Chapter II

RESEARCH METHODOLOGY

2.1 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 hitherto not available and on the other hand, it seeks to substantiate evidence to the findings to the extent necessary. As such the study is a fact gathering expedition, assuring the characteristics of both descriptive and exploratory research.

2.2 Sources of Data

In tune with the objectives of the study the researcher has to depend on both primary and secondary data. The sources of data were as follows:

**Primary Data:** The primary data required for the study were collected from the consumers and owners of retail outlets. Necessary details have also been collected from departmental stores, supermarkets, margin free shops, Maveli stores and various other agencies. Discussions were also made with the staff of retail outlets having home delivery system. Consultations and discussions with academic experts have enormously contributed to the data source.
Secondary Data: The secondary data necessary for the study were compiled from published and unpublished sources. Published sources include Yearbooks, Annual Reports, Research Publications, leading Journals in marketing, other journals weeklies and dailies. The unpublished sources like Ph.D. thesis, Project works, Dissertations etc. contributed significantly to the data source.

2.3 Construction of Tools and Pre test

Initially the researcher for the purpose of pre-testing constructed an interview schedule. The same was administered on a sub-sample of respondents drawn out from the ultimate sample. The sub sample constituted 10% of the ultimate sample. The experience obtained from the pilot survey helped the researcher to redraft and revise the questions to the extent necessary and it provided direction, accuracy and sharpness to the final interview schedule, which was used for collecting primary data. (Copy of the final interview schedule administered for collecting primary data is given in Appendix - I.)

2.4 Description of Area of Study

The study was mainly conducted in the central districts of Kerala State viz., Ernakulam, Thrissur, Palakkad and Malappuram.

2.5 Reference Period

A moderately lengthy period of ten years commencing from the financial year 1993-94 to 2003-04 was taken into consideration with a view to
 arrive at meaningful conclusions. The field study was conducted during the period from June 2001 to March 2003.

2.6 Sampling Design

The sampling procedure adopted for the study is as follows. As the population to be covered is very large and spread over the districts of Ernakulam, Thrissur, Palakkad and Malappuram in the State of Kerala, a representative sample of retail outlets and consumers were taken from the population for the collection of primary data. For this purpose a multi stage sampling technique was used. For the purpose of selecting consumers, the telephone directories were made use of and they were selected by lottery method.

2.7 Field Work and Data Collection,

The researcher himself has collected the responses by making personal visits to the respondents at their convenience. Utmost care was taken to give necessary clarifications in verbatim to enable the respondents to answer as accurately as possible without any ambiguity.

Except in cases where the respondents took the initiative, the first hand responses were instantly recorded in the interview schedule by the researcher. When the respondents took up the task, due care and attention was given by the researcher to ensure accuracy of field data.

The filled up interview schedule were thoroughly checked and ensured accuracy, consistency and completeness of data. The data thus collected were
categorized and processed manually and further it was crosschecked through computers. Further processing was done with the help of the master table.

The data were fed into computers for analysis and the results were appropriately incorporated.

2.8 Frame Work of Analysis

The primary data collected were tabulated and analysed with the help of computer software keeping in view the objectives of the study. Mathematical, statistical and financial tools were used for analysis, wherever necessary. The mathematical tools applied are averages, ratios and percentages. The statistical tools include, testing of hypotheses, measures of dispersion, comparison of data, diagrammatic presentations of data and weighted score ranking. Financial tools made use of in the study consists of mainly accounting ratios.

Diagrammatic presentation of the data is an effective pictorial device for comparing data and the bar charts are used for appropriate comparisons. It facilitated in emphasising new and significant relationships and to discover new facts and in developing hypothesis.

Measures of central tendency are a descriptive measure of central location and it discounts observations into a single value. The extent of variability is measured by measures of dispersion.

Ratios, proportions and percentages are used for comparing distributions of sub groups. Ratios show the relation between one variable and the other. These are relative measures and enable the comparison of graphs of unequal size.
Hypotheses are tested with tests of significance. This testing involves the assessment of the probability of specific sampling results under assumed population conditions. Assumptions about the population parameters are made in advance and the sample then provides the test of these assumptions. Hypotheses are tentative propositions relating to the phenomenon under study. They have to be tested empirically before we can accept or reject them. The relative influence of various factors on a variable is measured with the help of a weighted ranking technique. Scoring technique is employed to rank the responses of consumers.

Accounting ratios are indispensable for analysis and interpretation. It clearly establishes the relationships worked out among various data which are mutually interdependent and which influence each other in a significant manner. It is a fact that absolute figures standing alone convey no meaning. A meaningful analysis of the financial situation and performance can be done with the help of accounting ratios. Inter-firm comparison and intra-firm comparison are both possible on the basis of accounting ratios.

The Return on investment (ROI) or profitability ratio is ascertained by a comparison of profit earned and capital employed to earn it. ROI explains how much income is generated by the use of capital. It is expressed as net margin on sales showing the effectiveness with which the resources at the disposal of the firm are being used. Turnover and performance ratios judge how well the facilities at the disposal of the concern are being used. The stock turnover ratios express the rapidity with which a unit of capital invested in stock produces results. Higher the ratio, the better it is since it indicates that
more sales are being produced by a unit of investment in stocks. Firms in
which the stock turnover ratio is high usually work on a comparatively low
margin of profit - the rate of profit on sales must be high if the stock turnover
ratio is low.

2.9 Hypotheses

In order to substantiate the study questionnaires that translate the
research objectives hypotheses were constructed and pre-testing was duly
made. Necessary corrections, deletions, additions and changes in question
wording and sequences were made and the collected data were classified and
analysed.

Three types of data were collected. One related to Supermarkets having
Home Delivery and the other pertained to those not having such a system and
the third one related to consumer responses.

To test the significance level, two hypotheses were formed $H_0$ and $H_1$.

$H_0$: profit of SM and profit of other are equal.

ie $H_0$: $\mu_1 = \mu_2$.

$H_1$: Profit of SM is less than that of profit of other

i.e. $H_1$: $\mu_1 < \mu_2$.

With the help of statistical tools the hypothesis was tested and arrived at the
conclusion that the net result is significant.
2.10 Operational definitions

In order to test the hypotheses the following formula was made use of:

To test the hypothesis $H_0$: profit of SM and Profit of Other i.e. $H_0: \mu_1 = \mu_2$.

Against $H_1$: Profit SM is less than that of Profit of Other i.e. $H_1: \mu_1 < \mu_2$.

We use the test

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Alternative Hypothesis</th>
<th>Test Statistics ($t$)</th>
<th>Critical Region</th>
<th>Distribution of ‘$t$’</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_0: \mu_1 = \mu_2$</td>
<td>$H_1: \mu_1 &lt; \mu_2$</td>
<td>$t = \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{1}{n_1} + \frac{1}{n_2} \left(\frac{n_1 s_1^2 + n_2 s_2^2}{n_1 + n_2 - 2}\right)}}$</td>
<td>$t &lt; -t$</td>
<td>$t_{n_1+n_2-2}$</td>
</tr>
</tbody>
</table>

Accounting ratios were calculated by using the following formula:

Return on investment ratio $= \frac{\text{Profit}}{\text{Capital}} \times 100$

Profit $= \text{Net profit before interest but after tax}$

Capital $= \text{Net fixed assets plus working capital}$

Stock turnover ratio $= \frac{\text{Sales}}{\text{Average Inventory}} \times 100$