CHAPTER III

RESEARCH METHODOLOGY

This chapter explains how, when and where the study has been conducted. The methodology adopted for the study titled, “Financing of Micro and Small Enterprises by Public Sector Commercial Banks”, includes the following aspects:

3.1. Period of study
3.2. Area of the study
3.3. Sources of data
3.4. Method of data collection
3.5. Size of population, sampling technique and size of sample for primary data
3.6. Analysis of data
3.7. Concepts and definitions used in the study

3.1. Period of study

The study period with reference to secondary data was fourteen years from 1st April 2000 to 31st March 2014.

The reference period for collecting primary data was five months. The survey was conducted during November 2011 to March 2012.

3.2. Area of the study

Coimbatore district is popularly recognized as the Manchester of Tamil Nadu and it is divided into two revenue divisions. The one is Coimbatore division which is highly populated with industries and the other one is Pollachi division which is predominantly agriculture. The industries in Coimbatore are producing a variety of engineering products and components, accessories to cater to the needs of the industries in the country. Some of the main industrial activities are foundry-castings, machine tools, cutting tools, electric motors and pumps, wet grinders, textile machineries and plastic spares and components, washing machines, domestic vessels and domestic electrical appliances, transformers, illuminations, waste cotton units, automobile spares etc. The area chosen for
conducting the field survey is Coimbatore South and Coimbatore North Taluks of Coimbatore district.

Table 7 explains the Taluk wise details of the number of registered MSMEs in Coimbatore district.

**Table 7: Taluk wise Details of Registered MSMEs in Coimbatore District**

(From 2005-06 to 2010-2011)

<table>
<thead>
<tr>
<th>Taluks existed as on March 2011</th>
<th>MSMEs Registered</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mettupalayam</td>
<td>158</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Coimbatore North</td>
<td>2,201</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Coimbatore South</td>
<td>5,792</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>Sulur</td>
<td>450</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Pollachi</td>
<td>753</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Valparai</td>
<td>12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,366</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: District Industries Centre (statistics dept.), Coimbatore

Table 7 clearly depicts that more than 85 per cent (7,993 enterprises) of total registered enterprises of the district are located at Coimbatore North and Coimbatore South Taluks. So, it was considered appropriate to have Coimbatore North and Coimbatore South Taluks as the study area. The area chosen for this study is depicted in Figure 2.

![Figure 2: Map of Tamil Nadu State and Coimbatore District](image)
3.3. Sources of data

The study required both primary and secondary data. The secondary data were collected from various sources such as - Reports of Reserve Bank of India, Statistical reports and records of Government of Tamil Nadu, Minutes of State Level Bankers’ Committee, Tamil Nadu, Annual Credit Plans of Coimbatore district, reference books, Magazines, Newspapers and Websites. The primary data were collected through field survey with the help of two sets of well-structured interview schedules.

3.4. Method of data collection

The required secondary data were collected from RBI’s official website, various issues of statistical handbook of Tamil Nadu, the official website of state level banker’s committee of Tamil Nadu, various issues of annual credit plan available at lead bank office of Coimbatore district.

The required primary data were collected through field survey method. Two sets of interview schedules, the one for the owners of sample micro and small enterprises and the other for the select public sector commercial bank branch officials were administered.

Before administering the interview schedules, a pilot study was conducted with 50 micro and small enterprises and 20 bank branches for improving the efficiency. Based on the responses received, the schedules were revised for administration to the two groups of samples.

3.5. Size of population, sampling technique and size of sample for primary data

* Samples of Micro and Small Enterprises

The study focuses on micro and small enterprises which are categorized as priority sector by Reserve Bank of India as per its revised guidelines effective from 30th April 2007. The population of the study was micro and small manufacturing enterprises registered under District Industries Centre, Coimbatore and situated at Coimbatore South and Coimbatore North Taluks. The
size of the population was 5330 enterprises as on 31st March 2011 as the Table 8 shows below.

Table 8: Category Wise Details of Registered Manufacturing Enterprises in Coimbatore South and North Taluks of Coimbatore District (From 2005-06 to 2010-2011)

<table>
<thead>
<tr>
<th>Category</th>
<th>Manufacturing Enterprises (in Nos.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro Enterprises</td>
<td>4,264</td>
</tr>
<tr>
<td>Small Enterprises</td>
<td>1,066</td>
</tr>
<tr>
<td>Total</td>
<td>5,330</td>
</tr>
</tbody>
</table>

Source: District Industries Centre (statistics dept.), Coimbatore

By adopting proportionate random sampling method, 426 micro enterprises and 107 small enterprises were selected as sample size which represents 10 per cent of the size of population. The samples were chosen through lottery method.

Interview schedules were administered to the owners of 533 enterprises-426 micro enterprises; 107 small enterprises. In spite of special efforts taken, the interview schedules completed in all respects could be received only from 300 enterprises of which 219 were micro enterprises and 81 were small enterprises. Hence, the final sample size was 300 with a response rate of 56.29 per cent.

* Samples of Public Sector Commercial Banks

There is a greater role to be played by Public Sector Commercial Banks for funding MSE sector in accordance with the objective of the Nationalisation of banks for ensuring the flow of adequate funding to the productive sectors of the economy in general and small scale industries in particular. So, in order to study the constraints in financing the Micro and Small Enterprises, samples were taken from urban and semi-urban branches of Public Sector Commercial Banks located in Coimbatore district.
The size of population of the banks is depicted in Table 9.

**Table 9: Number of Public Sector Commercial Banks in Coimbatore District as on 31st March 2011**

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Semi-Urban branches</th>
<th>Urban branches</th>
<th>Total branches</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State Bank Group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Bank of India</td>
<td>16</td>
<td>23</td>
<td>39</td>
</tr>
<tr>
<td>State Bank of Hyderabad</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>State Bank of Mysore</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>State Bank of Patiala</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>State Bank of Travancore</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>State Bank of Bikaner &amp; Jaipur</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>25</td>
<td>32</td>
<td>57</td>
</tr>
<tr>
<td><strong>Nationalised Banks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank of Baroda</td>
<td>1</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Allahabad Bank</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bank of India</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Bank of Maharashtra</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Canara Bank</td>
<td>13</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Dena Bank</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>9</td>
<td>25</td>
<td>34</td>
</tr>
<tr>
<td>Indian Overseas Bank</td>
<td>14</td>
<td>23</td>
<td>37</td>
</tr>
<tr>
<td>Central Bank of India</td>
<td>1</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Union Bank of India</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Punjab National Bank</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>United Bank of India</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Syndicate Bank</td>
<td>20</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Andhra Bank</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Corporation Bank</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Oriental Bank of Commerce</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Punjab &amp; Sind bank</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Vijaya Bank</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>IDBI Bank</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>75</td>
<td>134</td>
<td>209</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>100</td>
<td>166</td>
<td>266</td>
</tr>
</tbody>
</table>

Source: Canara Bank (Lead Bank), Coimbatore District.

The size of population was 266 bank branches comprising of urban branches-166 number and semi-urban branches-100 number which are located within the coverage of Coimbatore South and Coimbatore North Taluks as on the date of 31st March 2011. By adopting random sampling method, 60 number of
bank branches were chosen as sample size through lottery method which represents 23 per cent of the size of the population. The interview schedules were administered with the officials of 60 branches. The complete data in all respects could be collected from all the 60 branches thus, with a response rate 100 per cent.

3.6. Analysis of data

For the purpose of analysis of data, the following statistical tools were used.

- **Descriptive statistics** viz; Arithmetic mean, Standard deviation, Co-efficient of variation and Compound Annual Growth Rate were calculated for the values of credit flow to micro and small enterprises sector during the study period from 2000-01 to 2012-13.

- **Arithmetic mean**

  Mean is the simplest measurement of central tendency and is a widely used measure. The formula is,

  \[
  \text{Mean (or) } \bar{X} = \frac{\Sigma X_i}{n}
  \]

  where \( \bar{X} \) = The symbol we use for mean pronounced as X bar
  \( \Sigma \) = Symbol of summation
  \( X_i \) = Value of the \( i^{th} \) item \( X, i = 1,2,\ldots,n \)
  \( n \) = Total number of items

- **Standard deviation**

  The standard deviation is used mostly in research studies and is regarded as a very satisfactory measure of dispersion of a series and is commonly denoted by the symbol ‘\( \sigma \)’ (pronounced as sigma). The formula is,

  \[
  \sigma = \sqrt{\frac{\Sigma (X_i - \bar{X})^2}{n}}
  \]

  The greater the standard deviation, the greater will be the magnitude of the deviations of the values from their mean.
• Co-efficient of variance

The standard deviation is divided by the arithmetic mean and is multiplied by 100, the resulting figure is known as co-efficient of variation. The formula is,

\[ \text{C.V.} = \frac{\sigma}{\bar{x}} \times 100 \]

• Compound Annual Growth Rate

In order to find out the year to year growth rate of MSEs credit during the entire study period, the CAGR was calculated. The formula is,

\[ \text{CAGR} = \left( \frac{\text{End value}}{\text{Beginning value}} \right)^{\frac{1}{\text{No. of years}}} - 1 \]

• Annual growth rate

To analyse the year to year change in the flow of credit to MSE sector of All Scheduled Commercial Banks and Public Sector Commercial Banks at all India level, Tamil Nadu state level and Coimbatore district level during the study period, annual growth rate was calculated. The formula is,

\[ \text{Annual Growth Rate} = \frac{\text{Current year value} - \text{Previous year value}}{\text{Previous year value}} \times 100 \]

• Mann-Whitney U test

Mann-Whitney U test is the alternative test to the independent t-test. It is a non-parametric test that is used to compare two population means that come from the sample population, it is also used to test whether two population means are equal or not. The test is used in the present study to find out whether the growth rates of amount of credit outstanding to micro and small enterprises advanced by all scheduled commercial banks and public sector banks differ before and after MSMED Act 2006. The formula is,

\[ U = n_1 n_2 + \frac{n_1 (n_1 + 1)}{2} - \sum_{i=1}^{n_2} R_i \]
Where,

- \( U = \) Man Whitney U test
- \( N_1 = \) Sample size one
- \( N_2 = \) Sample size two
- \( R_i = \) Rank of the sample size

### Kruskal Wallis Test

To test whether the growth rates of MSEs credit of All Scheduled Commercial Banks and Public Sector Commercial Banks at all India level, at Tamil Nadu state level and at Coimbatore district level during the study period are same or different, Kruskal Wallis test was applied. The test statistic is \( H \) for this test which is worked out as under:

\[
H = \frac{12}{n(n+1)} \sum_{i=1}^{k} \frac{R_i^2}{n_i} - 3(n + 1)
\]

Where, \( n = n_1 + n_2 + \ldots + n_k \) and \( R_i \) being the sum of the ranks assigned to \( n_i \) observations in the \( i \)th sample.

### Wilcoxon’s signed rank test

To find out whether any significant difference exists in the flow of credit to micro and small enterprises by individual public sector commercial banks at Coimbatore district level under Annual Credit Plan before and after the enactment of MSMED Act, 2006, the test was used. The formula is,

\[
\text{Wilcoxon signed-rank (z)} = \frac{W_s - \frac{n(n+1)}{4}}{\sqrt{\frac{n(n+1)(2n+1)}{24}}}
\]

### Mean score analysis

To analyse the opinion of sample micro and small enterprises, borrowing, non-borrowing MSE enterprises regarding the lending practices of Public sector Commercial Banks and also analyse the opinion of sample bankers regarding the reasons for the low rate of recovery of loans from MSE borrowers mean score tool was used.
Formally, the weighted mean of a set of data \( \{x_1, x_2, \ldots, x_n\} \), with non-negative weights is \( \{w_1, w_2, \ldots, w_n\} \), calculated as follows:

\[
\bar{x} = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i},
\]

where, \( \bar{x} \) = weighted mean

\[
\bar{x} = \frac{w_1 x_1 + w_2 x_2 + \cdots + w_n x_n}{w_1 + w_2 + \cdots + w_n}.
\]

- **‘z’ test**

To understand whether any significant difference exists in the opinion on each variable between micro and small enterprises and between borrowing and non-borrowing enterprises about the lending practices of Public Sector Commercial Banks ‘z’ test was done. The formula is,

\[
z = \frac{\bar{x} - \bar{p}}{\sqrt{pq/n}}
\]

Where,

- \( \bar{x} = x/n \) (sample proportion)
- \( \bar{p} = p/n \) (population proportion)
- \( n = \) sample size
- \( q = 1 - p \)

- **Analysis of Variance (ANOVA)**

The ANOVA test was applied to know whether the opinion of micro and small enterprises varies on the basis of constitution, nature of business activity.

The formula is,

\[
SS_{\text{total}} = \sum_{j=1}^{p} \sum_{i=1}^{n_j} (x_{ij} - \bar{x})^2
\]

\[
SS_{\text{between}} = \sum_{j=1}^{p} n_j (\bar{x}_j - \bar{x})^2
\]

Where, \( S_{12} = \) between column variance

\[
SS_{\text{within}} = \sum_{j=1}^{p} \sum_{i=1}^{n_j} (x_{ij} - \bar{x}_j)^2
\]

\[
S_{\text{22}} = \text{within column variance}
\]

- **Factor analysis**

To group the items into factors of constraints of bankers while lending factor analysis was done. A factor is an underlying dimension that account for several observed variables. There can be one or more factors depending upon the nature of the study and the number of variables.
involved in it. There are several methods of rotating the initial factor matrix (obtained by way of the methods of factor analysis). To attain this simple structure, Varimax rotation is one such method that maximises (simultaneously for all factors) the variance of the loadings within each factor. The variance of a factor is largest when its smallest loadings tend towards 0 and its largest loadings tend towards unity. In essence, the solution obtained through varimax rotation produces factors that are characterised by large loadings on relatively few variables (Kothari, 2009).

- **Independent ‘t’ test**

To test whether any significant difference exists in the opinion between micro and small enterprises and between borrowing and non-borrowing enterprises regarding the lending practices of Public sector Commercial Banks.

\[
t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}
\]

Where,

- \( t \) = obtained value of \( t \)
- \( \bar{X}_1 \) and \( \bar{X}_2 \) = means for the two groups
- \( S_1^2 \) and \( S_2^2 \) = variances of the two groups
- \( n_1 \) and \( n_2 \) = number of participants in each of the two groups

For the purpose of statistical analysis of data, the Statistical Package for Social Sciences (SPSS) 16.5 was used.

**3.7. Concepts and definitions used in the study**

The following are the concepts used in the study.

1. **All Scheduled Commercial Banks**

All banks which have been included in the Second Schedule of RBI Act, 1934. They include State Bank of India and its associates, nationalized banks, private sector banks, regional rural banks and foreign banks.
2. Public Sector Commercial Banks

They include those banks in which majority of stake are held by the government. State Bank of India and its associates and nationalised banks come under the study.

3. Artisan, Khadi, Village and Cottage Industries

Artisans, Khadi, Village and Cottage Industry has been defined irrespective of location or Small Industrial activities viz. manufacturing, processing, preservation and servicing in villages and small towns with a population not exceeding 50000, involving utilization of locally available natural resources and / or human skills, where individual credit requirement does not exceed ₹50,000.

4. Outstanding loans and advances

It is the amount of loan taken including interest that has yet to be repaid by the borrowers as on the closing day of the reference period. This includes all loans whether short-term or long-term, whether interest bearing or not.

5. Direct credit

Direct credit shall include all loans given to micro and small manufacturing and service enterprises engaged in the manufacture or production, processing or preservation of goods and providing or rendering of services.

6. Indirect credit

Indirect credit shall include finance to any person providing inputs to or marketing the output of artisans, village and cottage industries, handlooms and to cooperatives of producers in this sector.

7. Priority sector lending

Priority sector lending includes lending to those sectors that impact large sections of the populations, the weaker sections and the sectors which are employment intensive such as agriculture, micro and small enterprises, education, housing, export credit and others.
8. Annual Credit Plan

It is one of the important documents available at District Level depicting the details of various economic activities being carried out in the district under different sectors like Agriculture, MSEs, and other priority sectors and the flow of credit by various banks and institutions to these sectors.

The Annual Credit Plans will be based on the Potential Linked Plans (PLPs) prepared by NABARD. Preparation of Annual Credit Plan is one of the most important assignments undertaken by Lead Bank. It is an annual exercise since introduction of the Lead Bank Scheme.

9. Adjusted Net Bank Credit

Adjusted Net Bank Credit is equal to Net Bank Credit plus permitted non SLR investments held to maturity plus other investments eligible to be treated as priority sector.

10. Net Bank Credit

Net Bank Credit is equal to outstanding bank credit in India; Bills rediscouned with RBI/approved financial institutions.

11. Gross Bank Credit

It represents bank credits excluding inter bank advances.

12. Bank credit

Bank credit (excluding inter bank advances) is equal to loans plus cash credit plus overdraft plus inland and foreign bills purchased and discounted.

13. Non-Performing Assets

A loan turns as Non-performing Asset (NPA) when the EMI, principle or interest component for the loan is not paid within 90 days from the due date.

A thorough understanding and designing of the research methodology was really helpful for conducting the research in an efficient and systematic way.