DATA BASE AND RESEARCH METHODOLOGY

This chapter deals with the discussion of data base and research methodology applied for the purpose of present study. The chapter is divided into two parts. Part I contains the information as regards data base used for the study while Part II deals with the statistical tools and techniques applied for data analysis.

PART I

3.1 Data Base

The relevant data has been obtained from both primary and secondary sources. To study the growth and performance of plastic money in India, Reserve Bank of India annual and other reports, project reports of related financial institutions and other published materials were referred. The period of study was 2000 to 2009. To examine the perception of users and member establishments towards plastic money, primary data was collected using two different sets of well structured and pre-tested questionnaires. The first questionnaire related to users and second related to member establishments. The questionnaires were drafted by consulting relevant literature and after having discussion and interactions with customers, shopkeepers and professionals. Before seeking the response of users and member establishments, pilot studies were conducted with 10 users and 10 trader/members establishments to judge the difficulties encountered by the respondents while filling the questionnaires. After the pilot study, questionnaires were redrafted accordingly and distribution process started.

3.1.1 Sample Design and Data Collection

The universe of the study is India, comprises of users (Cardholders) and member establishments (shopkeepers). The data collection is made from all parts of the country on zonal basis. The detail for users data is given in Table 3.1.1a.
The questionnaire targeted the users who actually use the plastic money in their daily lives. While collecting the data from users, the due emphasis was given to the respondents who use plastic money. Those users who had not adopted plastic money were eliminated from the study to make it meaningful. This was also done to ensure information from customers who had really experienced plastic money. 300 questionnaires were distributed to prospective user respondents. After several reminders and personal collection effort, only 298 questionnaires were received out of which 292 were usable, which means (97.67%) response rate and which seems sufficient and used for analysis. For the member establishments, 300 respondents were targeted but only 275 questionnaires were received after several reminders and personal visits. Out of these, 269 questionnaires were usable. 6 questionnaires were incomplete and were eliminated from the usable. The details for member establishments data given in Table 3.1.1b.

The response rate is (89.67%) which is used for analysis. While distributing survey instrument, randomised convenience sampling method was used.
The first survey instrument has been divided into three parts. In the first part, objective and ranking type of questionnaires were given with options. Also in the second part, five point likert scale was used to frame the questions regarding their perception towards plastic money. The scale included from strongly agree to strongly disagree. The last part was dedicated to demographic parameters of respondents which included age, gender, monthly income, educational qualification and occupations. These parameters were used since they are believed to affect the adoption process of users.

The second survey instrument for member establishments included two parts. In part one, personal profile of the respondents was included and in part two objective type of questions were given to judge the perception of members establishment. The language for the survey instrument was simple and clear in order to avoid problem of unresponse to any questions which will lead to return of incomplete questionnaire.

3.1.2 Data Processing and Analysis

After collection of data, it was processed and analysed in accordance with the outlines laid down for the purpose at the time of developing the research plan. This is essential for a scientific study and ensuring that we have all relevant data for making contemplated comparisons and analysis.

The term analysis refers to the computation of certain measures alongwith searching for patterns of relationship that risk among data groups. In the process of analysis, relationship or differences supporting or conflicting with original or new hypotheses should be subjected to statistical tests of significance to determine with what validity data can be said to indicate any conclusions. This study involves different processing operations which prepared the data for analysis. At processing state, data was edited to detect errors and omissions and to correct these when possible. It involved a careful scrutiny of the completed questionnaires. Editing was done to ensure that the data is accurate, consistent with other facts gathered, uniformly entered, and completed as possible and have been well arranged to facilitate coding and tabulations. Coding was also done which involved assigning numerals or other symbols to answers so that responses can be put into a limited number of categories, which are appropriate to the research problem under consideration. The data collected was arranged under various
understandable homogenous groups for the purpose of convenient interpretation. The grouping was made on the basis of their common characteristics. To prepare data for analysis, tabulations was done which involved summarizing raw data and displaying in compact form of vertical columns and horizontal rows of numbers of further analysis.

3.1.3 Data Analysis

There may be a large number of variables which may indicate respondents perception towards plastic money both in case of users and member establishments. In case of users, variables such as age, gender, education, monthly income and occupation were considered. Whereas nature of business and income level seemed to affect the perception of member establishments.

3.1.4 Hypotheses of the study

Hypotheses are usually considered as the principal instrument in research. Its main factors are to suggest new experiments and observations. Many experiments are carried out with the deliberate object of testing hypotheses. Decision-makers often face situations wherein they are interested in testing hypotheses on the basis of such testing. This study too had three hypotheses – which are as follow

H₀  Plastic money is not popular in India.
H₁  The legal and regulatory frame work of card industry in India is not comprehensive and straight forward.
H₂  The promotional activities of the issuing agencies are not sufficient to accelerate present spending of card users.

PART II

3.2 Analytical Techniques and Tools

Statistical tool are important in every research analysis. In this research, several statistical tools have been used for the purpose of presenting the result in brief and precise language, the complex and complicated problems have been studied. The statistical tools applied in this study include the following:
3.2.1 Frequency distribution tables

This is a technique in which various items of a series are classified into groups and the number of items falling into each group is stated. The aim of using this device was to present data systematically, in brief and in minimal space to present data in the form which classifies the problem and to make data comparable.

3.2.2 Percentages

Percentages are one of the simplest and useful statistical devices which were used for the interpretation of collected data in this research. This technique can be understood even by a layman. It represented the number of parts of 100. It can be calculated as under:

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\% = \frac{\text{Given value to compare with the base}}{\text{Base value used for comparison by the researcher}}
\]

Percentages were used when we wanted to compare a series of data, describe the relationship among the variables, and calculate the percentage of various complex variables.

3.2.3 Averages

Averages represent a whole series by a single figure and thus reduce the complexity of data. It lies somewhere within the range of the data and generally, it is located on the centre of the distributions. This research considered to use of arithmetic mean and weighted average mean. These two averages measures were used to reduce a large data into single figure, and then comparison was made between two different sets of data and when the researcher wanted to use further statistical computation.

3.2.4 Chi-Square Analysis

The Chi-square test has been used to study the association among the perceptions of different groups of respondents based on demographic characteristics. The Chi-square statistics \( (\chi^2) \) was used to test the statistical significances of the observed associations in across-tabulations. It assisted the researchers, in determining whether systematic association exists between the variables. The null hypothesis \( (H_0) \)
was framed that there was no association between the variables. The test conducted by computing the cell frequencies that would be expected if no association were present between the variables, given the existing rows and column totals. These expected cell frequencies, are then compared with the actual frequencies found in the cross tabulations to calculate the Chi-square statistic. The discrepancies between expected and actual frequencies indicated the larger value of the statistic. The $\chi^2$ distribution is a skewed distribution who shape depends on the number of degree of freedom. As the number of degrees of freedom increases, the Chi-square distribution becomes more symmetrical. The Chi-square statistics measures the significance of the observed associations, the strength of association, or degrees of association are important from a practical or substantive perspective. Generally, the strength of association is of interest if the association is statistically significant. The strength by contingency coefficient, contingency coefficient (c) can be used to assess the strength of association in a table of any size.

3.2.5 Other Tools and statistical package used

Other statistical tools which were used include average annual growth rate (AAGR) and Compound growth rate (CGR). These tools were used in calculating the trends and progress of plastic money in India. The entire period taken for the calculations of compound growth rate was ten years (2000-2009) and growth in percentages over the previous year. Ranking using the calculated means and percentages. Statistical Package for Social Science (SPSS) version 15.0 for windows has been used to perform the statistical analysis.