

CHAPTER 3

MATERIALS AND METHODS

3.1. Statement of the Problem

The micro, small and medium enterprise (MSME) sector in India is contributing significantly to the gross domestic product (GDP), manufacturing output, employment and export of the country. It is also playing a crucial role in nurturing entrepreneurial talent, utilising local resources and bringing about balanced development, especially at the regional level and at the grassroots. In this regard, as per the Annual Report of the Ministry of MSME for the financial year 2015-16, the MSME sector, with total fixed assets of rupees 1,471,912.94 crore, has provided direct employment to 1,171.32 lakh persons. The share of the MSME sector in total GDP is 37.54 per cent.

As against the national scenario, the contribution of the MSME sector in the North Eastern Region lags far behind. In view of this, the Government of India has classified the North Eastern Region of the country as a category 'A' industrially backward region. According to the 4th MSME Census, the working enterprises in the MSME sector in the North Eastern Region of India shares a mere 2.23 per cent of the total working enterprises in India. This industrial backwardness of the Region has been for long revealed by different studies and is an area of concern for the policy makers. In case of Assam too, which shares 2.58 per cent of the total population of the country, the registered MSE's share is only 1.20 per cent. Similarly, the incidence of sickness of the MSME sector in Assam (35.1 per cent) is higher than the national statistics (29.81 per cent). Over the years, especially post globalisation, there have been changes in the nature of challenges and opportunities posturing the micro enterprise sector. These changes are dynamic and call for a thorough investigation so that sector specific gaps and challenges can be identified and brought to the forefront.

Thus, there is a need to investigate into the gaps and opportunities of the rural micro enterprises in the State.

From a brief review of the existing literature on the MSME sector in Assam, it is evident that the State is lagging behind in the growth and performance of the micro enterprise sector. Given the fact, a question arises as to why the MSME sector has failed to perform in the State or why the sector is lagging much behind in comparison to the rest of the country? In the light of this, it is found that there is a gap in the existing literature examining the factors that are responsible for the laggard performance of the MSE sector in the State. There is a need to understand the factors at enterprise level which influence the growth of micro enterprises, more so the rural micro enterprises and the extent to which these enterprises are influenced by the different factors.

On similar fronts, till date, no attempt has been made to analyse the sectoral level performance efficiency of the micro enterprise sector in Assam in terms of cost, manpower and time efficiency. The existing studies have only portrayed the overall performance and growth of the MSMEs in Assam in terms of number of units established, employment, investment, production and sales turnover. Thus, there is a prudent need to carry out a sectoral level performance analysis of the different sectors of micro enterprises in Assam. Further, the use of recent tools and analytical methodologies like value chain analysis has not been used so far for ascertaining the performance efficiency in the context of the micro enterprise sector in the State. It is well established today that using the method of value chain analysis for exploring the performance efficiency of micro enterprises can generate insights into the actual gaps and requirements of the different micro enterprise sectors which in turn can aid in suggesting appropriate intervention measures and coming up with informed decisions.

Of late, there is also an increased emphasis at policy level for promoting the micro enterprise sector for achieving overall economic growth and development. Assessment of the relationship between the performance efficiency of a micro

enterprise and its probable influence on growth of the micro enterprise are the other areas of investigation attempted in the study.

It is in keeping with the above that the present study tries to look into and analyse the different probable factors which may influence the growth of rural micro enterprises and also try and determine their probable influence on growth and performance of the sector. This would bring to the fore the important factors which have not found the desired place in the existing policy frameworks and therefore, aid in reframing the existing policy measures/interventions for accelerated growth and development of the sector. The understanding of the growth influencing factors thus will be helpful in suggesting suitable strategies for the different sub sectors of rural micro enterprises. Furthermore, from the existing literature, it is also found that no attempt has been made to explore the relationship between growth and productive efficiency of the rural micro enterprise sector. Insights into the same may help in coming up with a comprehensive and holistic plan for promotion of the rural micro enterprise sector based on the specifically identified requirements.

3.2. Objectives

The broad objectives outlined for the study are given below.

- I. To examine the overall status of the rural micro enterprises in Assam
- II. To identify the opportunities and gaps of rural micro enterprises using value chain analysis
- III. To examine the status of growth of rural micro enterprises in Assam
- IV. To identify the factors influencing the growth of rural micro enterprises
- V. To analyse the relationship between growth and production performance efficiency of rural micro enterprises

3.3. Hypotheses

The study has been carried out with the hypotheses that,

- i. The growth of rural micro enterprises is not influenced by the socio-economic and strategic factors. **Alternately**, socio-economic and strategic factors play a crucial role in aiding or limiting the growth of rural micro enterprises.
- ii. Growth of rural micro enterprises is independent of efficiency of production performance (cost, manpower and time) of rural micro enterprises. **Alternately**, efficiency of production performance of rural micro enterprises plays an important role in the growth of rural micro enterprises.

3.4. Research Design and Data Source

The status of growth and performance of rural micro enterprises bears both qualitative and quantitative elements and hence the study pursues both explanatory and empirical methods of investigation. Therefore, both primary and secondary sources of data have been collected, analysed and interpreted in the study.

3.4.1 Secondary Data

The secondary data has been collected through visits to relevant departments and organisations, institutional libraries as well as websites. The secondary sources of data for the present study are:

- MSME Census data
- Census of India
- Various types of reports like *Economic Survey*, *District Potential Survey* etc.
- National Sample Survey data and *Statistical Handbooks*
- Various relevant Reports, Articles, DIC Information etc

3.4.2 Primary Data

Primary information have been collected at micro enterprise level drawing a total of 80 samples representing a three staged random sampling procedure .

In the **first** stage, four districts out of 27 districts in Assam have been selected based on household-enterprise ratio (HER) of registered MSMEs divided into four groups – (i) District with high household-enterprise ratio, (ii) District with moderately high household-enterprise ratio, (iii) District with moderately low household-enterprise ratio, and (iv) District with low household-enterprise ratio. One district from each category is selected to constitute the sample districts as outlined below:

Table 3.1: HER Categories of Sample Districts

HER Categories	Sample District
High	Kamrup
Moderately high	Sibsagar
Moderately low	Cachar
Low	Barpeta

In the **second** stage, the four most dominating sectors from among the MSMEs in the State in terms of the number of registered units have been identified for selecting 20 sample micro enterprises each from all four sectors from each identified district. The four sectors which have been identified in terms of their numerical presence across the four selected districts are given below:

Table 3.2: Sector wise Selection of Sample Micro enterprises

Sectors	Sample Micro enterprises
Engineering and Non-conventional Energy	Carpentry
Textile Industry	Weaving
Agro Based and Food Industry	Food Processing
Forest Based Industry	Cane and Bamboo

In the **third** stage, five sample units from each sector have been drawn randomly for primary data collection. Thus, a total of 80 sample units have been identified for the study drawn from the four sample districts.

A structured **interview schedule** has been prepared at the micro enterprise level to elicit the primary data (*Annexure I*).

A database has been developed using IT tools in Microsoft MS Access for the purpose of data entry, storage and retrieval in the required format. The data is processed at two stages. In the first stage, a descriptive analysis and graphical representation of the sample micro enterprises has been carried out. In the second stage, index formation has been worked out using stoical approach and analytical techniques like correlation, regression analysis etc are carried out using software like Microsoft Excel, SPSS, STATA etc for drawing inferences on the nature and extent of relationship between predictors and dependents. Further, production performance efficiency has been explored by drawing and analysing sectoral value chains at enterprise level.

3.5 Analytical Methodology

The data collected from identified micro enterprises as described above have been analysed using various statistical and econometric tools as per the requirements of the study. In accordance with the objectives of the study, three growth indices have been constructed.

- i. To understand and asses the growth of rural micro enterprises, an **Enterprise Growth Index (I_{EG})** has been constructed. The Enterprise Growth Index represents the measure of growth of the selected micro enterprise.

- ii. In order to understand strategic orientation, **Product Development Index (PDI)** has been constructed. PDI represents the measure of strategic orientation.
- iii. The performance of rural micro enterprises has been explored through **Production Efficiency Index (PEI)**. PEI corresponds to the measure of performance efficiency of rural micro enterprises.

3.5.1 Enterprise Growth Index (I_{EG})

The Enterprise Growth Index (I_{EG}) has been constructed taking into account the growth of investment, employment and sale proceeds of a micro enterprise across a period of three financial years. I_{EG} is therefore, constructed to represent the growth of individual rural micro enterprises by using the growth scores of Investment, Employment and Sale Proceeds using the formula given below.

$$I_{EG} = \left\{ \left(\frac{IG_{actual} - IG_{min}}{IG_{max} - IG_{min}} \right) + \left(\frac{EG_{actual} - EG_{min}}{EG_{max} - EG_{min}} \right) + \left(\frac{SG_{actual} - SG_{min}}{SG_{max} - SG_{min}} \right) \right\} / 3$$

where,

IG = Growth score of Investment

EG = Growth score of Employment

SG = Growth score of Sale Proceeds

IG_{actual}, EG_{actual} and SG_{actual} = Actual growth score of concerned micro enterprise in terms of Investment, Employment and Sales Proceeds

IG_{min}, EG_{min} and SG_{min} = Minimum growth score of entire sample micro enterprises in terms of Investment, Employment and Sales Proceeds

IG_{max}, EG_{max} and SG_{max} = Maximum growth score of entire sample micro enterprises in terms of Investment, Employment and Sales Proceeds

Growth Score: The growth score of Investment, Employment and Sales Proceeds is deduced using the annual value of the three parameters with the help of the following formula

$$\text{Growth Score} = \frac{\{(Annual Value of FY 2013-14)-(Annual Value of FY 2010-11)\}}{(Annual Value of FY 2010-11)}$$

3.5.2 Product Development Index (PDI)

Strategic Orientation at enterprise level is represented by Product Diversification Index (PDI) which is measured by using the inverse of Hirschman-Herfindahl (HH) index in the form $1 - \sum A_{ij}^2$ where A_{ij} represents the contribution diversified product and new design to the aggregate income of the micro enterprise. Since HH index is a measure of concentration, its inverse is supposed to indicate the relative spread of product and design diversification activities in contributing to total income of the enterprise. The less the value of HH index the greater is the measure of diversification and vice versa.

3.5.3 Production Efficiency Index (PEI)

In order to understand the performance of rural micro enterprises, a Production Efficiency Index (PEI) is constructed to bring out the performance efficiency at enterprise level. Production Efficiency Index has been constructed based on the value chain analysis data of individual micro enterprises. PEI has been deduced with the help of the following formula:

$$PEI = (C_E + M_E + T_E)/3$$

Where,

C_E = Cost Efficiency of Individual micro enterprise against Rs. 100 sales proceeds

M_E = Manpower Efficiency of Individual micro enterprise against Rs. 100 sales proceeds

T_E = Time Efficiency of Individual micro enterprise against Rs. 100 sales proceeds, and

$$C_E(\text{Cost efficiency}) = \{(CM - CA)/CM\}$$

Where,

CA= Production cost per Rs.100 sales proceeds of the enterprise

and

CM= Maximum production cost per Rs.100 sales proceeds among the enterprises

$$M_E(\text{Manpower efficiency}) = \left\{ \frac{(MM - MA)}{MM} \right\}$$

Where,

MA= Manpower cost required per Rs.100 sales proceeds of the enterprise

and

MM=Maximum manpower cost required per Rs.100 sales proceeds among the enterprises

$$T_E(\text{Time efficiency}) = \{(TM - TA)/TM\}$$

Where,

TA= Man hours required per Rs.100 sales proceeds of the enterprise

and

TM= Man hours required per Rs.100 sales proceeds among the enterprises

To examine the growth determinants, two linear regression analyses have been carried out. The first regression analysis has been carried out using the Enterprise Growth Index (I_{EG}) as dependent variable and nine identified socio-economic variables – (i) age of entrepreneur, (ii) years of education, (iii) gender, (iv) family size, (v) marital status, (vi) religion, (vii) social category, (viii) entrepreneur's monthly income, (ix) entrepreneur's family income as independent variables to understand the extent and nature of influence of socio-economic factors on the growth of rural micro enterprises. In the second regression analysis, the extent and nature of influence of strategic factors on the growth of rural micro enterprises is explored using the Enterprise Growth Index (I_{EG}) as dependent variable and Product Diversification Index (PDI) representing strategic factors, as independent variable.

Similarly, to explore the nature of association between growth and performance of rural micro enterprises, a correlation analysis has been carried out between Enterprise Growth Index and Production Efficiency Index of the sample micro enterprises. Again, to understand the influence of micro enterprise performance efficiency on micro enterprise growth, and to assess the extent to which performance efficiency of rural micro enterprises influence the micro enterprise growth, a linear regression analysis is carried out with Enterprise Growth Index as the dependent variable and Production Efficiency Index as the independent variable.

3.6 Plan of the Thesis

The study has been divided into six chapters. The first Chapter is an overview of the micro enterprise sector. The second Chapter is a literature based analytical overview that highlights the important findings of the various studies in the context of the concept of micro enterprise, status of growth and factors influencing growth of micro enterprises, performance of micro enterprises, and challenges and opportunities of the micro enterprise sector at state, national and international level. The third Chapter outlines methodology of the study. The analysis and findings is presented in the fourth Chapter. It comprises of socio economic profile, challenges, value chain analysis and prospects of rural micro enterprises of Assam in the first section and pattern, determinants and relationship of micro enterprise growth and performance in the second section. The fifth Chapter discusses the findings and interpretations. The sixth Chapter comprises of the summary of findings, conclusion and policy implications based on the results of the study.