# DETERMINANTS OF OPERATION PERFORMANCE OF MICRO AND SMALL MANUFACTURING ENTERPRISES IN JIMMA TOWN

*A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Business Administration (MBA)*

By:

Melaku Melese Haile

**JIMMA UNIVERSITY**

**COLLEGE OF BUSINESS & ECONOMICS**

**MBA PROGRAM**

**August, 2020**

**JIMMA, ETHIOPIA**

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# CERTIFICATE

*This is to certify that the thesis entities "Determinants of operation performance of micro and small manufacturing enterprises in Jimma town", Submitted to Jimma University for the award of the Degree of Master of Business Administration (MBA) and is a record of bona fide research work carried out by Mr. Melaku Melese Haile, under our guidance and supervision*

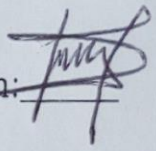
*Therefore we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree of diploma.*

| *Main Adviser's Name* | *Date* | *signature* |
|---|---|---|
| _____ | _____ | _____ |
| *Co-Advisor's Name* | *Date* | *Signature* |
| _____ | _____ | _____ |

## DECLARATION

I hereby declare that this thesis entitled "Determinants of operation performance of micro and small manufacturing enterprises in Jimma town", has been Carried out by me under the guidance and supervision of Mr. Eminet N. and Mr. Wondimu A.

The thesis is original and has not been submitted for the award of degree or diploma in any university or instructions.

Researcher's Name: Melaku Melese Haile; Sign: 

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## ACKNOWLEDGEMENTS

First and foremost, my gratitude goes to the almighty God for his blessings to enable me to accomplish my MBA program.

My greatest thanks and heartfelt appreciation goes to my main advisor Mr. Eminet N. and co advisor Mr. Wondimu A. for their guidance, valuable comments, and their encouragement during thesis work.

I wish to extend my deepest appreciation to all members of my families for their endless love, support and encouragement.

I desire to explain my heartfelt appreciation to all the owners and managers of micro and small manufacturing enterprises in Jimma Town and whole societies of Jimma town.

Finally, it is important to take the opportunity of expressing indebtedness to all who supported me in various ways during my study.

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## *Acronyms*

| | |
|---|---|
| AMT | Advanced Manufacturing Technology |
| BIUDO | Bureau of Industry & Urban development of Oromia |
| FDRE | Federal Democratic Republic of Ethiopia |
| FRMSEDA | Federal and Regional Micro and Small Enterprise Strategy |
| GTP | Growth and Transformation Plan |
| MoTI | Ministry of Trade and Industry |
| MSE | Micro and Small Enterprise |
| MSEDSE | Micro and Small Enterprise Development Strategy of Ethiopia |
| MUDC | Ministry of Urban Development and Construction |
| OIC | Oromia Investment Commission |
| OP | Operational Performance |

## *Abstract*

*This research sought to identify the major determinants of operational performance of micro and small manufacturing enterprises in Jimma Town. More specifically this research assessed both internal and external factors that determine operational performance of micro and small manufacturing enterprises. Internal factors includes; HRM practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, Manufacturing Technology and Innovation capacity of the enterprises and external factors includes; economic factors and Government regulation. Both internal factors and external factors were identified based on the findings of prior researches and journal articles. The target populations of this study were micro and small manufacturing enterprises in Jimma town. Self-administered questionnaire was used to collect data from 155 sample enterprise owners/mangers. The enterprises were selected by using stratified sampling technique. The stratification was made based on the type of product they produced. Both descriptive and empirical analysis was employed to see the impact of identified variables and their relationship with operational performance. Ordered Logit model was employed to assess the relationship between dependent variable and independent variables since the dependent variable (operational performance) has categorical nature and the values of each category have a meaningful sequential order which is impossible to express it in-terms of numerical number and to use OLS method. The analysis of ordered logit model shows out of eight independent variables; six variables (Human resource management practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, Manufacturing Technology and economic factor) have statistically significant impact (P-value <0.05) on operational performance. Except economic factors all significant variables are positively related with operational performance. The finding of this research reveals that internal factors have high impact on operational performance. It is recommended that continues improvement in operational activity through better improvement in those variables with positive relation with operational performance such as: Human resource management practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, and Manufacturing Technology.*



***Key Words:*** *Operation, performance, Micro and Small Enterprises*

# CHAPTER ONE

## 1. Introduction

### 1.1. Background of the Study

In the globalized and technologically advanced world business organizations run their operation in a dynamic environment. Particularly, manufacturing firms face stiff competition both from global and local contexts. Nowadays, there is a great interest among practitioners and academicians to find out the most important factors that determine the successful performance of manufacturing firms. The emergence of modern manufacturing has led to dramatic changes in the structure of the world economy and to sustained increases in the growth of labor productivity and economic welfare (Duncan, 2002).

Manufacturing sector is among the key productivity sectors of the economy which can initiate economic growth and development because of its immense potential for wealth creation, employment generation and poverty alleviation. Manufacturing sector can be divided into various subsectors namely food and beverage products, textiles and apparel products, leather and leather products, wood and pulp products, chemicals and chemical products, rubber and plastic products, other non-metallic minerals products and metal and engineering products industries (Duncan, 2002)

Manufacturing operational performance refers to the capacity of organization's to processes their activity, through efficient performance indicator ways as reliability, production cycle time, and inventory turns. Manufacturing operational performance affects business market share and satisfaction of customers. Every business enterprises objective of keeping their costs low and compatible with the levels of quality, speed, dependability and flexibility that their customers require. (Amoako-Gyampah, 2008).

In today's fast changing competitive world, companies are losing their significant number of customer not because of the price they offered to those products but the quality of the product or at a time when needed with list cost and delivering quality service. Particularly in manufacturing

companies, delivering high quality product at the right time are vital for their continued existence (BITITCI, 2004)

The today's world is growing in an increasingly rapid changing environment. Business markets have become much more competitive. To enter in the competition of current overcrowded and interactive marketplace, firms must look beyond the traditional marketing strategy, which have no longer enough to achieve competitive advantage. The ability of the organization to meet or exceed customer expectations is called excellent operation performance (Alkali, 2012)

The success of any business organization is highly dependent upon the degree to which it is able to satisfy the user of its products. The way to ensure this satisfaction is to see that the preferences of the users. To satisfy, attract new customers and retain the existing customers' organizations must improve their operation performance (Cesarotti, 2009)

Operation performance is the performance of an organization against prescribed standards such as compliance with regulation, waste reduction, and productivity and timely delivery of products when needed. It is the firms' performance measured against standard or prescribed indicators of efficiency, effectiveness and regulatory compliance. It is better to set of standards to quantify both the efficiency and effectiveness of operational activities of business organizations (NEELY, A. RICHARDS, H., MILLS, J., PLATTS, K., BOURNE, M, 2015) Measurements of operation performance are efficiency, quality, timeliness, flexibility, cost and productivity.

Operations play a crucial role in all organization in which a number of sections function semi-autonomously (Ojha, 2015). Business firms' operation are the back bone to run all production processes, since all other activities of business need information from operations department to perform their tasks. This implies efficient operational performance of business organization is a competitive strategy for business firm's success.

According to (Seifert, 2015) excellent operation performance that is represented by efficient production and quality product is vital to business profitability and survival. Thus, from the finding of the researcher understands that operation performance have positive impact on customers satisfaction which have positive effects on the organization's profitability. Because satisfied customer buys more and they are more loyal. Good customer relationship creates

customer delight, in turn delighted customer remain loyal. The finding of (Mohammad and Alhamadani, 2011)indicated that operation performance is an important predecessor of customer satisfaction.

Ethiopia is one of the developing countries which have taken measures to enhance manufacturing industries performance by considering its contribution to the overall development, employment creation and poverty alleviation. In this regard, the Federal and Regional Micro and Small Enterprise Development Agencies (FRMSEDA) were established by regulation No.33/1998 to utilize the local raw materials, creation of production, job opportunity and the enhancement of the development of micro to large industries are some of the efforts done by the governments. The Micro and Small business sector in Ethiopia is taken as an instrument in bringing about economic transition by effectively using the skill and talent productive labor force with low level training, less capital and technology. The five-year Growth and Transformation Plan (GTP) of Ethiopia envisage creating a total of three million micro and small scale enterprises at the end of the plan period NBE (2011). A question that would then arise is as to why most manufacturing sector or the enterprise engaged in the manufacture in micro and small enterprise perform dismally and end up closing down after a few months or years of operation (UNDP, 2012)

Even if governments support manufacturing industries in many ways their operational performance is still weak. So, this shows there is scant empirical study that assesses Determinants of operation performance of micro and small manufacturing enterprises in the case of Jimma town.

## 1.2. Statement of the Problem

Measurement, evaluation and conceptualization of operational performance in in the business organization are current issues of professional and business research. One of the first general classifications of financial and operational performance of company's was made by adopting a strategic management perspective and focus on the measurement with the emphasis on the operational performances (Kaplan, 2009).

Nowadays, achieving operational excellence through improved operation performance is a requirement to the organizations. In order to increase the performance and be competitive advantage, organizations are giving more attention to achieve the higher levels of operational performance. This scenario has influence 80% to 90% of world manufacturing sectors to focus on the operational performance and excellence improvement program but only 30% of the companies achieve their expected results (Seifert, 2015).

One of the ways to achieve the operation performance result is by using the improvement initiatives and tools such as operation excellence model. Unfortunately, many of manufacturing business enterprises have failed to gain the benefits from the improvements initiatives and could not achieve the excellence level due to the lack of clear understanding and appropriate guidelines regarding what, where and how to implement improvements initiatives to achieve the excellence (Mohammad, M., Mann, R., Grigg, N., & Wagner, J. P, 2011). However, the guidelines or approach regarding the nature of excellence are still unclear and such implementations have followed a trial and error approach and it depends on organizational culture to create clear understanding and appropriate guidelines (Muhammad, 2016).

The introduction of an organizational innovation is important to meet the objectives of the firms such as the "reduction of the time needed to respond to customer or supplier needs" and the "improvement of the quality of goods". According to (Kim, 2012) marketing innovations increase sales by increasing product consumption and yield additional profit for firms. Organizational innovation and market innovation (administrative innovation) increase the efficiency of managerial capacity and production processes by gaining excess resources and technically efficient programs. In addition, enhancing administrative systems and processes adds value for a firm directly and for its customers indirectly.

Though there are empirical studies that highlight factors affecting the operation performance of manufacturing firms, there is little work that combines both internal and external factors in order to identify the responsible bodies for the solution based on the severity of the factors influence on operation performance of the firms. The finding of (Hawawini G, 2003)argue that external factors play a more important role in dictating the influence of firm operation performance.

On the other hand, other studies (Opler T. C., 2014) found that internal factors are the major factor that determines any business performance. Moreover, previous studies like (Alkali, 2012), (Cesarotti, 2009), (Ojha, 2015) focused on operational performance only on internal environment factors but there are no more studies which explains the effect of the external environment on operational performance of organizations. So the findings of different researchers are different which complicates the operation managers and policy makers as well as readers.

Recently there are many studies growing on operational performance those mostly deals with the overseas situation but less emphasis has been placed on operation performance measures and measurement in manufacturing firm's operational settings and there is no more studies as well as discussion in the operation performance of manufacturing sectors in Ethiopia. (Habtamu, 2013)

The other gap in the previous studies on this area is related to the unit of analysis. Many studies especially on Micro and Small Enterprises performance emphasize on the determinants of financial and operational performance together. Therefor this study attempted to assess both internal and external factors that determine the operational performance of micro and small manufacturing enterprises operating in Jimma town through filling the above mentioned gaps of prior researches by answering the following research questions.

## 1.3. Research Questions

Accordingly, this study addresses the following three main research questions.

1. What are the major factors that affect the operational performance of micro and small manufacturing enterprises in Jimma town?

2. How internal factors such as HRM practice, Basic infrastructure, Firms size, Lean Manufacturing Practices, Strategic Flexibility and innovative capacity of the firms affects operational performance of micro and small manufacturing enterprises and what kinds of relation does each factors shows?

3. What is the impact of external factors (Economic factors, technology and Government regulation) on operational performance of manufacturing firms?

## 1.4. Objective of the study

### 1.4.1. General objective

To find out the various factors that determines operation performance of micro and small manufacturing enterprises in the case of MSEs in Jimma town

### 1.4.2. Specific objective

1. To assess the major factors that affects operation performance of micro and small manufacturing enterprises in Jimma town.

2. To examine the impact of internal factors (HRM practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility and Manufacturing technology) on operational performance of micro and small manufacturing enterprises.

3. To examine the impact of external factors (Economic factors and Government regulation) on operational performance micro and small manufacturing enterprises.

## 1.5. The significance of the study

The finding of this work will enables policy makers to develop awareness for the regional administration , zonal and town government officials , owners and other stake holders about the factors that hiders the operation performance of manufacturing industries.

The findings from this study also benefit micro and small manufacturing enterprises by giving the information to develop strategies to improve their firm operation performance. The outcome

of the study give insight to owners/ managers of SMEs especially in manufacture sectors on how to manage a succession to ensure operation efficiency of their firms.

As far as the knowledge of researchers concerns, there are no research works done focusing on the manufacturing industries operation performance. Therefore, this may give chance for others who are interested to know factors that affect the performance of manufacturing industries operation to make farther studies on the subject and this may add something of value to the existing body of knowledge related to the issue of manufacturing industries management.

## 1.6. Scope of the study

This research scope is limited in subject (study), time and geographically (in Jimma town) duo to different constraints like time constraint, budget constraints and information accessibility constraints. So defining of the area of study is very important. So the study is therefore limited to assess operation performance of micro and small manufacturing enterprises in Jimma Town by taking sample enterprises. Although, there are different issues that can be researched in relation to Manufacture sector of MSEs operation performance, this study will delimit to the factors related to Human resource management practice, Basic infrastructure, Firms size, Lean Manufacturing Practices, Strategic Flexibility, Technology, Economic factors and Government regulation. The study also limited methodologically by descriptive and inferential research by deploying cross-sectional data collected at a single point of time.

## 1.7. Limitation of study

First if the research includes all micro and small enterprises in the study area it would be more effective and beneficial. But to conduct the research with a broader scope and to make it more manageable it needs large finance, human resource and time which are difficult by student level that are considered as limitation for this study. Secondly; the independent variables which were only assumed to be basic determinants of operational performance of micro and small and micro enterprises those are common to all operators under business environment were chosen for this study, but there are ample numbers of factors those may affects operational performance; Hence it doesn't exhaust all the factors affecting performance of manufacturing.

## 1.8. Organization of the Study

The study is organized into five major chapters. The first part is the introductory part composed of background of the study, research problem and questions, Research Objectives, Significance of the Study, Scope of the study, and limitation of the study. The second chapter deals with Review of Related Literature, in the third chapter research design and Methodology, The fourth chapter about data analysis and discussion and in the fifth chapter summery of findings, conclusions and recommendations.

# CHAPTER TWO

## 2. Review of Literature

This chapter deals about theoretical and empirical literature reviews from different published and unpublished materials.

### 2.1. Theoretical Literature Review

Research on performance measurement has gone through many phases in the last 30 years. Most of those researches were focused on financial indicators; with time, the complexity of the performance measurement system increased by using both financial as well as non-financial indicators. Since the late '80s, researchers, consulting firms and practitioners have stressed the need to put an increased emphasis on non-financial indicators in the performance measurement process.

Although much research has been conducted on the issues of performance measurement; the definition of performance measurement is still debated. (NEELY, A. RICHARDS, H., MILLS, J., PLATTS, K., BOURNE, M, 2015) defines Performance measurement as “the process of quantifying the efficiency and effectiveness of past actions through acquisition, collation, sorting, analysis, interpretation and dissemination of appropriate data”. Neely’s definition describes the process, “it does not give much guidance to organizations about what it is essentially all about.” He suggests that another definition: “performance measurement is evaluating how well organizations are managed and the value they deliver for customers and other stakeholders” (BITITCI, 2004). He argued that his definition clearly shows the purpose of performance measurement and emphasizes the assessment both of the value an organization gives to its various stakeholders and the way the organization is managed.

(Hawawini G, 2003) defined performance measurement as “a means of monitoring and maintaining organizational control which is the process of ensuring that an organization pursues strategies that lead to the achievement of overall goals and objectives. More specific definition of performance measurement: “Measurement provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, helps to identify areas of strengths

and weakness, and decides on future initiatives, with the goal of improving organizational performance." This definition illustrates the role and the process of performance measurement clearly from different aspects.

As identified from the above definitions, performance measurement is a structured system and a process of gathering, monitoring, and assessing the information about an organization's activities, in order to achieve the proposed operational and financial goals of firm.

(Costabile, 2000) Pointed out ``customer satisfaction depends on pre-existing or contemporaneous attitudes about product quality" which are the results of operation quality.

There is also a lot of argument regarding whether customer satisfaction is the antecedent of operation quality or the outcome of operation quality. However, other scholars take the opposite view that operation quality is the antecedent of customer satisfaction (Russell R., 2005); (HAYES, PISANO, & UPTON, 2004).

### 2.1.1. Definition of Terms and Concepts

**Manufacturing industry**-refers to any business that transforms raw materials into finished or semi-finished goods using machines, tools and labor. The production of manufacturing industries includes food and food products, chemicals, garment, and construction materials. **(Source:** Standard Industrial Classification)

**Manufacturing enterprise**-are those enterprises engaged in the production of goods by using machineries in the process of value addition to the final product having a distinct name or character or use.

**Micro Enterprise:** are those enterprises with less than 5 employees including owners and total asset less than 100,000 ETB for manufacturing sector and ≤ 50,000 ETB for service sector (MSEDS, 2011).

**Small Enterprise:** means a business engaged in commercial activities whose capital is not exceeding birr 1.5 million and 6-30 employees for manufacturing industries and 500000 for service other than high technology and consultancy service institutions.

**Performance** is a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results (Kaplan, 2009)

**Operational performance:** Operational performance refers to the measurable aspects of the outcomes of an organization's processes, such as reliability, production cycle time, and inventory turns. Operational performance variables include flexibility which leads to frequent new products and services, or a wide product and service range; reduced/short delivery time which leads to faster operations; better quality of goods and services without errors in processes as well as no wastage of process cycle time to re-do things; dependable delivery; low cost of operations and high profitability; efficient production process which leads to a reduction of operational costs; and high employees productivity.

## 2.1.2. Manufacturing at the Global and Ethiopian Context

## A. Manufacturing at the Global

The different business literatures indicated that the traditional economies were dominated by primary activities that are less productive. Whereas modern economy where engaged in highly productive activities in manufacturing which have positive impact on feature economic development. (Maddison, 2007)

Duo to emergence of modern manufacturing technology there is dramatic changes in the structure of the world manufacturing enterprise productivity and increased labor productivity. This shows development came to be associated with industrialization. Industrialization was rightly seen as the main engine of growth and development. Different individuals defined manufacturing enterprises in different ways based on their purpose and objectives of their business (Maddison, 2007).

The Research institute for Management Sciences, University of Delft, The Netherlands, has classified manufacturing industries into four groups based on the numbers of employees they can involves in industries. (Stanley, 2005) Classified industries into eight by size; They adopted the functional approach, and emphasized how small and medium sized industries differ from larger

industries by bringing out clearly the differing characteristics which include little specialization, close personal contact of management with production workers and lack of access to capital.

The Indian business research institute defined micro to large manufacturing industry based on their total asset and number of workers. Similarly in Nigeria, the Industrial Research Unit of University of Ife defined a small scale industry to large ones on the base of total capitals they invest and on their power of employing labor (Stanley, 2005).

(Okpara, 2007), in another breath, accepted the need for differences in classification and definition of small and medium enterprises. He however pointed out that any differences in definition noticed between industrial sectors are ascribed to differences in capital requirements, while the differences among countries could arise as a result of levels of industrial development. Thus, the company that may be defined as SME in a developed country may be regarded as large scale enterprises in a developing country considering such parameters as capital investment and employment of labor. It is therefore important to realize that definition of manufacturing industries changes overtime, and even among developing countries.

From these discussion someone can realize that countries whether developed or developing have common understanding and criteria on definitions of industries though they classified based on their economic levels and intentions.

## B. Manufacturing Industries in Ethiopian Context

(Stephen, 2013), finds that in defining micro and small scale enterprise, and industries references are made to qualitative and quantitative measures based on the number of people employed in the enterprise or industries, investment out lay, annual sales turn over or a combination of these measures. In light of this, the definition and classification of industries in our countries context are discussed as follows. This classification of industrial company or enterprise is based on, the new (Micro and Small Enterprise Development Strategy of Ethiopia (MUDC, 2013)Principally this Classification of the size of industrial company is based on man power (work force) and capital (This capital includes machinery cost and working capital and exclude land and building cost of an industrial company). The arrangement/ the definition are as follows:

Micro and small manufacturing business enterprise are those enterprise consisting less than five employees and total asset less than 100,000 ETB for manufacturing sectors; whereas small scale manufacturing enterprises are those enterprises having 6-30 workers or and total asset of 100,001 up to 1.5milion (one point five million) ETB, Medium scale industry is an industrial company that employee 31-200 workers and its total asset is 1,500,001 up to 30,000,000(thirty million) ETB and Large scale industry is an industrial company that employee more than 200 workers and its total asset is more than 30,000,000 (thirty million) ETB.

To achieve the objectives of sustainable economic development, the government considered that growth of micro and small manufacturing enterprises as a fundamental tool. Well-designed manufacturing Strategies and Plans are bases to accelerate the economic growth of any country transformation from agriculture to industry-led economy. Based on GTP of Manufacturing industry sector textile and garment, leather industry, Agro-processing, pharmaceutical, chemical, metal industry and Meat & milk industry were the prioritized sub sectors. So far, different supports and co ordinations the above sub sectors have been made to achieve the GTP goals.

As development tool, developing industrial zones has been considered to help sustain the development of the economy by targeting local and foreign direct investments, enhancing competitiveness, and facilitating export-led growth. Through the industrial zone development program, the Government of Ethiopia intends to create favorable condition for private sector investment in priority industries. (Source: Federal Investment Agency data base).

## 2.2. Operational Performance in Manufacturing Industries

Operations can be defined as jobs or tasks consisting of one or more elements or subtasks, performed typically in one location. Manufacturing operation is the process which transforms inputs into desired outputs or results that have value to producers (firms) and customers. Two or more inter-related operation activities are called process, and processes are divided into several categories. These are: processing, inspection, transport, and storage. Business operations typically include four components: Location, Equipment, Labour and Process (Brown, 2007)

Operational performance determines organizational performance. The operations in manufacturing enterprises should be efficient and effective in order to achieve organizational

goals. Effectiveness is the ability of enterprises to satisfy customers by producing and delivering goods and services needed by customers; whereas efficiency is the capacity of enterprises to perform their manufacturing process with least cost and time and better quality. Manufacturing operational performance is performance compared against pre-defined standard or prescribed measures of effectiveness and efficiency (Brown, 2007).

According to (Alkali, 2012) business firms operational effectiveness and efficiency are achieved through improved and well designed a company's major operational processes that enables them to effectively respond for-ever changing market forces in cost-effective way. To achieve efficient operational performance business enterprises should reduce repeated process and wastage while utilizing the resources that contribute for high production and success of enterprises. The reduction in manufacturing cost resulted from efficient operational performance enable business enterprises to gain maximum returns as well as to become highly competitive. Hence, any business enterprises are effective and efficient if they identify appropriate strategic plans that are achieved with minimum resources. (Cesarotti, 2009) Found that delivering quality products with reduce price, improve customer satisfaction, and stay competent in the market. Some large enterprises make efficient, secure business processes a prerequisite for doing business with them. To develop efficient business processes that meet the requirements of your partners, your firm needs a secure, reliable network infrastructure. Make it easy to collaborate. Effective, interactive collaboration between employees, partners, suppliers, and customers is a sure way to boost efficiency while also reducing costs.

### 2.2.1. Performance Indicators

In this context, performance indicators are indices that translate the business strategy to the operational level and allow for alignment between top management and shop floor operators. The main objective of these indicators is to measure how close the organization is to the goals established by the business and operational strategies. Performance measurement can be defined as the process of quantifying the efficiency and efficacy of an (NEELY, A. RICHARDS, H., MILLS, J., PLATTS, K., BOURNE, M, 2015). Historically, several methods and techniques have been developed to monitor the performance of the business and the operations. However, these methods are implemented at the tactical and operational levels based on the same vision:

that of top management. The first step toward achieving full competitive manufacturing capacity is the selection of appropriate performance measures, while the second step is the identification of objectives at the shop floor level, such as the reduction of losses and of inventories. Hayes states that evaluation systems, if not properly formulated, can even obscure the main developments and distort the perspective of administrators. In the case of successful companies, performance assessment and commitment to ongoing improvement are inherent elements of the strategy (HAYES, PISANO, & UPTON, 2004)

According to (Barney J. , 2002) "Measuring performance is, in fact, only justified when the objective is to improve it." Hayes discusses the importance of the commitment to ongoing improvement ("learning"). To maintain the capacity of the plant's operations, administrators must pay attention and actively plan for "learning". (BITITCI, 2004) Write about the importance of recognizing the difference between measuring performances and managing performance. The difficulty of developing a collaborative culture and of developing proper performance measures was identified as a major barrier to the implementation of performance management systems.

Organizations seek their goals through the customer's satisfaction with better efficiency and efficacy than their competitors. Efficacy is related to meeting customer demands, while efficiency is the measure of how economically the company utilizes its resources to satisfy the market (NEELY, A. RICHARDS, H., MILLS, J., PLATTS, K., BOURNE, M, 2015)

According to (Assen, 2011) business enterprises performance are design and management to increase their profits through continuous improvement on operation and distribution system to offer quality product to customers at right value and at right time.

(Cesarotti, 2009) explained that operational performance is a term that the operation is at the top level of performance and the organization has reached the highest operation can be. Operational performance is not only about cost, time, quality, Dependability and flexibility metrics but also about how operation side of the business supports the business growth. Operational performance is not only revenue maximization but also handling people and resources efficiently.

(Russell R., 2005) stated that operational performance is about reaching the height of operational efficiency through doing things better, faster, and cheaper.

Today, operational performance means much wider and it's a key lever for improving profitability and competitive advantage. It's not just about managing day to day operations with efficiency but it is a way to foster continuous improvement ( (Russell R., 2005); Y (BITITCI, 2004). (Cesarotti, 2009) stated that business performance is an inclusive approach to maintain world class capacity of production and delivery of high quality products to customers with low cost. The systematic approach of operational performance enables organizations to achieve a continuous improvement in organizational culture, operational excellence and customer orientation and at the same time achieve the customer satisfaction and operational efficiency.

Operational performance is a balanced management of quality, cost and time and at the same time focusing on the customer requirement. Operational performance emphasizes on performance and organizations practices that the way organizations to achieve superior performance and continuous improvement. To achieve efficient operational performance, top management must play a role to engage the operational excellence structure and culture to their employees (Miller, 2011).

### 2.2.2. Operational Excellence as an Indicator of Operations Performance

According to (Dawei L., 2011) the operational excellence is one element of business excellence; along with other elements such as strategic fit, capability to adapt emerging technologies and unique voice.

Operational excellence emphasizes on meeting customer expectations by delivering quality products at the least cost when required. The reverberating principle of operational excellence is to reduce cost through continuous improvement. Business environment today has become more challenging and more complex. The impact of the business environment have forced the organization improve their abilities to respond and adapt to the changes caused by uncertain environmental conditions (Ahmad, 2012)

In order to gain competitive power; business enterprises operation improvement is one of the key area which have positive effect for their success (Barney J. , 2002). Organization need to improve their operations management by considering continuously improving production costs

efficiently, delivery schedules, service offering skills, supplier relations and productivity in all practices (Barney J. , 2002).

Business enterprises need to strengthen their operation by creating new strategies which promotes business performance (Yew & Ahmad, 2014). This is because pursuing excellent operational performance will guide the organizations on the right track to attain their objectives. (Prajogo, 2008) According to (Cesarotti, 2009) high operational performance will initiate the business enterprises to survive and to stay ahead in the competition. In order to remain competitive and improve the organizational performance, organizations need to continuously improve and perform to an excellent standard (Amoako-Gyampah, 2008).

The operational performances are an activities performed by product and service providers that contribute to productivity, efficiency, and consistent quality (BITITCI, 2004). There is no doubt that globalization has created formidable pressure on firms to survive and compete, especially in developing countries. In such conditions, firms must redesign themselves towards excellence, using the required creativity and innovation tools (Cesarotti, 2009). Key amongst aspects of business excellence is operational excellence (OPX), which is an aspect of organizational structure that strives for improvements in key operational performance metrics. Firms must seek continuous improvement in the objects that define their areas of operation to remain competitive in their environment (Muhammad, 2016)

There are studies that have identified a favorable relationship between implementing operation excellence improvement practices and performance improvements. A survey done on US manufacturing firms (HAYES, PISANO, & UPTON, 2004) it was noted that firms implementing higher degree of lean practices including JIT manufacturing practices outperform competitors who do not use such practices. In addition, studies done by (Nakamura, 2008) show that lean practices such as quality management and JIT have been found to improve quality aspects such as percentage of orders that pass final inspection without rework and downtime of machine due to failure during normal shifts.

Employees' involvement and managers' commitment to improvement of operation was also found to improve product quality and prevention of defects. The real impact of improvement of operation practice on profitability is mixed; cost per unit increases but earnings per share

improves. Organizations that have implemented lean as a strategy have shown higher levels of quality and productivity and better customer responsiveness thus improving the company's competitiveness (Krafcik, 2008).

### 2.2.3. Operations Management

Operations play a crucial role in all firms in which a number of sections function semi-autonomously (Nyabwanga, 2012). Operations management is crucial to oversee all processes of firms, since all other functions need information from operations in order to perform their tasks.

Operations management is active and challenging, with immediate actions required to ensure that the day-to-day production of goods or delivery of services can occur in a timely manner and rapidly adapt to changed conditions (Bozarth, 2006)

Most firms believe that if they want to compete, they must continuously improve their operations efficiency in line with enhancing their goods or services quality, thereby mandating effective operation management approaches (Russell & Taylor, 2011)

Operations management plays an important role in the development of entrepreneurship theory, focusing on how operations management deals with management under uncertainty. There is a particular focus on the efficiency and effectiveness of operations, which has a great impact on how operations can support the firm's strategic goals. It is also important to mention that operations managers currently face the challenge of improving quality while lowering costs, and yet maintaining social responsibility, in the current climate of high global competition (Russell R., 2005)

## 2.3. Empirical Literature Review

A study by Hall (1992:237-250) has identified two primary causes of small business failure appear to be a lack of appropriate management skills and inadequate capital (both at start-up and on a continuing basis).

Empirical research by (Ojha, 2015)"showed that operation performance has a significant effect on customer satisfaction." Similarly, recent studies by (Deng, 2010) using recursive structural models provided empirical support that product quality results in customer satisfaction.

According to (Cheng, 2010) Innovation is critical to a firm obtaining a dominant position and achieving higher profits. Empirical evidence supports the view that product innovation and process innovation have a positive effect on a firm's performance. These two innovation dimensions can be advantageous to a firm in improving its competitive position relative to its rivals, as well as its profitability in the market (Cheng, 2010).

Product innovations are expected to provide firms with a competitive advantage via the technological novelty and improved performance of the product. By contrast, process innovations provide a competitive advantage via the efficiency/productivity gains obtained through the introduction of more effective ways of producing (pre-existing) Products (Evangelista, R. and Vezzani, A, 2010) Process innovation has a greater impact on production cost but less influence on a firm's sales growth or market share than product innovation (Cheng, 2010). On the other hand, organizational innovation and market innovation deal with the changes in the organizational structure of a company and moves to exploit new territorial markets or new market segments within existing markets (Cheng, 2010).

## 2.2.1. Factors which Determines Operational Performance of Micro and Small Manufacturing Enterprises

The literature on operational excellence (Asif, 2010) indicates that the internal and external environment factors are the core success factors towards the operational performance of an organization. The internal and external environments are the important aspects that will influence the organization improvement and it is a very crucial aspect to organization in order to compete in the industries.

### 2.2.1.1. Internal Environmental Factors

The internal factors are those factors caused within the organization and controllable by the organization. To attain the better business performance, it needs organizations comment to strengthen their operational activities (Calvo-Mora, 2014). According to (Calvo-Mora, 2014), the excellence results of an organization are determined by the internal management systems where appropriate management systems are very important and highly needed to the organization to achieve the excellence performance.

**Human Resource Management Practices**

In the resourced-based view of an organization, HR provides rare and unique source of competitive advantage. HR may lead an organization to achieve and retain competitive advantage through their employees' competencies and skills (Barney J. , 2011). According to (Yew, 2014), HR is an intellectual capital which can include skills, knowledge and competencies that organization process and channelize to sustained the organizational excellence. HR has strategies and practices that work as a tool for the organization in order to achieve superior performance.

According to (Wright, 2009) firm's human resources are the larger sources which can contribute to the competitive advantage. HR systems which is HR practices are designed to enhance employee's skills, commitment and productivity (Wright, 2009). An effective Human Resource management practices such as effective recruitment of employees and selection procedures, reward and compensation method and performance management systems and extensive

employee involvement and training will improve the employee's knowledge, skills, abilities, and motivation and enhance retention of quality employees (MacDuffie, 2005). Human resource is the building block of any organizations to achieve competitive advantage. HR practices refer to the organizational activities to manage weak human resources and enhance the resources towards organizational objectives (Wright, 2009)

Previous empirical research has identified a number of the best HR practices that has the potential to improve and sustain the organizational performance. The HR practices such as recruitment and selection, training and development, performance appraisal and compensation are the universal use of HR practices in an organization (Fey, 2000);

**Adoption Lean Manufacturing Practice**

Lean manufacturing is based on the rationale of removing activities that do not add value to the productive system, especially those associated with elapsed times, methods, processes, places, people and movements (Womack, 2003). The elimination of activities that do not add value allows a densification of work and a better match of activities that generate wealth. Accordingly, the increase in profit comes from the reduction of costs, which improves business performance of the company (Shingo, 2008).

In addition, organizations can gain competitive advantage from lean production practices. Such practices enable the organization to get superior performance through reduction of wastes and other related costs (Ohno, 2007). Traditionally, companies used broad production systems which made it difficult for them to improve on their productivity thus customer satisfaction. However for most companies, use of recent technologies for lean production system has become critical and is a standard practice for achieving greater performance gains (Womack, 2003)

**Strategic Flexibility of the Firms**

Strategic flexibility refers to the company's agility, to its capacity to adapt and respond in a timely and appropriate manner to substantial, uncertain, and fast occurring environmental changes that have a meaningful impact on the organization's performance (Aaker, 2004). The finding of (Perteraf, 2013)Examined the relationship between an organization's strategy and its performance. One of the most significant studies belongs to (Papadakis, 2008) in this study the

author compared two groups of strategies (strategies aimed at reducing costs and differentiation strategies). Cost strategies aim is achieving competitive advantage costs minimization with consideration of quality and competitors price. This objective can be achieved by the engagement of all concerned bodies and departments within the company and outside of the company: including production department to identify methods of production which minimizes production costs, research and development department to develop new products that can be less costly, and the marketing department to identify less expensive ways to attract customers. The aim of differentiation strategies is to get competitive advantage by the involvement of all departments of an organization in order to make their products unique from their competitor's product on one or more dimensions (quality, after sales service and support (Johnson, 2003).

Under the growing pressure of the intensified global competition manufacturing industries faces a number of challenges, which require the understanding of strategies that drive performance of the companies. A number of studies emphasize the relative importance of a distinctive strategy in determining the firm's economic performance in various environments. Various determinants of firms‟ performance have been identified in several industries, but those factors seem to differ across different countries and industries.

**Basic infrastructure:** According to (Mehari, 2016), financial and operational performance as well as growth of firms is enhanced by the availability of basic infrastructure inputs such as water, electric light, road network etc. SMEs which have access to sufficient infrastructural facilities grow by 51.9% rate of employment than those which have not (Solomon, 2004). On the other hand, access to infrastructure has no significant effect on the profitability of the firm.

**Manufacturing Technology**

Over time, with the advent of computers and microprocessors, inflexibility in process technology gave way to flexibility. Over the last decade, flexibility became the mark of new technology called Advanced Manufacturing Technologies (AMT). These schemes make valuable contributions to understanding AMTs. A broader conceptualization of AMTs is offered as an alternative by some authors (Herring, 2007).

Manufacturing technologies are viewed as tools that enable firms to increase their information and production processing capability. Based on this logic, manufacturing technology choice can be determined by the information processing requirements resulting from the pursuit of a selected strategy (e.g., differentiation, cost leadership, etc...). Given this logic, the information processing capabilities of manufacturing technologies deserve emphasis, along with flexibility, because it is this inherent capability that makes them effective strategic „„tools"" for dealing with uncertainty associated with different strategies. On a more practical level, the potential to improve business performance is among the principal reasons why firms employ manufacturing technologies (Herring, 2007). Numerous scholars have argued that manufacturing technologies reduces manufacturing costs by automating design, fabrication, assembly, and material handling, among other things (Herring, 2007).

## Innovation capability of the Firms

Innovation capability of business enterprises has greater benefit to organizational success because it enables to apply new production process to improve product quality and operational performance. Although it has no direct impact on manufacturing firms' financial performance, it has an indirect impact through the moderator of operational performance. Thus, innovation is an opportunity for a manufacturing firm to improve its performance.

## 2.2.1.2. External Environment Factors

A study by (Hall, 2011) has identified two primary causes of small business failure appear to be a lack of appropriate management skills and inadequate capital (both at start-up and on a continuing basis).

Various reasons for these failures of micro and small enterprises have been proposed by scholars including external and internal factors such as lack of supportive policies for MSE development poor human resource management practice (Liedholm, 2008). External factors refer to the external setting in which an organization works. External environmental factors that are out of the control of organization which have been found as factors that influence the organizational direction, action, structure and internal processes (Samuel, 2013)

**Economic factors:** (Evangelista, R. and Vezzani, A, 2010) found that macro-economic issues such as inflation, interest rates and unemployment were the main factors negatively affecting the success of small businesses.

Macroeconomic variable inflation results in the increase of expenses which again reduces the profits of SMEs and diverts investment to ensure the growth and success of the business. Inflation not only affects SMEs, but also their consumers, as it increases the costs of goods and decreases their disposable income (Evangelista, R. and Vezzani, A, 2010)

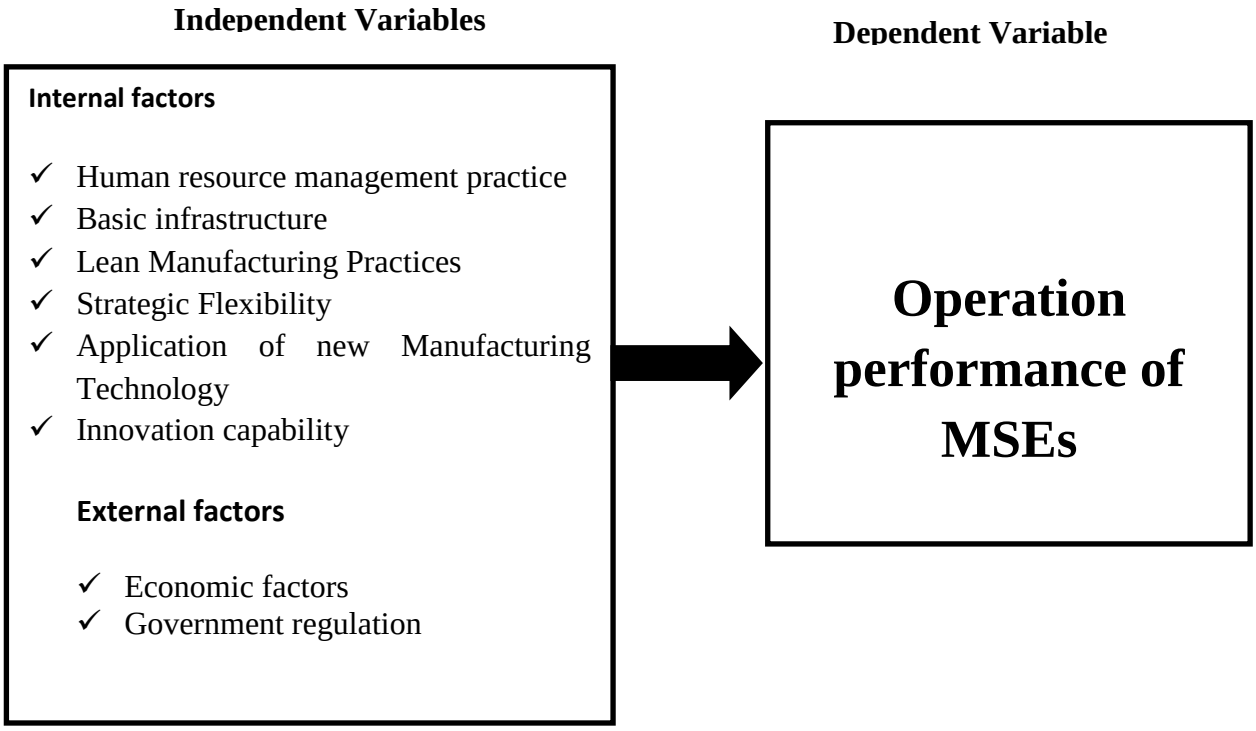
**Government regulation:** The success of the small business sector is continuously threatened by poor allocation of resources and over-regulation of government in terms of tax, input utilization system…etc. (Onwukwe, 2011) Regulations governing establishment of businesses are extremely intricate and conflicting.

Most of SMEs owners in different developing countries are losing confidence that the country's poor labor laws are not conducive to business growth. Labor regulations are currently ranked as one of the most restrictive factors for doing business because all businesses depend on labor performance and productivity.

## *2.3.* Conceptual Framework

A conceptual framework is basically the representation of a particular study or survey topic that drives the investigation being reported based on the problem statement. Based on the above literature review the following conceptual framework is developed.

**Figure 1**: Conceptual framework




*Source: own processing based on several literature review*

# CHAPTER THREE

# 3. RESEARCH METHODOLOGY

This section highlights the overall methodological considerations used in gathering, analyzing and interpreting the data. It includes description of study area, research approach, research design, Population and sample size determination, Sampling method and procedure, Data Type and Source, Data Collection Instrument and Procedure, Data processing and analysis

## 3.1. Description of the Study Area and number of manufacturing industries in study area

Jimma Town is the largest city not only in Jimma Zone but also in south-western part of Ethiopia. It is a special Town of the Oromia Region and is surrounded by Jimma Zone. It has latitude and longitude of 7°40′N 36°50′E.The annual average temperature of the zone is 20.5”c and the mean annual rainfall is 1624 mm. The town is located at a distance of 345.9km from Addis Ababa. Jimma town is a more populated with micro and small manufacturing enterprise. In the Jimma Town, there are 254 micro and small manufacturing enterprises (Jimma town Investment Commission data base 2019).

### 3.1 Research approach

Based on the nature of dependent variable and by considering the research problem and objective, this study has used both quantitative and qualitative research approach (mixed approach). Mixed methods research is an approach of research involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve assumptions and theoretical frameworks. The core assumption of this form of research is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone (Creswell 2014).

## 3.3. Research Design

According to (Saunders, 2009), the choice of the research design depends on the objectives of the study; the available data sources, the cost of obtaining the data and the availability of time. The purpose of this study is to assess factors affecting the operation performance of manufacturing industry by using quantitative and qualitative data. Descriptive and inferential design is best for the study because it enabled the researcher to use quantitative techniques of analyzing data in order to produce reliable results.

## 3.4. Source of Data

Both primary and secondary sources of data were used. The primary data was obtained from self-administered questionnaires in order to minimize the errors in data collection.

Secondary data was collected to analyze the factor that affect the operational performance of manufacture sector of micro and small scale enterprise. In this data source the researcher was apply published and unpublished documents. It was include government annual reports, and researches undertaken in the regional and country level.

## 3.5. Target Population, Sampling Techniques and Sample Size

The target populations of this study were the managers, owners and employees of micro and small manufacturing enterprise in Jimma town. The sampling techniques adopted for this study were multi-stage sampling technique. At the first stage to select enterprise the researcher used stratified sampling technique (enterprises were stratified based on the type of product they produce) and at the second stage the researcher used purposive sampling to get managers or owners of each sampled enterprises.

From the information of Jimma town trade and industry office in Jimma town there are 254 micro and small manufacturing enterprises registered as an investment projects. (Source: Jimma town Investment Commission data base 2019). This includes 161 microenterprises with the member of 522 employees, and 93 small enterprises with the member of 623. From these 254 micro and small manufacturing enterprises 155 samples were computed by using sample formula of Yamane's (1977):

$$n = \frac{N}{1+N(e^2)} \qquad n = \frac{254}{1+254(0.05^2)} = 155$$

Where, n=the sample size,

N= the population (254),

e= error term (0.05).

## 3.5. Types of Data and Tools of Data Collection

In order to achieve objectives, both primary and secondary data was collected through questionnaires. The questionnaires were used because they are straight forward and less time consuming for both the researcher and the respondents. The questionnaire was in the Five Point Likert Scale question form. The type of scales used to measure the extent of identified variables impact on operational performance was ordinal scales (Very small extent to Very Large Extent). It contains variables human resource management practice, lean manufacturing, manufacturing technology, strategic flexibility, firm size, , economic factors (inflation, interest rate, business fluctuation and devaluation as proxy, government regulations and innovative capacity of the enterprises) was identified as determinates of firm's operation performance with regard to five operation performance measurement variables (quality, cost, speed, dependability and flexibility).

In addition, to enhance the willingness of the respondents to provide the information requested a pilot study was conducted to refine and make clear questionnaire before administering. To get additional information semi-structured interview questions were designed to get some qualitative information's.

## 3.7. Methods of Data Analysis

The study employed STATA version 14 and SPSS version 20 to analyze the collected data. In this study, since the dependent variable are operation performance that can be measured in terms of five performance measure indicators; ordered Logistic regression model were applied in addition to descriptive statistics such as percentage, mean, standard deviation and correlation

coefficient. Ordered logistic regression model was used because of the dependency variable satisfies characteristics of the ordinal logistic regression mode such as: Dependent variable Y is an unobserved, latent variable which are ordered and categorical variant.

The ordinal logistic regression model assumes that the relationship between the explanatory variable and the ordered categorical variable is categorically independent, since the ordered categorical variable of the regression coefficient is not tied to the categorical. (Henry, 1982)

## 3.8. Model specification

The study uses Ordered Logit model to estimate the relationship between the independent variables and the dependent variable because the dependent variable (operational performance) have categorical nature and the values of each category have a meaningful sequential order which is impossible to express it in-terms of numerical number. Ordered Logit model belongs to the family of logits of cumulative probabilities, also called cumulative logits (Agresti, 1983).

For a categorical dependent variable Y (i.e operational performance) and a set of predictors x with corresponding effect parameters β, the model has the form:

$\text{logit}(P(Y \leq j)) = \beta_{j0} + \beta_{j1}x_1 + \cdots + \beta_{jn}x_n \quad j = 1, \cdots, J-1$ for P and predictors. Due to the parallel lines assumption, the intercepts are different for each category but the slopes are constant across categories, which simplifies the equation above to

$$\text{logit}(P(Y \leq j)) = \beta_{j0} + \beta_1 x_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mathbf{e}_i$$

The model applies simultaneously to all j-1 cumulative probabilities, and it assumes an identical effect of the predictors for each cumulative probability and $\mathbf{e}_i$ are independent and identically distributed random variables.

**Where:**

Y= dependent variable (operational performance of manufacturing).It was measured as the summation of scores awarded to each component of operational performance measures. The maximum score to be achieved by each component was 5 points and therefore the operational

performance index/level of manufacturing firm X was obtained by dividing the summation of each component of operational performance measures by 5 (i.e. 5 which is the maximum score for each component components of operational performance measures)

**$\beta_0$=**slope **and** **$\beta_1 - \beta 8$**=Beta Co-efficient of Determination **e=** Error Term

**$X_1$-X8 are independent variables**

$X_1$=Human resource management practice

$X_2$=Basic infrastructure

$X_3$=Lean Manufacturing Practices

$X_4$=Strategic Flexibility

$X_5$=Technological factors

$X_6$= Innovative capacity of the firms

$X_7$=Economic factors

$X_8$= Government regulation

### 3.9. Reliability and Validity of Instrument

As (Saunders, 2009) founds, it was not enough to simply collect and analyze data for research to ensure quality. In order to reduce the possibility of getting the wrong answers, the researcher has to aware of two particular emphases on research design namely: reliability and validity.

### Reliability

Reliability is the extent to which data collection techniques or analysis procedures will yield consistent findings (Saunders, et al. (2009), ensuring reliability of the instrument was possible through testing. For testing consistency among multiple measurements of a variable, parson chi square coefficients and pseudo R square that shows the goodness of fit for ordered logistic regression. The test result of model fit information by chi-square and significance test in table 11 below shows the likelihood for intercept in the model the full model containing all predictors with P-value<0.05 .

## Validity

According to Saunders, et al. (2009), Validity is soundness or rationality; whether the findings are really about what they appear to be or the degree to which results obtained from the analysis of the data actually represents the phenomena under study. The validity of data gathering instrument is confirmed by the ability & willingness of the respondents to provide the information requested. In order to make the questionnaire valid, relevant & objective to problem, it was properly commented by the advisor, and it also tested on available respondents, and based on the issues which were not properly clear by the respondents were corrected and refined. The researcher also improves validity, by matching assessment measure to the goals and objectives and by making useful adjustments to the research instruments after the data collection.

# CHAPTER FOUR

# 4. DATA ANALYSIS, FINDINGS AND DISCUSSIONS

## 4.1. Introduction

This section presents the results of descriptive and econometric analysis. The descriptive analysis describes the result of the study findings based on research questionnaires by using tables. It also presents the results of the econometric analysis which was used to show relationship and effects of independent variables on dependent variable.

Once the data was collected it was checked for completeness and consistency. The data was analyzed by use of descriptive statistics and inferential statistics with the support of computer software STATA-version 14 and SPSS version 22. Frequency distribution was also used to summarize the results for presentation.

## 4.2. Descriptive Analysis

### 4.2.1. Respondents' Demographic Profiles and Firm's characteristics

The demographic profiles of the respondents are shown in Table 1.

**Table 1: Respondents Sex, experiences in organization, educational levels**

| Variables | Category | Frequency | Percept |
|---|---|---|---|
| Sex of respondents | Male | 90 | 58.06 |
| | Female | 65 | 41.94 |
| | **Total** | 155 | 100 |
| Education level of respondents | TVET | 53 | 34.19 |
| | Diploma holders | 49 | 29.68 |
| | Degree holders | 43 | 29.68 |
| | MA/MSc. | 6 | 3.87 |

| | | | |
|---|---|---|---|
| | Total | 155 | 100 |
| Experience | 1-5 years' experience | 21 | 13.55 |
| | 6-10 years' experience | 74 | 47.74 |
| | 11-15 years' experience | 45 | 29.03 |
| | Above15 years' experience | 15 | 9.68 |
| | Total | 155 | 100 |

*Source: Own survey 2020*

Table 1 reveals that respondents consisted of 90 men (58.06%) and 65 women (41.94%). This reveals that in most of the small and medium manufacturing enterprise activities are carried out by male. Thus, balancing this gap and improving the participation of women in manufacturing enterprise requires serious attention since they have indispensable roles in bringing the overall political, social and development of society. From the above data the education level of respondents are TVET 53 respondents (34.19%), 49 respondents (29.68%) are Diploma holders, 43 respondents (29.68%) BA/ BSc holders and 6 respondents (3.87%) are MA/MSc. and above. This data shows that most of the employees in small and medium enterprises in Jimma town are TVET and Diploma holders. Education helps the manufacturing industries owners to deal with plants that can lead to business growth keeping proper books of records, prepares business plan, taking advocacy issues to support their business & to look for more training program to improve their business. As (King, 2002) founds, education is one of the factors that have positive impact on growth of manufacturing firms and business with larger stocks of human capital, education and vocational training are better placed to adapt their enterprises to constantly changing business environment.

The work experience of respondents from 1-5year experience have 21(13.55%), work experience year between 6- 10 were about 74 (47.74%), work experience from year 11-15 year employees rated about 45 (29.03%) and the remaining 15 (9.68%) are more than 15 years' experienced. Thus, the more experience of managers or operators help to the enterprises success and performance because it minimizes operating time, training cost and improved quality of products.

## 4.2.2. Firm's Characteristics

**Table 2: Form of business enterprises based on type of product they produce**

| Firms characteristics | Category | Frequency | percept |
|---|---|---|---|
| Types of company based on product they produce | Food & food products | 19 | 12.26 |
| | Textile and garment | 21 | 13.53 |
| | Blocks and stone mill | 52 | 33.54 |
| | Wood and metalwork | 35 | 22.58 |
| | Construction materials | 30 | 19.35 |
| | Total | 155 | 100.0 |
| Numbers of employees | 1-5 employees | 30 | 19.35 |
| | 6-30 employees | 73 | 47.10 |
| | Above 30 employees | 52 | 33.55 |
| | Total | 155 | 100 |
| Total asset of enterprise | <=100,000 | 59 | 38.06 |
| | 100,001 – 1,500,000 | 81 | 52.26 |
| | Over 1,500,000 | 15 | 9.68 |
| | Total | 155 | 100 |

***Source: Own survey Data, 2020***

To classify enterprises as micro or small the base is the numbers of employees they hired and total asset of enterprise. The firm's characteristics are shown in Table 2. Data shows that most enterprises in Jimma town were engaged in Blocks and stone mill activities (33.54%), Wood and metalwork 35 (22.58%), Construction materials 30 (19.35%), Textile and garment 21(13.53%) and the remaining 19 (12.26%) respondents were employees of food and food products. This data demonstrated that manufacturing enterprises especially Blocks and stone mill enterprise and wood and metal were dominant in Jimma Town and that create higher job for labor force which seek job opportunity and the back bone economic growth as well as the base for industrial expansion in the town and generally in country.

From the data; out of 155 respondents 30 (19.35 %) respondents replied that their company performs its activity by employing 1-5 workers, 73 (47.10 %) respondents replied that their company performs its activity by employing 6-30 workers which is small enterprise and the remaining 52(33.55 %) respondents replied that their company performs its activity by employing over 30 workers which are medium enterprise. (Source: The new micro and small enterprise development strategy of Ethiopia (MoTI, 2012). The data shows that the small enterprises are more dominate when compared to medium ones'.

When we see the total asset of the enterprises; 59 (38.06%) respondents replied that their organization have total asset ≤ 100,000birr, 81 (52.26%) respondents replied that their organization have total asset between 100,001 – 1,500,000 birr and the remaining 15 (9.68%) respondents replied that their organization have total asset greater than 1,500,000 birr. This data reveals that most of the enterprises perform the production activity with the total asset between100, 001– 1,500,000 birr; which implies small enterprises are dominant. The study reveals that operational performance of the manufacturing enterprises is not affected by the type of product what they produce (i.e there are another factor which affects the operational performance of manufacturing enterprises not to perform effectively).

## 4.3. Descriptive analysis of factors influencing the operational performance of Enterprise

Frequency distribution and percentage are used to make descriptive analysis of all factors in this research which determines operational performance of micro and small enterprises. The overall performance level of enterprises are computed by taking the average of indicators of operational performance those are Cost, Quality, Flexibility, Speed, and Dependability. The factors in the business environment both internal environment which are factors inside the business and external environment which are factors outside the business are the determinants of operational performance as well as financial performance of any business no matter whether it is large or small business. According to (Hawawini G, 2003) the change in both internal and external environment is important for SME growth and performance. Performances of SMEs are negatively or positively influenced by changes in the business (UNDP, 2012). Internal environment included in this research are: HRM practice, Basic infrastructure, Lean

Manufacturing Practices, Strategic Flexibility, Technological factors and Innovative capacity of the firms. External environmental factors include Economic factors (inflation and interest rate as proxy) and Government regulation. In this section descriptive analysis of both internal and external factors are discussed.

### 4.3.1. Human resource management practice Issues Affecting Operational performance

Human resource management practice is one of the key issues that can affect operational performance. The respondents were asked to indicate the extent to which their organizations are performing human resource management practice and the operational performance level of their business enterprise in five-likert scale form.

**Table 3: Human resource management practice Issues Affecting Operational performance**

| HRM practice | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLP | | LP | | MP | | HP | | VHP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 1 | 16.67 | 9 | 18.37 | 5 | 10.42 | 2 | 4.44 | - | - | 17 | 10.97 |
| LE | 2 | 33.33 | 21 | 42.88 | 15 | 31.25 | 12 | 26.67 | - | - | 52 | 33.55 |
| ME | 3 | 50.00 | 12 | 24.49 | 11 | 22.92 | 7 | 15.56 | 2 | 28.57 | 35 | 22.58 |
| HE | - | - | 6 | 12.24 | 11 | 22.92 | 16 | 35.56 | 2 | 28.57 | 33 | 21.29 |
| VHE | - | - | 1 | 2.04 | 6 | 12.50 | 8 | 17.78 | 3 | 42.86 | 18 | 11.61 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

Results presented in table 3. Indicates that 17 (10.97%) micro and small enterprises performing applies HRM practices to very low extent, 52 (33.33%) enterprises applies to low extent, 35

(22.58%) enterprises applies to medium extent, 33 (21.29%) enterprises applies to high extent and 18 (11.6%) enterprises applies to very high extent. The data shows that; those enterprises performing HRM practices to high extent and to very high extent have better operational performance when compared to those performing HRM practice to very low extent and low extent.

The factors of better HRM practices included in this research are; incentives to employees such as bonuses and pay increments for exceeding set production levels, clear division of duties and responsibility among employees, Organized and effective communication, Entrepreneurship and multi- skill training to perform multiple tasks, Less cost and accessible training facilities those have impact on operational performance of business enterprises. from this finding it is clear that HRM practice are basic determining factors of operational performance of business enterprises since human resource are the backbone of any organizations activity. This study enables us to confirm that the way in which human resources are managed influences a company's operational performance. This finding is in-line with the finding of (Alberto, 2015)which shows HRM practices in a factory has a beneficial effect on reducing the defect rate, cost of operation, improving communication among employees.

## 4.3.2. Basic infrastructure access and Operational performance relation

**Table 4: Basic infrastructure and Operational performance relationship**

| Basic Infra. | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 1 | 16.67 | 8 | 16.33 | 5 | 10.42 | 1 | 2.22 | - | - | 15 | 9.68 |
| LE | 2 | 33.33 | 20 | 40.82 | 15 | 31.25 | 4 | 8.89 | 1 | 14.29 | 42 | 27.10 |
| ME | 2 | 33.33 | 15 | 30.61 | 16 | 33.33 | 10 | 22.22 | 1 | 14.29 | 44 | 28.39 |
| HE | 1 | 16.67 | 5 | 10.20 | 8 | 16.67 | 15 | 33.33 | 1 | 14.29 | 30 | 19.35 |
| VHE | - | - | 1 | 2.04 | 4 | 8.33 | 15 | 33.33 | 4 | 57.14 | 24 | 15.48 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

Results presented in table 4. indicate that micro and small enterprises performing with the accessibility of basic infrastructure to very low extent 15 enterprises (9.68%), to low extent 42 enterprises (27.10%), to medium extent 44 enterprises (28.39%), to high extent 30 enterprises (19.35%), and 24 enterprises (15.48%) to very high extent. The data shows that; those enterprises performing with the accessibility of basic infrastructure to high extent and to very high extent have better operational performance when compared to those performing under the condition of basic infrastructure to very low extent, low extent and medium extent. The basic factors related with basic infrastructure are; Better Electric Power supply, Sufficient water supply, Excess business development services, and Sufficient and quick transportation service those have higher impact on the operational performance.

The above finding shows that all factors related with basic infrastructure facility for business operation determines their operational performance highly. This supported by the (Mehari, 2016) Growth of firms operation and finance is enhanced by the availability of infrastructure inputs such as water, electric light, road network etc.

### 4.3.3. Lean Manufacturing Practices impact on Operational performance

The respondents were asked to indicate the extent to which their enterprises are applying Lean Manufacturing Practices on a five-likert scale; thus their responses are analyzed in table 5.

**Table 5: Lean Manufacturing Practices application and Operational performance of micro and small enterprises**

| LMP | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 2 | 33.33 | 12 | 24.49 | 1 | 2.08 | 1 | 2.22 | - | - | 16 | 10.32 |
| LE | 3 | 50.00 | 17 | 34.69 | 8 | 16.67 | 4 | 8.89 | - | - | 32 | 20.65 |
| ME | - | - | 13 | 26.53 | 8 | 16.67 | 4 | 8.89 | 1 | 14.29 | 26 | 16.77 |
| HE | - | - | 5 | 10.20 | 15 | 31.25 | 21 | 46.67 | 4 | 57.14 | 45 | 29.03 |
| VHE | 1 | 16.67 | 2 | 4.08 | 16 | 33.33 | 15 | 33.33 | 2 | 28.57 | 36 | 23.23 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

Lean Manufacturing Practices is one of the key factors that have positive impact on operational performance of micro and small manufacturing enterprises. To assess the extent of Lean Manufacturing Practices on the operational performance 6 basic lean manufacturing tools and techniques were included in the survey are; Process improvement through Reduction of inventory and Cycle time reduction, Flow management through Reducing set-up times by focusing on a single supplier, Waste minimization by using error proofing techniques (Pokeyoke) and Removing bottlenecks, Use of new process technology and quick change-over techniques, Close contact with customers and Regularly conducting customer satisfaction surveys). The results of table 5; shows that the enterprises those applying LM practices to high extent operates with greater performance when compared to those firms applying LM practices

to low extent. Out of six firms with very low operational performance 50% (3 enterprises) apply lean manufacturing practice to low extent. Those firms with high operational performance can apply lean manufacturing practices to high extent (57.14 %) and to very high extent. Most of the enterprises applying LM practice to high extent operate with strong performance. This finding are supported by the study of (Womack, 2003) the firm those adopt lean manufacturing practice operates with greater performance when compared to those don't adopt lean manufacturing practices.

### 4.3.4. The Effect of Strategic Flexibility on business enterprises operational performance

**Table 6: Strategic Flexibility impacts on Operational performance of micro and small enterprises**

| Strategic flex. | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 2 | 33.33 | 11 | 22.45 | 5 | 10.42 | 2 | 4.44 | - | - | 20 | 12.90 |
| LE | 2 | 33.33 | 19 | 38.78 | 17 | 35.42 | 6 | 13.33 | 2 | 28.57 | 46 | 29.68 |
| ME | - | - | 12 | 24.49 | 10 | 20.83 | 12 | 26.67 | 2 | 28.57 | 36 | 23.23 |
| HE | 1 | 16.67 | 5 | 10.20 | 5 | 10.42 | 12 | 26.67 | 2 | 28.57 | 25 | 16.13 |
| VHE | 1 | 16.67 | 2 | 4.08 | 11 | 22.29 | 13 | 28.89 | 1 | 14.29 | 28 | 18.06 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

To know the effect of strategic flexibility on the enterprises' operational performance a researcher includes the enterprises ability to apply strategic flexibility by the factors such as reacting to changes in customer demand, expansion into new regional or international market, introducing new pricing schedules in response to changes in competitors prices, launching new product, adoption of new

technologies to produce better products, switching to new supplies to avail of lower costs better quality or improved delivery time, quickly & easily respond to changing production variety and introducing new products to customer in the questionnaires.

Table 6; reveals that most firms apply strategic flexibility to low extent (29.68%, 46 enterprises) and to medium extent (23.23 %, 36 enterprises); hence their operational performance are very low and low when compared to those enterprises applying flexible strategy. From the table 6; firms with *very low* operational performance applies strategic flexibility to very low extent (33.33) and low extent(33.33); and those enterprises with *low* operational performance applies strategic flexibility to low extent (38.78%) and medium extent (24.49%). Generally; table 6, reveals that enterprises with highly flexible strategy can operates with higher performance when compared to those with operating with low strategic flexibility. This finding is in-line with the finding of (Hitt, 2004)argued that in today's competitive landscape, characterized by increasing strategic discontinuities, disequilibrium, hyper competition, innovation, and continuous learning, firms' success depends on their ability to respond quickly to changing competitive conditions (strategic flexibility).

## 4.3.5. The Effect of Manufacturing Technology on Firm's Performance

**Table 7: Effect of Manufacturing Technology on operational Performance of micro and small enterprises**

| Technology | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 1 | 16.67 | 4 | 8.16 | 1 | 2.08 | - | - | - | - | 6 | 3.87 |
| LE | 3 | 50.00 | 18 | 36.73 | 15 | 31.25 | 5 | 11.11 | 1 | 14.29 | 42 | 27.10 |
| ME | 1 | 16.67 | 15 | 30.61 | 7 | 14.58 | 6 | 13.33 | 1 | 14.29 | 30 | 19.35 |
| HE | 1 | 16.67 | 7 | 14.29 | 11 | 22.92 | 15 | 33.33 | 4 | 57.14 | 38 | 24.52 |
| VHE | - | - | 5 | 10.20 | 14 | 29.17 | 19 | 42.22 | 1 | 14.29 | 39 | 25.16 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

To know the effect of application of new manufacturing technology on the enterprises' operational performance a researcher included; new and advanced tools and materials for operation, excess skill and knowledge to handle new technology, Excess capital to acquire new technology, Using computers for production scheduling, Improved computer aided quality control and using intercompany networks in order to market and operation information sharing.

As the table 7; shows that most of the firms with very low, low and medium operational performance applies new manufacturing technology to low extent 50.00%, 36.73%, and 31.25% respectively. In the above table 7, most of enterprises with high/strong operational performance (HOP) applies new manufacturing technology to very high extent (42.22%) and to high extent (33.33%) ; thus firm with very high operational performance (VHOP) applies new manufacturing technology to high extent (57.14%). In general; the data in table 7 reveals that most of micro and small enterprise applies new manufacturing technology to low extent 27.10% ; hence their operational performance is low when compared to those adapting new manufacturing technologies to highly. This result shows that manufacturing technology have very great positive impact on operational performance of the enterprises. The finding of (Herring, 2007) shows that technological innovations, is essential to encourage the delivery of value-adding products or services of exceptional quality, on time, and at a competitive price. Over time, with the advent of computers and microprocessors, inflexibility in process technology gave way to operation process and volume flexibility. Over the last decade, operational and business activity flexibility became the mark of new technology called Advanced Manufacturing Technologies.

### 4.3.6. Impact of Innovative capacity of the firm on their operational performance

To know the effect of Innovative capacity of the firm on their operational performance researcher included factors related with innovative capacity such as; creating suitable environment for innovation, adopting new technologies and modify by our company to minimize our operation cost supporting and give reward to those employees how have better innovative capacity, better innovative capacity for searching new source of supply and quality row material and using new innovation technologies from our company to improve our product quality and the researcher took the average response of each factor to know the impact.

**Table 8: Effect of Innovative capacity of micro and small enterprises on their operational Performance**

| Inno. capacity | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 1 | 16.67 | 3 | 6.12 | 6 | 12.50 | 3 | 6.67 | - | - | 13 | 8.39 |
| LE | 1 | 16.67 | 14 | 29.57 | 20 | 41.67 | 15 | 33.33 | 1 | 14.29 | 51 | 32.90 |
| ME | 1 | 16.67 | 13 | 26.53 | 10 | 20.83 | 10 | 22.22 | 3 | 42.86 | 37 | 23.87 |
| HE | 3 | 50.00 | 5 | 10.20 | 7 | 14.58 | 7 | 15.56 | 1 | 14.29 | 23 | 14.84 |
| VHE | - | - | 14 | 28.57 | 5 | 10.42 | 10 | 22.22 | 2 | 28.57 | 31 | 20.00 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

Table.8; shows that most of the enterprises 51 (32.90%) performs their operation activities with low innovative capacity and 37(23.87%) enterprises performs their operation activities with medium innovative capacity. Most of enterprises with low innovative capacity have medium operation performance (41.67%) and low operational performance (29.57%). Also table 8 shows that; 14.84% of enterprises applies innovative activities to high extent and 20.00% enterprises applies innovative activities to very high extent and most of them performs with high operation performance when compared to those enterprises with low innovative capacity.

The above analyses are in-line with the finding of (Kim, 2012); innovation capability was found to have a significantly positive effect on operational performance of business firms.

## 4.3.7. The impact of Economic factors on Firm's Performance

To know the impacts of Economic factors on the operational performance enterprises researcher included factors related with Economic issues such as Inflation, Devaluation in currency and Flexibility in interest rate and Business level fluctuation and took the average response for analysis.

**Table 9: Effect of Economic factors on the operational Performance of micro and small enterprises**

| Econ factors | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq. | % | Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| VLE | - | - | 2 | 4.08 | 5 | 10.42 | 11 | 24.44 | 2 | 28.57 | 20 | 12.90 |
| LE | 3 | 50.00 | 14 | 28.57 | 9 | 18.75 | 18 | 40.00 | 1 | 14.29 | 45 | 29.03 |
| ME | 2 | 33.33 | 8 | 16.33 | 14 | 29.17 | 7 | 15.55 | 1 | 14.29 | 32 | 20.65 |
| HE | - | - | 12 | 24.49 | 9 | 18.75 | 7 | 15.55 | 3 | 42.86 | 31 | 20.00 |
| VHE | 1 | 16.67 | 13 | 26.53 | 11 | 22.92 | 2 | 4.44 | - | - | 27 | 17.42 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

In table 9, most of the firms with low operational performance (LOP) are affected by economic factor to high extent (24.49%) and to very high extent (26.53%) and those firms with medium operational performance (MOP) are affected by economic factor to medium extent (29.17%) and to very high extent (22.29). In contest those enterprises with high operational performance (HOP) are affected by economic factors to very low extent (24.44%) and to low extent (40.00%). This shows us the impact of Economic factors on operational performance of micro and small enterprises are negative. Even-though economic factors are common to all business enterprise; the degree of its impact differs from one enterprise to another enterprise based on the nature of

their product and cost of inputs they use. Those firms producing their product with imported raw materials are highly affected by currency devaluation when compared to those producing by local raw-materials. This finding is supported by (Evangelista, R. and Vezzani, A, 2010); the strength of the Birr (purchasing power of Birr), inflation rate, interest rate and business fluctuation affects the business operational performance.

## 8.3.8. Impact of Government regulation on operational performance

To analyze the impacts of Government regulation on the operational performance of enterprises researcher included factors related with Government regulation issues such Reasonable Tax, Least Costly trade registration and licensing, excess information to government regulations relevant to business and Political influence in team formation, enterprise Selection.

**Table9. Impact of Government regulation on the operational Performance of micro and small enterprises**

| Gov. Regu | Operational performance of enterprises | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VLOP | | LOP | | MOP | | HOP | | VHOP | | | |
| | Freq. | % | Freq | % | Freq. | % | Freq. | % | Freq | % | Freq. | % |
| VLE | 1 | 16.67 | 10 | 20.41 | 5 | 10.42 | 3 | 6.67 | 1 | 14.29 | 20 | 12.90 |
| LE | - | - | 16 | 32.65 | 20 | 41.67 | 12 | 26.67 | 2 | 28.57 | 50 | 32.26 |
| ME | 1 | 16.67 | 9 | 18.37 | 7 | 14.58 | 7 | 15.56 | 1 | 14.29 | 25 | 16.13 |
| HE | 1 | 16.67 | 6 | 12.24 | 9 | 18.75 | 10 | 22.22 | 3 | 42.86 | 29 | 18.71 |
| VHE | 3 | 50.00 | 8 | 16.55 | 7 | 14.58 | 13 | 28.89 | - | - | 31 | 20.00 |
| Total | 6 | 100 | 49 | 100 | 48 | 100 | 45 | 100 | 7 | 100 | 155 | 100 |

*Source: own survey 2012*

Table 9, shows that enterprises those engaged in to manufacturing activity with condition suitable Government regulation to high extent have very high operational performance 42.86% (VHOP). Those firms with high operational performance are performing their activity with the condition of government regulations suitable for their operation to high extent 22.22% and to very high extent 28.89%. In contrast most of those enterprises with low operational performance can perform their activities under the condition of government regulation that are suitable to their operation to very low extent (20.41%) and to low extent (32.65%) Majority of the MSE's owners/managers believed that suitable government regulation have an important effect on the operational performance of their enterprise. This result is supported by study of (Anthony, 2015) that government regulations are a key factor to business performance improvement and growth of enterprises. Since smaller companies have less ability to absorb all costs related with tax, licensing was found that MSEs business and obtaining information related with government regulation when compared to bigger firms if it is not suitable and less cost to them.

## 4.4. Econometric Result

### 4.4.1. Correlation Analysis on the Factors Affecting Operational Performance of Micro and Small Enterprises

An analysis was done on how the variables under study were related to operational Performance of micro and small and enterprises to each other. Findings are presented in table 10. below: Factors in the table are represented by the following short description;

Operation performance=OP

Human resource management practice=HRM

Basic infrastructure=BasicInf

Lean Manufacturing Practices=LMP

Strategic Flexibility=straflex

Manufacturing Technology=Techno

Economic factors=Ecofact

Government regulation=GovReg

Innovation capability of enterprises=Inocapafi

**Table 10: Correlation Matrix of Factors Affecting Operational Performance of micro and small and enterprises**

```
. cor OP HRM BasicInf LMP Straflex Tchno Ecofact GovReg Inocapfi
(obs=155)
```

| | OP | HRM | BasicInf | LMP | Straflex | Tchno | Ecofact | GovReg | Inocapfi |
|---|---|---|---|---|---|---|---|---|---|
| OP | 1.0000 | | | | | | | | |
| HRM | 0.3479 | 1.0000 | | | | | | | |
| BasicInf | 0.4940 | 0.1049 | 1.0000 | | | | | | |
| LMP | 0.5253 | 0.2205 | 0.1904 | 1.0000 | | | | | |
| Straflex | 0.3570 | 0.1216 | 0.1398 | 0.2066 | 1.0000 | | | | |
| Tchno | 0.4091 | 0.1170 | 0.3093 | 0.2786 | 0.1810 | 1.0000 | | | |
| Ecofact | -0.2598 | -0.0371 | -0.2488 | -0.0264 | -0.0683 | -0.1485 | 1.0000 | | |
| GovReg | 0.0985 | -0.0513 | 0.0826 | -0.0449 | 0.0405 | 0.1574 | -0.1207 | 1.0000 | |
| Inocapfi | 0.0749 | -0.0214 | 0.0610 | -0.0263 | 0.1075 | 0.0498 | -0.1461 | 0.0194 | 1.0000 |

*Source: SPSS result own survey 2012*

The correlation matrix indicates that all variables have perfect collinearity with itself and no perfect collinearity with each other. This implies there is no problem perfect collinearity among the variables in the model. From the table basic infrastructure, lean manufacturing practice and manufacturing technology was strongly positively correlated with operational performance (0.49, 0.52 and 0.41) respectively. Human resource management practice and strategic flexibility was positively weakly correlated (0.35 and 0.36) with operational performance and economic factor was weakly negatively correlated (-0.25) with operational performance. The remaining variables (government regulation and innovative capacity of the firms was very weakly correlated with operational performance. Their significance level are discussed below.

## Model fitting information

**Table 11: Model Fitting Information**

**Model Fitting Information**

| Model | -2 Log Likelihood | Chi-Square | df | Sig. |
|---|---|---|---|---|
| Intercept Only | 419.085 | | | |
| Final | 294.038 | 125.046 | 8 | .000 |

*Source:SPSS result of own survey 2012*

The model fit information chi-square and significance test in table 11 shows the likelihood for intercept in the model the full model containing all predictors. In this model p<0.05 and chi-square 125.046 shows there is significant fit of the model with all predictors variables.

## Goodness-of-fit test

**Table 12: Goodness-of-Fit**

**Goodness-of-Fit**

| | Chi-Square | df | Sig. |
|---|---|---|---|
| Pearson | 717.094 | 146 | .001 |
| Deviance | 294.038 | 146 | 1.000 |

Link function: Logit.

*Source:SPSS result of own survey 2012*

Goodness of fit table 12 contains Pearson chi-square and deviance test, which are useful to determine whether the model exhibits good fits for the data. So in table 12, the p<0.05 shows the model Pearson chi-square =0.01 which represents the model fits well for the data.

## Model Summary

**Table 13: Ordered Logistics Regression model summary**

Ordered logistic regression
Number of obs = 155
LR chi2 (8) = 125.04
Prob> chi2 = 0.0000

Log likelihood = 294.038
Pseudo R2 = 0.554

*Source:SPSS result of own survey 2012*

From the above result we can understand that pseudo $R^2$ of 0.554 implies that 55.4 percent of the variation in operational performance of micro and small enterprises was explained by the independent (or predictor) variables in this model. In the ordinal logit model 55.4 percent of goodness of fit is good enough for policy implication purpose.

## 4.5. Analysis of ordered logit model results for each statistically significant variables

**Table 14: Ordered Logistic regression result from SPSS**

**Parameter Estimates**

| | | Estimate | Std. Error | Wald | df | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound |
| Threshold | [OP = 1] | 3.145 | 1.091 | 8.308 | 1 | .004 | 1.007 | 5.284 |
| | [OP = 2] | 6.926 | 1.150 | 36.290 | 1 | .000 | 4.672 | 9.179 |
| | [OP = 3] | 9.498 | 1.282 | 54.934 | 1 | .000 | 6.987 | 12.010 |
| | [OP = 4] | 12.886 | 1.477 | 76.124 | 1 | .000 | 9.991 | 15.780 |
| Location | HRM | .524 | .144 | 13.241 | 1 | .000** | .242 | .806 |
| | BasicInfra | .744 | .157 | 22.469 | 1 | .000** | .436 | 1.052 |
| | LMP | .758 | .146 | 26.989 | 1 | .000** | .472 | 1.044 |
| | Straflex | .400 | .132 | 9.180 | 1 | .002** | .141 | .658 |
| | Tchno | .286 | .146 | 3.832 | 1 | .050* | .000 | .572 |
| | Ecofact | -.289 | .132 | 4.747 | 1 | .029* | -.548 | -.029 |
| | GovReg | .143 | .122 | 1.363 | 1 | .243 | -.097 | .382 |
| | Inocapfirm | .031 | .079 | .154 | 1 | .694 | -.123 | .185 |

*Source: SPSS result of own survey 2012 Note: **and ** represent significant at the level of 1%, and 5% respectively*

The results of ordered logit model in table 14; shows; out of eight (8) explanatory variable six variables (Human resource management practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, Manufacturing Technology and Economic factors) have statistically significant relation with operational performance with the significance level (P-

value <0.05). The remaining two variables Government regulation and Innovation capability have no statically significant relation with operational performance with their p-value of >0.05

### 4.5.1. The Relationship between Human resource management practice and operational performance

According to table 14; the result on Human resource management practice (β=0.524, P-value=0.000) shows that Human resource management practice significantly determine operational performance of micro and small enterprises. The finding of this study shows there is a positive statistically significant relationship between human resource management practice and operational performance. The coefficient of HRM practice in table 14 shows that; for every improvement in human resource management practices of enterprises; the log likelihood of improvement in operational performance are 52 percent while keeping other factors constant. The human resource management factors which includes improved Incentives to employees (such as bonuses and pay increments) for exceeding set of production levels, Clear division of duties and responsibility among employees, Organized and effective communication with employees, Entrepreneurship and multi- skill training to perform multiple tasks and Less cost and accessible training facilities. Those factors have positive statistically significant impact on operational performance of the firms. This finding are supported by (Alberto, 2015) way in which human resources are managed influences a company's performance.

### 4.5.2. The Relationship between basic infrastructure and operational performance

The coefficient of basic infrastructure in table 14; shows positive statistically significant relationship between operational performance and basic infrastructure with P-value of 0.000. The coefficient of basic infrastructure (0.744) shows that; for every improvement in the access of basic infrastructure, the log likelihood of improvement in operational performance is 74.4 percent while keeping other factors constant. In these study basic infrastructures that are required for operation includes Electric Power supply, sufficient water supply, excess business development services and Sufficient and quick transportation service even though there are many other infrastructures required for business activity. In this regard, a research conducted by

Daniel, (2012) stated that infrastructure facilities are mainly related to the provision of access roads, adequate water and sewerage, power, and telecommunications which helps to enhance and develop the full scale operation of MSE's. On the other hand, lacking such facilities leads to malfunction of MSE's operation.

In addition to the above finding; the finding of (Habtamu, 2013), shows that firms with availability of excess infrastructure facilities have greater probability of sustenance and growth as compared to those business enterprises operating without adequate infrastructures. The researchers also added that electric power interruption and inadequate water supply in Ethiopia was highly affected the growth of the business.

### 4.5.3. The Relationship between lean manufacturing practice and operational performance

Lean manufacturing is based on the rationale of removing activities that do not add value to the productive system, especially those associated with elapsed times, methods, processes, places, people and movements. From the survey data results in table 14. The coefficient of lean manufacturing practice is .758 and the Sig. level for the variable "Lean Manufacturing Practices" is .000, which is less than 0.05. This value implies there is statistically significant positive relationship between Lean Manufacturing Practices and firm's operational performance. The value of coefficient shows that for every improvement in the application of lean manufacturing practice, the log likelihood of improvement in operational performance are 75.8 percent while keeping other factors constant.

This finding is supported by the finding of (Shingo, 2008), the elimination of activities that do not add value allows a densification of work and a better match of activities that generate wealth. Accordingly, the increase in profit comes from the reduction of costs, which improves business performance of the company. So, this implies that lean manufacturing practice is a significant predictor of firm's performance.

As the study shows the operational performance of manufacturing enterprises are affected by the lean manufacturing practice of the firms.

### 4.5.4. The Relationship between Strategic Flexibility and operational performance

As it is show in table 14 the coefficient of strategic flexibility is 0.40 and the Sig. level for the variable "**Strategic Flexibility**" is p-value 0.002, which is less than 0.05 which show there is statistically significant positive relationship between strategic flexibility and operational performance of the firms. The coefficient of strategic flexibility 0.40 shows that for every improvement in the application of strategic flexibility; the log likelihood of improvement in operational performance is 40 percent while keeping other factors constant.

The factors of strategic flexibility included in this research which improve operational performance of the firms are such as quickly & easily respond to changes in customer demand, expansion into new regional market, introducing new and lunching new product, easily adopts new technologies, searching new supplies to avail inputs with lower costs and better quality, easily respond to changing production variety and introducing new products to customer are among the basic strategic factors that can be improve to improve operational performance of business firms.

This finding are supported by (Hitt, 2004) which argued that in today's competitive landscape, characterized by increasing strategic discontinuities, hyper competition, innovation, and continuous learning, firms' success depends on their ability to respond quickly to changing competitive conditions (strategic flexibility).

From this finding we conclude that, the managers of manufacturing industries have to both understand the business and manufacturing objectives and to identify means to build and develop manufacturing capabilities that increases their performance through adoption of strategic flexibility.

### 4.5.5. The Relationship between manufacturing technology and operational performance

In table 14 the coefficient of manufacturing technology are 0.286 and p-value are 0.05 which implies there is statistically significant positive relationship between operational performances.

The coefficients of manufacturing technology in ordered logit model (0.286) shows that for every improvement in application of manufacturing technology; the log likelihood of improvement in operational performance are 28.6 percent while keeping other factors constant. Advanced technological tools and materials for operation and better knowledge to handle new technology can improve operational performance.

As the result shows the operational performance of manufacturing enterprises are directly affected by the practice of technology they employed in their industries. To solve and to improve the manufacturing practices in their enterprise the owners with supportive institution have to search different technology that may help to increase their operation capacity. This finding are supported by the finding (Herring, 2007), that technological innovations, is essential to encourage the delivery of value-adding products or services of exceptional quality, on time, and at a competitive price. In addition technological innovation effectiveness such as system quality, information quality, service quality, user satisfaction and the performance objectives stemming from operational effectiveness such as cost, quality, reliability, flexibility and speed, are important and significantly well correlated factors.

### 4.5.6. The Relationship between Economic factors and operational performance

In this research economic factors which are influencing operational performance of enterprises are one of statistically significant factor with negative impact. Economic factors are represented by inflation, devaluation of currency, business fluctuation and interest rate. In table 14 the coefficients of this economic factor (-0.289) with p-value of 0.029 indicates that for every increased fluctuation in the economic factors; the log likelihood of decrement in operational performance are 28.9 percent while keeping other factors constant.

From this finding we conceive that inflation, increase in interest rate, devaluation of currency and fluctuation in business can negatively affects the operation performance because when inflation rate increases the price of input also increase at the same time when interest rate increase the cost of borrowing also increases; so that the operational capacity of the firms decline. The same is true for business fluctuation; when there is fluctuation in business growth it make highly difficult to predict the demand condition in the market which leads to either over

production or under production which influence the operational capacity of the enterprises. This finding is supported by the finding of (Sharmilee S. et al., 2009), that the strength of currency, inflation rate and interest rate all affect the business performance.

### 4.5.7. The Relationship between government regulation and operational performance

Government regulations are external factor that determines the business activity of any business. The result of ordered logistic regression in table 14 shows that the coefficient of government regulation (0.143) with p-value=0.243) implies there is no statistically significant relationship between government regulation and operational performance. But the finding of (Anthony, 2015) found that SMEs are highly influence by government regulation because smaller companies have less ability to absorb compliance costs than bigger firms and government regulations to establishment of businesses are extremely intricate and conflicting to small firms.

### 4.5.8. The Relationship between innovative capacity of the enterprises and operational performance

The coefficient of innovation capacity of the firm in table 14 is 0.031 with significance of.694.The results of ordered logistic regression show that there is no statistically significant relationship between innovative capacity of the firm and operational performance. But the finding of (Dimitrios, 2015) shows that innovation capability directly contributes to product quality and operational performance.

# CHAPTER FIVE

## 5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter deals with the summary, conclusions and recommendations provided based on the findings of the study. Accordingly, this chapter is organized into two subsections. The first section presents the conclusions whereas the second section presents the recommendations.

## 5.1. SUMMARY OF THE FINDINGS

The main objective of the study was to assess the factors determine operational performance of micro and small-scale enterprises. Both primary and secondary data were used to accomplish the objectives of this study. This research employed self-administered questioner. Descriptive statics such as frequency and percentage were used to manipulate descriptive analysis. In addition to descriptive analysis to analyze the relationship between dependent and independent variables econometric analysis were conducted by using ordered logit model. The study has tried to see the demographic of the respondents such as gender, education level, work experience and factors that affects the operational performance of MSEs that are; Internal factors including HRM practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, Technological factors and Innovative capacity of the firms and External factors including Economic factors (inflation and interest rate as proxy) and Government regulation. This research found the following major points.

Most of (58.06%) of MSE's owners/managers and their activities in Jimma town are carried out by men; About 34.19% and 29.68% of the owners/managers of MSEs have an educational level of TVET and Diploma holders respectively, and 47.74 of the sample MSEs Enterprises owners/mangers have experience between 6-10 years. Most of sampled enterprises 63 (40.65%) are engaged in Blocks and stone mill activity followed by Wood and metalwork 45 (29.03%). Most enterprises 73 (47.10 %) performs its activity by employing 6-30 workers. Out of 155 sample enterprises 81 (52.26%) have total asset ≤ 100,000birr.

The finding of this research discloses that internal factors have positive impact on their operational performance and external factors especially economic factors such as inflation,

interest rate fluctuation and business fluctuation have negative impact whereas government regulation that considers MSEs are have positive impact. Econometric model shows that out of eight variables five variables (HRM practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, Technological factors) positive statistically significant (P-value<0.05) positive impact and only economic factors have negative statistically significant (P-value<0.05) impact on the operational performance of MSEs. Innovative capacities of the firms and Government regulation have no statistically significant relationship (P-value >0.05) operational performance of MSEs.

## 5.2. CONCLUSION

This study aimed to identify the main factors that determine operational performance of micro and small enterprises in Jimma town. More specifically this research assessed both internal and external factors that determine operational performance of manufacturing enterprises. In doing so, previous studies have been reviewed and it is summarized that the operational performance of micro and small enterprises is usually expressed as a function of internal and external determinants.

The internal determinants refer to the factors originating from the enterprises and therefore could be termed as enterprise specific factors. The internal factors included in this study are; Human resource management practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, Manufacturing Technology and Innovation capability. Except Innovation capability of the enterprises all internal factors have positive impact on operational performance. The external factors are those variables which are not related to companies' management but determinants business activities of the enterprises those reflect the macroeconomic factor and Government regulation that affects the operation and performance of micro and small manufacturing enterprises.

Ordered logistic regression model was employed to analyze the relationship between identified explanatory variables and dependent variables. From internal variables "Human resource management practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility and Manufacturing Technology" have statistically significant (P value<=0.05) relationship

between operational performance of micro and small manufacturing enterprises; but innovative capacity of the firms have no statistically significant relation.

This research found that economic factors including inflation, increase in interest rate, devaluation of currency and fluctuation have statistically significant negative impact on the operational performance of micro and small manufacturing enterprises. The result of ordered logistic regression in this research shows there is no statistically significant impact of government regulation on operational performance of micro and small manufacturing enterprises. The finding of these research disclosed that internal factors explain a large proportion of factors determining operational performance nonetheless external factors do have an impact on the operational performance.

## 5.3. RECOMMENDATIONS

Based on finding the following recommendations are suggested that could calls for interventions so as to improve operational performance of micro and small enterprises:

Since both internal and external factors have great impact on the operational performance of MSEs; so that it need to continuously evaluate the environment that they operate in, so as to understand their capacity and to become competent. MSEs Competitiveness depends largely on quality of product they produce, the speed with which new products can be brought to the market place and etc.

It is recommended that continues improvement in operational activity through better improvement in those variables with positive relation with operational performance such as: Human resource management practice, Basic infrastructure, Lean Manufacturing Practices, Strategic Flexibility, and Manufacturing Technology.

Human resource management practice are one of the basic statistically significant determinant of operational performance; so that owners/ managers of MSEs are recommended to improve their HRM practice through; providing Incentives to employees (such as bonuses and pay increments) for exceeding set production levels, clear division of duties and responsibility among employees, organized and effective communication, entrepreneurship and multi- skill training to perform

multiple tasks and less cost and accessible training facilities to their operators. These study findings encourage managers strongly to implement in their firms high-commitment practices in their management of human resources.

Since basic infrastructure is basic factor that determines operational performance of business enterprises; so it is advisable to government bodies and all those concerned bodies to support MSEs by improving basic infrastructures required to operation like ;Electric Power supply, sufficient water supply, excess and quick transportation service in order to improve their operational performance.

Since lean manufacturing is not capital incentive technology to use and practice in the any business enterprise; therefore it is advisable to apply lean manufacturing practices since it only needs the owner and management commitment and willingness to implement this modern idea of business (lean manufacturing techniques) such as reduction of inventory, Preventive maintenance and Cycle time reduction, reducing set-up times, waste minimization, use of error proofing techniques , close contact with customers and conducting customer satisfaction surveys and removing bottlenecks in to their manufacturing industries so as to improve operational performance.

The finding of this research shows firms' success depends on their ability to respond quickly to changing competitive conditions (strategic flexibility). So the owner/managers of MSEs are recommended to use flexible strategy of process and product such as quickly & easily responding to changes in customer demand, expansion into new regional or international market, easily introducing new pricing schedules in response to changes in competitors prices, easily react to new product launches by competitors, easily adopts new technologies to produce better products in order to improve their operational performance so as to become competent.

Technology factors impact on operational performance are positive according to this research finding. So the owner/managers and all concerned bodies are advised to use new and advanced technologies like computers application for production scheduling and quality control and using intercompany networks in order to market and operation information sharing.

Innovation capability was found to have positive effect on operational performance. So it is advisable to improve innovative capacity by creating suitable environment for innovation, by adopting new technologies and modify it to minimize operation cost, supporting and give reward to those employees who have better innovative capacity.

Since the relationship between operational performance and economic factors (inflation, interest rate, devaluation and business fluctuation) have negative; so that it is recommended to create different remedial actions to solve those impacts. Remedial actions includes applying different cost minimizing mechanisms like searching cheapest suppliers of inputs, applying flexible process and volume based on economic condition, etc.

The study also recommends that the concerning body like MSEs owners, government bodies could provide different technological input, sharing knowledge and skill from different country to become competitive also removing problems of basic infrastructure in addition to develop entrepreneurial habit.

## 5.4. FARTHER RESEARCH AREAS

This study focused on determinants of operational performance of micro and small manufacturing enterprises in Jimma town. The researcher advises other researchers to conduct operational performance of micro and small service delivering enterprises. Further research could be done on this aspect on the large manufacturing firms to determine the factors that drive operational performance. Such a study would be important in highlighting the competitive factors that firms need to consider in order to improve their operational performance.

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## APPENDIX A

### Questionnaire for companies/ Industries

**Dear respondent,**

The aim of this questionnaire is to collect information on factors determining the operational performance of small and medium manufacturing industries that are registered as an investment project in Oromia region Jimma Town.

Your participation in this survey and your willingness to complete this questionnaire are very much appreciated.

Individual responses will be held in the strictest confidence and information provided by you remains confidential and will be used only for this research purpose.

**General Instructions**:

Depending on the nature of the question: Make "√'' mark in appropriate box or,

**Thank you for your co-operation and for taking your time to respond to this questioners**

**Part – 1: Personal Information**

**1.** Your sex: Male ☐ Female ☐

**2.** What is your educational back ground?

TVET ☐ Diploma ☐ BA/ BSc ☐ MA/MSc. and above ☐

3. How long have you been in the company (experience)?

1- 5 years ☐ , 6- 10years ☐, 11- 15 ☐, More than 15years ☐

**Part – 2 : Firm's Characteristics**

**1.** What is the major product of this company/Industry?

1. Food & food products ☐ , 2. Blocks and stone mill ☐, 3.Wood and metal
4. Construction materials ☐ 5. Textile and garment ☐
Other (please specify): _____

**2.** Numbers of full time employees in this company? 1. Less than 5 workers ☐ ,
6– 30 workers ☐, Over 30 workers ☐

3. Total asset of your company?

>=100,000 ☐, 100,001 – 1,500,000 ☐ Over 1,500,000 ☐

**Questionnaire related to each independent variable**

Here you are kindly asked to indicate the extent to which the listed factors are performed in your enterprise on a five-likert scale of: Very small extent = 1; Small extent = 2; medium extent = 3; Large extent = 4; and Very Large Extent = 5.

| **S/No** | **1.Human resource management practice** | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| **1** | Incentives to employees (such as bonuses and pay increments) for exceeding set production levels | | | | | |
| **2** | Clear division of duties and responsibility among employees | | | | | |
| **3** | Organized and effective communication | | | | | |
| **4** | Entrepreneurshipand multi- skill training to perform multiple tasks | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **5** | Less cost and accessible training facilities | | | | | |

## 1. Human resource management practice

## 2. Basic infrastructure

| **S/no** | **2. Basic Infrastructural Factors:** | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| 2.1 | Electric Power supply | | | | | |
| **2.2** | Sufficient water supply | | | | | |
| **2.3** | Excess business development services | | | | | |
| **2.4** | Sufficient and quick transportation service | | | | | |

| **S/no** | **3.Lean Manufacturing Practices** | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 3.1 | Process improvement through Reduction of inventory, Preventive maintenance and Cycle time reduction | | | | | |
| 3.2 | Flow management through Reducing set-up times, Reducing production lot size and Focusing on a single supplier | | | | | |
| 3.3 | Waste minimization throughEliminate waste,Use of error proofing techniques (Pokeyoke) and Removing bottlenecks | | | | | |
| 3.4 | Use of new process technology and quick change-over techniques | | | | | |
| 3.5 | Close contact with customers | | | | | |
| 3.6 | Regularly conducting customer satisfaction surveys | | | | | |

### 3. Lean ManufacturingPractices

### 4. Strategic Flexibility

| S/no | 4.Strategic Flexibility: | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 4.1 | Quickly & easily respond to changes in customer demand | | | | | |
| 4.2 | Quickly & easy expansion into new regional or international market | | | | | |
| 4.3 | Quickly & easily introducing new pricing schedules in response to changes in competitors prices | | | | | |
| 4.4 | Quickly & easily react to new product launches by competitors | | | | | |
| 4.5 | Quickly & easily adopts new technologies to produce better products | | | | | |
| 4.6 | Quickly & easily switch to new supplies to avail of lower costs better quality or improved delivery time | | | | | |
| 4.7 | Major suppliers can quickly & easily respond to changing production variety | | | | | |
| 4.8 | Quickly and easily introducing new products to customer | | | | | |

## 5. Technology

| S/no | 5.Technology factors: | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 5.1 | New and advanced tools and materials for operation | | | | | |
| 5.2 | Excess skill and knowledge to handle new Technology | | | | | |
| 5.3 | Excess capital to acquire new technology | | | | | |
| 5.4 | Use computers for production scheduling | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5.5 | Improved computer aided quality control performed on final products in our firm | | | | | |
| 5.6 | Using intercompany networks in order to market and operation information | | | | | |

## 6. Innovative capacity of the firm

| S/no | 6. Innovative capacity of the firm | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 6.1 | Our organization have suitable environment for innovation | | | | | |
| 6.2 | We adopt new technologies and modify by our company to minimize our operation cost | | | | | |
| 6.3 | Our company supports and give reward to those employees how have better innovative capacity | | | | | |
| 6.4 | We have better innovative capacity for searching new source of supply and quality row material | | | | | |
| 6.5 | We use new innovation technologies from our company to improve our product quality | | | | | |

### 7. Economic factors

| S/no | 7.Economic factors | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| **7.1** | Inflation affects our operation performance | | | | | |
| **7.2** | Devaluation in currency reduced our operation performance | | | | | |
| **7.3** | Flexibility in interest rate affected our operation performance | | | | | |
| **7.4** | Business level fluctuation affected our firms operation performance | | | | | |

**8. Government regulation**

| S/no | 8.Government regulation | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| **8.1** | Reasonable Tax levied on business | | | | | |
| **8.2** | Least Costly trade registration and licensing | | | | | |
| **8.3** | Political influence in team formation, enterprise Selection | | | | | |
| **8.4** | Excess information to government regulations relevant to my business | | | | | |

## Operation performance issues (dependent variable)

Here you are kindly asked to indicate the overall operational performance of your organization in terms of five linkert scale questions for each operational performance indicator variables as Very low performance = 1; low performance = 2; medium performance = 3; High performance = 4; and Very high performance = 5

| S/no | Operation performance issues (dependent variable) | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 1 | Cost | | | | | |
| | Production of goods with standard or blow standard of operation cost | | | | | |
| 2 | Quality | | | | | |
| | 2.1. Production of goods as predefined Standards of Quality for all goods | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Flexibility | | | | | |
| | 3.1, Flexibility of production system/process to handle order pattern | | | | | |
| | 3.2. Flexibility in volume of production based on demand pattern | | | | | |
| 4 | Speed | | | | | |
| | 4.1, Fastest Deliver of products with-out dalliance | | | | | |
| 5 | Dependability | | | | | |
| | 5.1. On-time delivery of products at the time of customers need and order | | | | | |

## APPENDIX B

## Interview questions for Government officers

1. What is the name of your office? _____

2. What is your position in the organization?

_____

3. What types of incentives are given by government for micro and small manufacturing enterprises?

_____

_____

4. What are the most problems raised from the manufacturer in performing their business activities?

_____

_____

5. What possible solutions would you recommend to solve the problems?

_____

_____

# *APPENDIX:C*

Major information's related to regression mode and correlation of independent variable and dependent variable

**Case Processing Summary**

| | | N | Marginal Percentage |
|---|---|---|---|
| OP | very low performance | 6 | 3.9% |
| | low performance | 49 | 31.6% |
| | medium performance | 48 | 31.0% |
| | strong performance | 45 | 29.0% |
| | very strong performance | 7 | 4.5% |
| HRM | Very small extent | 17 | 11.0% |
| | Small extent | 52 | 33.5% |
| | medium extent | 35 | 22.6% |
| | Large extent | 33 | 21.3% |
| | Very Large Extent | 18 | 11.6% |
| BasicInfra | Very small extent | 15 | 9.7% |
| | Small extent | 42 | 27.1% |
| | medium extent | 44 | 28.4% |
| | Large extent | 30 | 19.4% |
| | Very Large Extent | 24 | 15.5% |
| FirmSize | Very small extent | 11 | 7.1% |
| | Small extent | 29 | 18.7% |
| | medium extent | 46 | 29.7% |
| | Large extent | 45 | 29.0% |
| | Very Large Extent | 24 | 15.5% |
| LMP | Very small extent | 16 | 10.3% |
| | Small extent | 32 | 20.6% |
| | medium extent | 26 | 16.8% |
| | Large extent | 45 | 29.0% |
| | Very Large Extent | 36 | 23.2% |
| Straflex | Very small extent | 20 | 12.9% |
| | Small extent | 46 | 29.7% |
| | medium extent | 36 | 23.2% |
| | Large extent | 25 | 16.1% |
| | Very Large Extent | 28 | 18.1% |
| Tchno | Very small extent | 6 | 3.9% |
| | Small extent | 42 | 27.1% |
| | medium extent | 30 | 19.4% |
| | Large extent | 38 | 24.5% |
| | Very Large Extent | 39 | 25.2% |
| Ecofact | Very small extent | 20 | 12.9% |
| | Small extent | 45 | 29.0% |
| | medium extent | 32 | 20.6% |
| | Large extent | 31 | 20.0% |
| | Very Large Extent | 27 | 17.4% |

| | | | |
|---|---|---|---|
| GovReg | Very small extent | 20 | 12.9% |
| | Small extent | 50 | 32.3% |
| | medium extent | 25 | 16.1% |
| | Large extent | 29 | 18.7% |
| | Very Large Extent | 31 | 20.0% |
| Inocapfirm | Very small extent | 13 | 8.4% |
| | Small extent | 50 | 32.3% |
| | medium extent | 37 | 23.9% |
| | Large extent | 23 | 14.8% |
| | Very Large Extent | 31 | 20.0% |
| Valid | | 155 | 100.0% |
| Missing | | 0 | |
| Total | | 155 | |

**Model Fitting Information**

| Model | -2 Log Likelihood | Chi-Square | df | Sig. |
|---|---|---|---|---|
| Intercept Only | 419.085 | | | |
| Final | 238.967 | 180.118 | 37 | .000 |

Link function: Logit.

**Goodness-of-Fit**

| | Chi-Square | df | Sig. |
|---|---|---|---|
| Pearson | 476.095 | 579 | .999 |
| Deviance | 238.967 | 579 | 1.000 |

Link function: Logit.

**Pseudo R-Square**

| | |
|---|---|
| Cox and Snell | .687 |
| Nagelkerke | .736 |
| McFadden | .430 |

**Test of Parallel Lines[a]**

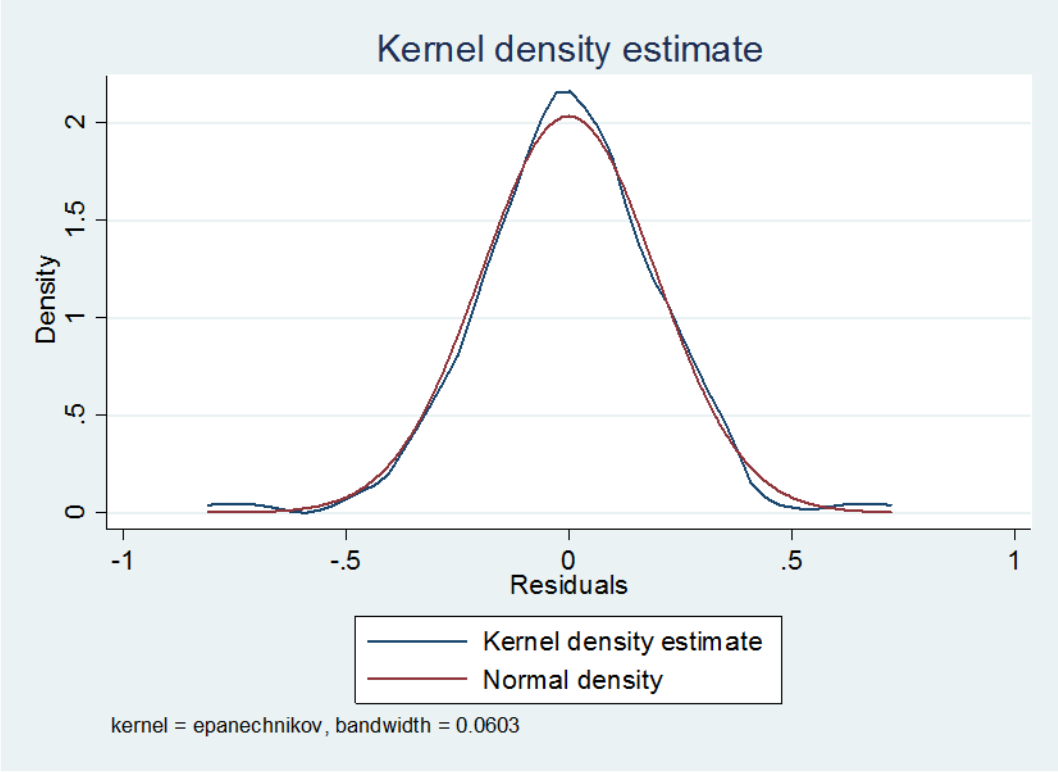
| Model | -2 Log Likelihood | Chi-Square | df | Sig. |
|---|---|---|---|---|
| Null Hypothesis | 238.967 | | | |
| General | .000[b] | 238.967 | 111 | .000 |

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value is practically zero. There may be a complete separation in the data. The maximum likelihood estimates do not exist.

Normality test by kernel density estimate


Kernel density estimate
Density
0
.5
1
1.5
2
-1
-.5
0
.5
1
Residuals
Kernel density estimate
Normal density
kernel = epanechnikov, bandwidth = 0.0603