Objectives of the study -

Currently Automobile Industry in India is growing very rapidly. It appears that the manufacturing sector activities in India is going to be driven to a very large extent by the automobile sector. The small car segment in Indian automobile sector is very large. The small car segment of automobile sector that form the corner stone, of this growth would probably the pivot around which the automobile sector in India would resolve in years to come. Therefore, a systematic study of small car segment and its Economic Sustainability is required.

With changing socio- economic pattern of Indian consumer specially the middle class consumer the study aims to find out how their perception about the technology used in small car, its suitability, the price and other factors can influence the economic sustainability of a small car. The present research study has been undertaken to achieve the following objectives,

1. To study the sustainability and viability of small cars in the Indian market in present environment.
2. To study the driving factors for the preference of small cars by Indian buyers.
3. To study the changing pattern of behavior of Indian buyers towards purchase of small cars.
4. To study the satisfaction level of owners and users of small cars in Indian market.
4.3 Research Hypotheses-

H1₀ - Small cars are no more a preferred choice of Indian consumers
H1₁: Small cars are still a preferred choice of Indian consumers.
H2₀ - Even constantly rising costs of inputs and fuel prices will not contribute to the sustainability of small cars
H2₁: Constantly rising costs of inputs and fuel prices will contribute to sustainability of small cars in India.
H3₀ - Small cars will no more be the choice of Indian Middle class.
H3₁: Small car will continue to be a choice of Indian middle class consumers.
H4₀ - Recently launched Tata’s Nano car is not a preferred choice of Indian consumers
H4₁: Recently launched Tata’s Nano car is a preferred choice of Indian Consumers.

4.4 Scope of the study -

The present study is confined to the study of sustainability of small cars in Indian automobile sector. In the category of small cars researcher has included all such cars which are meeting the definitions of small car as given by Government of India in its policy document that is “A small car is one that is shorter than 4,000 mm with an engine size smaller than 1,200 cc, if gasoline, and 1,500 cc, if diesel.”.

Special emphasis is given to the study of viability and sustainability of Tata Motor’s Nano car.

Study has taken into consideration only market viability and sustainability dimension of small cars and other dimensions of the sustainability like environmental sustainability technical sustainability do not form the scope of this study.

The research study is confined to study the status of Indian automobile sector for five year period ranging between years 2003 to 2008, although attempt will made to update the scenario by quoting the latest data available.
4.5 Research Design -

Exploratory research design has been used in the initial stage of the study to explore the possibility of carrying out the research on the topic selected for research study. For this purpose researcher undertook the extensive literature survey. The exploratory research design was followed by descriptive research in which described the various facts and responses received from respondent.

Research is also qualitative and quantitative in nature. Being qualitative research, researcher has studied various qualitative aspects and attributes. Research is quantitative in the sense that researcher has quantified the responses received from respondents to draw the logical conclusions from them.

4.6 Collection of data

Present research study is based on collection of primary as well as secondary data.

4.6.1 Primary data

The present research is predominately based on collection of primary data. For collection of primary data following procedure has been adopted

4.6.2 Universe

Universe constitutes all units from which information could be gathered for carrying out a particular research study. For the purpose of present study all persons who are car owners and using cars in India constitute the universe.

4.6.3 Sample

Sampling Technique - Simple random sampling technique is a technique in which each unit of the universe has equal chance to be selected in sample. Simple Random sampling technique has been used to conclude this study.
4. 6.4 Sampling Method

Convenience sampling method- Researcher has selected a sample of 300 respondents from each zone of India on the basis of availability as well as preparedness of the respondents to respond without using any bias.

4. 6.5 Sampling Unit.

Each and every owners and users of cars in India is the sampling unit for this study

4. 6.6 Sample size.

A sample of 1500 units has been selected. To give the wide coverage and an all India perspective and dimension to the study the whole country is divided in to five zones/regions viz. Northern zone, Southern zone, western Zone, Eastern zone and Central zone. A sample of 300 units has been selected from each zone.

4. 7 Profile of sampling units.

4.7.1 Age wise profile.

From this perspective all the respondents were divided into four age groups. The responses received are presented as under.

<table>
<thead>
<tr>
<th>Age</th>
<th>No. of respondents</th>
<th>% of respondents</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25 yrs</td>
<td>127</td>
<td>09</td>
<td>09</td>
</tr>
<tr>
<td>25-30 yrs</td>
<td>859</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>30-40 yrs</td>
<td>346</td>
<td>23</td>
<td>89</td>
</tr>
<tr>
<td>40-50 yrs</td>
<td>108</td>
<td>07</td>
<td>96</td>
</tr>
<tr>
<td>Above 50 yrs</td>
<td>60</td>
<td>04</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
The above have been presented by following bar chart---

**Figure: 4.1 Age wise profile of the Respondents**

4. 7.2 Sex wise Distribution of sampling sample units.

Out of total respondents of 1500, 1239 respondents were male and remaining 261 respondents were female respondents. The data have been presented in Table 4.2 as under –

**Table 4.2 Sex Wise Distribution of Respondents**

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. of Respondents</th>
<th>% of Respondents</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1239</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Female</td>
<td>261</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The above data have been presented with the help of following pie chart.
4. 7. 3 Marital Statuses of Respondents.

Out of total respondents as high as 1398 respondents were married and remaining 102 respondents were unmarried respondents. The data have been presented through following table 4.3

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>No. of Respondents</th>
<th>% of Respondents</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>1398</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Unmarried</td>
<td>102</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The above data have been presented through the following pie chart---
4.7.4 Family Type.

Out of total respondents 102 were the single family, 1055 shown as nuclear family and remaining 343 were leading their life as joint family. The above data have been presented in table 4.4 and through a figure 4.4 as under—

Table 4.4 Distribution of Respondents as per Family Type

<table>
<thead>
<tr>
<th>Family Type</th>
<th>No. of Respondents</th>
<th>% of Respondents</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>102</td>
<td>07</td>
<td>07</td>
</tr>
<tr>
<td>Nuclear</td>
<td>1055</td>
<td>70</td>
<td>77</td>
</tr>
<tr>
<td>Joint</td>
<td>343</td>
<td>23</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The above data have been presented with the help of following pie chart-
Figure: 4.4 Distributions of Respondents as per Family Type

4.7.5 Occupation wise Distribution of the Respondents.

Out of total respondents 1303 respondents were in service of which 1041 respondents were in government service and 262 were in private service, 104 respondents were pursuing their own business and remaining 13 respondents were in other occupation like self employed etc. The above data have been presented in table 4.5 and through bar diagram as under.

Table: 4.5 Occupation wise Distribution of the Respondents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>No. of Respondents</th>
<th>% of Respondents</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>1303</td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td>Business</td>
<td>184</td>
<td>12</td>
<td>99</td>
</tr>
<tr>
<td>Others</td>
<td>13</td>
<td>01</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The above data have been presented by the following bar diagram as under
Out of total respondent size of 1500, none of them reported as having income below Rs. 25000/- per month, 545 respondents were in the income bracket of Rs 25,000-50,000, 647 respondents were in Rs. 50,000-75,000 income bracket and remaining respondents (308) were in income bracket of Rs. 1,00,000 and above. Responses received have been presented in Table 4.6 and through a bar diagram as under----

Table: 4.6 Income wise Distribution of Respondents

<table>
<thead>
<tr>
<th>Monthly Income</th>
<th>No. of Respondents</th>
<th>% of Respondents</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Rs. 25000</td>
<td>Nil</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>Rs.25000-50,000</td>
<td>545</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Rs.50,000-1,00,000</td>
<td>647</td>
<td>43</td>
<td>79</td>
</tr>
<tr>
<td>Above Rs.1,00,000</td>
<td>308</td>
<td>21</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The above data have been presented with the help of following bar diagram.
4.8 Data collection tools and techniques -

Following three techniques have been used, for collection of primary data-

1. Questionnaire Method
2. Unstructured Interviews Method,
3. Observation Method

4.9 Questionnaire -

To know the response of sampling units selected in study on the issue of sustainability of small cars in Indian automobile sector a structured questionnaire containing 55 questions was designed. Response of first fifty questions was sought along with Likert’s five point rating scale. Before finalization of the questionnaire a pilot survey was conducted.

4.10 Pilot survey -

Before finalization of the questionnaire few copies of the same were supplied to the experts in the field of marketing and auto sector, so that their reactions on suitability
of questionnaire can be sought to ensure that if any irrelevant question is included in the same can be discarded from the same and if any question relevant to the study is omitted from could be included in it.

On the basis of suggestions given by these experts questionnaire was finalized and same was served upon the selected units.

Looking at the weakness of questionnaire method that return percentage of duly filled in questionnaires is very low, researcher took personal interest in getting filled in the questionnaires and personally persuaded the respondents to fill in the questionnaires.

4.11 Unstructured interviews.

Researcher especially conducted unstructured and informal interviews of the executives working in the offices and showrooms of automobile companies to get their responses on the sustainability of car especially small cars. Moreover, researcher also conducted the interviews of some of the respondents to elicit supplementary information from them.

4.12 Observation.

Researcher visited the showrooms and sales offices of some of the automobile companies to observe the consumer / buying behavior of consumers to study their buying preferences.

4.13 Collection of secondary data.

To supplement and corroborate the information and findings generated through the primary data researcher also collected information from secondary sources. For this purpose researcher made extensive use of books, journals, magazines, periodicals, newspapers, government publications, Society of Indian Automobile Manufactures (SIOM), websites, Google search, internet, published and unpublished theses and research work etc.
4.14 ANALYSIS AND INTERPRETATION OF DATA,

After collecting information from primary as well as secondary sources researcher proceeded to analyze and interpret the same. The researcher classified and tabulated the information and data. Different statistical tools like mean, mode, median, standard deviation, range, percentile, correlation, etc to make the data presentable. Graphic representation of the collected is made by using bar diagrams and pie charts. Collected data have been properly interpreted and logical conclusions have been drawn from them which have been presented in chapter –V and VI of this thesis,

4.14.1 ASSIGNMENT OF WEIGHT

As mentioned under sub-heading ‘Questionnaire’ researcher has designed first fifty questions in questionnaire along with the five point Likert scale ranging from strongly agree, agree, undecided, disagree, disagree to strongly disagree. To provide and ensure objectivity to the study researcher has assigned the weight as under----

<table>
<thead>
<tr>
<th>Responses</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>+5</td>
</tr>
<tr>
<td>Agree</td>
<td>+4</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>-4</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>+5</td>
</tr>
</tbody>
</table>

4.15 Testing Of Hypotheses -

The present research study is based on four premises / hypotheses as mentioned under the heading of hypotheses. These hypotheses have been tested by using statistical tools like averages and Chi-square test. First three alternative hypotheses developed by researcher came true and in the case of fourth hypothesis null hypothesis proved as true.
4.16 Limitations of the Study -

1. The present research study pertains to study of sustainability of small cars in Indian automobile sector. There are millions of car users in India, out of which researcher selected a sample of 1500 users by using simple random sampling technique purposive or convenience sampling method. Although every possible effort is made by researcher to give the study an all India perspective and dimension, but in spite of that finding are based on the responses given by the respondents, therefore, validity of research findings depends on the responses given by the respondents.

2. The research is confined only to the study of market sustainability of small cars other dimensions of sustainability like, environmental sustainability social sustainability, technical sustainability, financial sustainability have not been studies in this study.

3. Study is confined to the study of sustainability of small cars which also includes hay batch cars into its scope, but has not taken in its purview the study of big cars like Sedan, MPV, SUV, and commercial vehicles

4.17.-Scheme of Chapters -

Researcher has divided his research thesis into six chapters, besides appendices containing bibliography and a questionnaire as under---

Chapter –I - Introduction and Concepts

Chapter –II - An Overview of Automobile Industry in India

Chapter-III - Review of Literature

Chapter-IV - Research Methodology and Design

Chapter-V - Analysis and Interpretation of Data

Chapter-VI - Findings, conclusions, recommendations and scope for further research