CHAPTER 5
METHODS OF DATA COLLECTION AND ANALYSIS
DURING THE MAIN SURVEY PHASE

This chapter discusses the methodology used for empirically testing the hypotheses. The chapter is organized into three sections. The first section attempts to define the performance variable for the enterprise. The second section discusses the development of the questionnaire from the cultural attributes taken as the baseline for the research and the related assumptions. The third section deals with the data collection methodology and the fourth section describes the quantitative techniques used for the data analysis – method of testing the validity and reliability of the questionnaire using pilot sample data, the sampling technique and the data collection process.

5.1 Determining the performance variable for the enterprise/entrepreneur

The key aspect of entrepreneurial performance in managing small business is how efficiently he deploys and manages the MSME’s labour force and also in turning over his products into sales. The ‘Performance variable’ from this perspective is defined as the Annual Growth (per cent) of ‘Revenue per Employee’. The annual sales revenue and total employee numbers for two consecutive years, that is, 2012-13 (year1) and 2013-14 (year2) were collected.

\[
AGRE = \left(\frac{R_{year2}}{L_{year2}} - \frac{R_{year1}}{L_{year1}}\right) * \frac{100}{\frac{R_{year1}}{L_{year1}}}
\]

Where

\(AGRE\) = Annual Growth in Revenue per Employee (Performance Variable)

\(R_{year2}\) = Total Annual Sales Revenue for year2 (2013-14)

\(R_{year1}\) = Total Annual Sales Revenue for year1 (2012-13)

\(L_{year2}\) = Total number of the labour for year2 (2013-14)

\(L_{year1}\) = Total number of the labour for year1 (2012-13)
The annual growth percent in revenue per employee was termed as the performance variable for the purpose of this research. The sales revenue figures are at current prices.

5.2 Data Sampling

The four sample segments considered for this research are States, location types, enterprise types and business types. Two states, namely, Kerala and Maharashtra were selected for sampling based on their respective contribution (Gross Value Added as a percentage of GSDP) to the Gross State Domestic Product (GSDP). Kerala MSMEs’ contribution to its GSDP was 18.72 percent while that of Maharashtra was 9.32 percent. The two states’ respective ranks in the list of states based on the contributions were 6/28 and 21/28 which made it logical to consider these two states as samples for this study.

The other three sample factors considered for this study are location type (whether urban or rural), enterprise type (based on size), and business type (based on type of business). The two location types are rural and urban. The three enterprise classifications based on size, namely, micro, small and medium are considered for the study (defined as per Table 2.2.3). However the small and medium enterprises have been grouped together into a single category as the number of respondents from the medium enterprise category is too low. The two types of business manufacturing and service are also considered.
5.3 Questionnaire Development

Based on the hypotheses stated in Chapters 3 and 4, a questionnaire is developed for the primary study. The findings of the validation phase leads to the following cultural dimensional framework for the current research:

A. Power Distance (higher vs. lower)
B. Risk-taking Propensity (vs. Risk-avoidance Propensity)
C. Collectivism (vs. Individualism)
D. Masculinity (vs. Femininity)
E. Pragmatic Orientation (vs. Normative Orientation)
F. Indulgence (vs. Restraint)
G. Ethnic Orientation (higher vs. lower)

The various attributes of each of the identified cultural dimensions (see Table 5.3.1) were used to assess the respondent entrepreneurs’ cultural orientations using a Likert scale of 1 to 5 with 1 indicating strongly disagree and 5 indicating strongly agree.

Besides, all relevant information necessary for classifying and rating the performance of the MSMEs were also included. There were questions on the total sales and net profits for the current and previous years. Also the number of workers for the current and previous years was also sought.

The final version of the questionnaire after incorporating revisions based on the pilot tests and qualitative validity tests is given in Annexure (A.1).
<table>
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<tr>
<th>Cultural Dimension</th>
<th>Assumptions</th>
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| Higher Power Distance | Power is a basic fact of society and need to be accepted  
Parents teach children obedience  
Older people are both respected and feared  
Teacher-centric education  
Subordinates expect to be told what to do  
Frequent occurrence of corruption  
Uneven distribution of income in the society |
| High Risk-taking Propensity (Low Uncertainty Avoidance) | The uncertainty, ambiguity and chaos inherent in life is accepted  
Ease, lower stress, self-control, low anxiety  
Higher scores on subjective health and wellbeing  
Tolerance of differing ideas and persons  
No problems with changing of jobs  
Disregard for rules  
Even ordinary people can influence authorities if they choose so  
The importance of empirical truth in religion |
| High Collectivism | Members of one’s family need to be protected in exchange for loyalty  
Giving importance to the group over self/individuals  
Stress on belonging  
Peace and mutual harmony should always be maintained  
Transgression of norms leads to shame feelings  
Relationship prevails over task |
| High Masculinity | Maximum emotional and social role differentiation between the genders  
People are assertive and ambitious  
Work prevails over family  
Admiration for the strong  
Fathers deal with facts, mothers with feelings  
Moralistic beliefs and attitudes |
| High Pragmatic Orientation | Most important events in life will occur in the future  
A good person adapts to the circumstances  
What is good and evil depends upon the circumstances  
Traditions are adaptable to changed circumstances  
Family life guided by shared tasks  
Trying to learn from other countries  
Thrift and perseverance are important goals  
Success to be attributed to effort and failure to lack of effort  
Freedom of speech seen as important |
| High Ethnic Orientation | Families involve in the business  
Sense of togetherness leading to community assistance  
Social networking  
Mutual Reciprocity |
5.4 Data Collection

5.4.1 Pilot Survey and Testing the Reliability and Validity of the Questionnaire

The pilot survey was done across 29 respondents. The data was then used to test the reliability of the questionnaire which was tested using Cronbach's alpha.

Cronbach's alpha is a measure of internal consistency and scale reliability. It can measure how closely related are the set of questions of each of the seven groups in the questionnaire. Here the reliability of data has been done using Item Analysis. The Cronbach’s alpha is given by the formula:

\[ \alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}} \]

where N equals the number of items, c-bar equals the average inter-item covariance among the items and v-bar, the average variance.

Validity refers to the degree to which the measurement procedure actually measures the concept that it is intended to measure. The validity of the questionnaire was tested using qualitative methods.

The questionnaires were given to a panel of eight persons who were asked to provide their feedback on the questionnaire validity. This panel included professionals from academics, managers from private sector, and small business entrepreneurs with business school backgrounds. They would be asked to give their inputs as to how to reduce ambiguity, emotive questions, stressful questions, culturally and also ethnically inappropriate questions. These inputs enabled the re-wording of a few of the questions and also the removal of some of the other questions found unnecessary or ambiguous in the context.

5.4.2 Primary Survey

The survey targeted 300 entrepreneurs who managed their micro, small and medium enterprises (owner-managers) across Kerala and Maharashtra. Out of this, 145 responses were received from Kerala and 132 from Maharashtra. Malayalam and Marathi/Hindi translations of the questionnaire were used for the survey in Kerala and Maharashtra respectively. Four responses from Kerala and three responses from
Maharashtra were omitted during the edit stage due to serious data errors. 141 responses from Kerala and 129 from Maharashtra were finally considered for the final analysis.

A non-probabilistic quota sampling method was adopted here. Within the two sample states the following segments could act as moderating influences on the entrepreneurial performance:

a) **States**: Kerala and Maharashtra  
b) **Location types**: rural and urban  
c) **Enterprise types**: micro, small and medium sectors  
d) **Business types**: manufacturing and services

The primary data collection took about six months to complete. Care was taken to cover most of the regions of both the states and also different types of industries and sectors. The number of medium industries was relatively low in most of the places. This was in tune with the fourth census data where it was observed that the number of medium enterprises was less than 1 percent of the total population. Some of the challenges faced during the data collection were the difficulty in getting all the required responses in one sitting. The entrepreneurs were, in most of the cases, the principal employees of the units and as such found it difficult to find time to respond to the questionnaire. In many of the cases the responses had to be written down as if in an interview mode.

Besides the questionnaire responses interviews were also done with many of the respondents who gave inputs based on various queries. These queries as well as responses touched upon the following areas:

1) Nature of assistance received from Government  
2) Availability of skilled labour  
3) Extent of cooperation received from workers  
4) Challenges faced in managing the respective units related to:  
   a. Marketing and business development  
   b. Availability of raw materials  
   c. Availability of institutional credit
d. Labour un-rest and political interferences  
e. Business Expansion plans  
5) Other factors which are innate to the respective business

The questionnaires were translated to Malayalam (for the state of Kerala) and Hindi and Marathi (for Maharashtra).

5.5 Data Analysis Method

The primary data analysis attempted to find answers to the three research questions and also to test the related hypotheses.

The research questions were:

1) Are there any variations in the performance of across the MSME segments, namely, State, location type, enterprise type, business type and the various interactions thereof?  
2) Are there any variations in the influence of ‘cultural dimensions’ of micro, small and medium entrepreneurs across the MSME segments, namely, State, location type, enterprise type, business type and the various interactions thereof?  
3) Do the ‘cultural dimensions’ of entrepreneurs influence performance of MSMEs across the MSME segments, namely, State, location type, enterprise type, business type and the various interactions thereof?

The primary data analysis process had therefore the following phases:

1) Analysis of Variance to determine the variation in performance across the MSME segments, State, location type, enterprise type, business type and the various interactions between these segments  
2) Analysis of Variance to determine the variation of the seven Cultural Dimensions across the MSME segments, State, location type, enterprise type, business type and the various interactions between these segments  
3) Step-wise regression Analysis between the performance variable vs. the respondents’ score of the seven Cultural Dimensions across the various segments
5.5.1 Analysis of Variance (ANOVA) – General Linear Model

For analysis of first two research questions and set of hypotheses, Analysis of Variance (ANOVA) was used. General Linear Model (GLM) was to be used to determine whether the means of two or more groups differ. GLM is an ANOVA procedure where the computations are performed using a least squares regression approach to describe the statistical relationship between one or more predictors and a continuous response variable.

The GLM model of ANOVA was used for this analysis:

1) To determine whether the means of the performance variable vary across state, location type, enterprise type, business type and also the possible (eight) interactions between the four segments
2) To determine whether the means of the cultural dimensions scores vary across state, location type, enterprise type, business type and also the possible (eight) interactions between the four segments

The results of (1) and (2) above will be used to validate the hypotheses sets (1) and (2).

5.5.2 Regression Analysis

Stepwise regression analysis method was used to determine the nature of influence of the seven cultural dimensions scores on the performance variable. The regression equation can be written as

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 \]

Where,
\[ Y \] - Performance variable, annual growth rate per cent of per labour revenue
\[ \beta_0 \] - Y Intercept
\[ \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7 \] – the estimated regression coefficients
\[ X_1, X_2, X_3, X_4, X_5, X_6, X_7 \] – the seven cultural dimension scores as rated by the entrepreneurs

The step-wise Regression Analysis was carried out considering the influence of the seven Cultural Dimensions on the performance variable across the following sixteen segments:
1) Micro, service enterprises from rural locations of Kerala
2) Micro, manufacturing enterprises from rural locations of Kerala
3) Small and medium, manufacturing enterprises from rural locations of Kerala
4) Small and medium, service enterprises from rural locations of Kerala
5) Micro, manufacturing enterprises from urban locations of Kerala
6) Micro, service enterprises from urban locations of Kerala
7) Small and medium, manufacturing enterprises from urban locations of Kerala
8) Small and medium, service enterprises from urban locations of Kerala
9) Micro, manufacturing enterprises from rural locations of Maharashtra
10) Micro, service enterprises from rural locations of Maharashtra
11) Small and medium, manufacturing enterprises from rural locations of Maharashtra
12) Small and medium, service enterprises from rural locations of Maharashtra
13) Micro, manufacturing enterprises from urban locations of Maharashtra
14) Micro, service enterprises from urban locations of Maharashtra
15) Small and medium, manufacturing enterprises from urban locations of Maharashtra
16) Small and medium, service enterprises from urban locations of Maharashtra

5.6 Summary

The methods of data collection and analysis were discussed so far in this chapter. The first part of the chapter worked out the performance variable for an enterprise. The second part explained the development of the questionnaire. The third part discussed the data collection methods and the fourth section explained the quantitative techniques used for the data.

In the next chapter the primary data analysis and the testing of the hypotheses relating to the three research questions as described in chapter 3 are taken up.