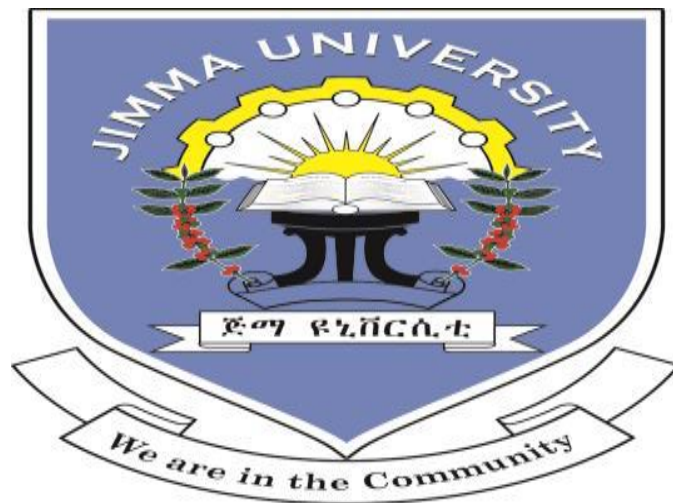


***Factors affecting effectiveness of inventory management
practice: In Jimma university***

*A Thesis Submitted to The School of Graduate Studies of Jimma University in
Partial Fulfillment of the Requirements for The Award of the Degree in Master of
logistics transport management (LLTM)*

BY:

HAILE MICHALE BOGALE



LLTM Program, Department of Management, College of Business and Economics,

Jimma University, Jimma, Ethiopia

SEP, 2018

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SEP, 2018**

DECLARATION

I declare that the thesis entitled: “factor affecting effectiveness of inventory management practice: in jimma university” submitted to research and postgraduate studies’ office of Business and Economics collage is original and it has been not submitted previously in part or full to any university or other funding organizations.

Researcher’s Name

Date

Signature

CERTIFICATE

We certify that the thesis entitled “factors affecting effectiveness of inventory management practice: in jimma university” was done by Haile Michael bogale for the partial fulfillment of Master’s Degree under our supervision.

Workineh bayisa (Dr.)	_____	_____
Main Advisor	Signature	Date
Gadisea Amensisa (Ms.)	_____	_____
Co-Advisor	Signature	Date

Approval sheet of thesis

As members of the Examining Board of the Final Open Defense, we certify that we have read and evaluated the thesis prepared by Haile Michael bogale, factors affecting effectiveness of inventory management practice” in jimma university, and recommend that it be accepted as fulfilling the thesis requirements for the award of the degree in logistics transport management.

----- Name of Chairman	----- Signature	----- Date
----- Name of Internal Examiner	----- Signature	----- Date
----- Name of External Examiner	----- Signature	----- Date

Abstract

An effective inventory management improves the firm's total performance through matching inventory management practices and a competitive advantage especially now that most organizations operates in a more competitive industries or sectors all over the world. So the main purpose of this study was to identify factors affecting the effectiveness of inventory management practice in the study area. Based on personal observation and different literature identified factors were: age, sex, educational background, service year, qualified staff, funds, information technology and documentation. Primary and secondary sources were used to collect both qualitative and quantitative data. Survey consists of structured questionnaire, key informant interview was carried out to achieve the research objectives. The target population of this study were 85 employees of in Jimma University. The researcher used census sampling technique because Census is a process of collecting data by distributing questionnaire to all population in the study area. The collected data was analyzed via SPSS version (20). In addition, descriptive and inferential statistical tools such as mean, percentage, frequency, normality test, correlation and multiple regressions were used to analyze the collected data from questionnaires. To test the reliability, Cronbach's alpha coefficients were calculated. The analysis result implies that effective inventory management practice has large positive correlation with qualified staff, funding and information technology documentation. Besides, the finding of this study shows that regression analysis funding had relatively strongly significant and direct effect on effectiveness of inventory management with beta value of 0.333 and followed by qualified staff with beta value of 0.262, information technology with beta value of 0.190 and documentation with beta value of 0.164 respectively. Therefore, it's recommended that the documentation system of the study area needs improvements of the manual documentation systems through by automating system.

Key Words: effective inventory management, qualified staff, funds, information technology, documentations.

ACKNOWLEDGMENTS

First and for most, I must sincerely and humbly give thanks to the Almighty God for His grace that has been sufficient to me throughout this journey

My greatest thanks and heartfelt appreciation goes to my main advisor Workineh bayisa (PhD) and Co adviser Ms. Gadise Amensis for their guidance, precious comments, and their support during in my theses proposal work. Without their encouragement, insight, guidance, and professional expertise, the completion of this work will not be possible.

My deepest appreciation and heartfelt thanks go to my family especially my mother, for her unreserved moral supports in the whole course of the study and to my beautiful brothers the most precise gifts of my life. I do not have words for their love, support, encouragement, and patience.

Finally, my special thanks go to all my colleagues, friends and relatives for the generous support and contribution of by leasing the researcher to discuss and sharing idea.

Table of Content

Declaration.....	II
Certificate.....	III
Approval Sheet Of Thesis.....	IV
Abstract.....	V
Acknowledgments	VI
Table of content.....	VII
List Of Tables	X
List Of Figures	XI
Abbreviations And Acronyms	XII
Chapter One	1
Introduction.....	1
1.1 Background Of The Study	1
1.2 Statement Of The Problem	3
1.3. Basic Research Questions	5
1.4. Objectives Of The Study.....	6
1.4.1 General Objective	6
1.4.2 The Specific Objectives.....	6
1.5. Significance Of The Study.....	6
1.6. Scope Of The Study.....	7
1.7organization Of The Study.....	7
1.8 Operational Definition Of Terms	7
CHAPTER TWO	9
Literature Review	9
2. Introduction.....	9
2.1 Theoretical Framework.....	9
2.1.1 Definition Of Inventory	9
2.1.2 Inventory Management.....	9
2.1.3 Types Of Inventory.....	10
2.1.4 Functions Of Inventories	11
2.1.5 Objectives Of Inventory Management	12
2.1.6 Inventory Management Practices	12
2.17 The Benefits Of Inventory Management	13

2.1.8 Effective Inventory Management	14
2.1.9 Factors That Affecting On Inventory Management Practice.....	15
2.2. Empirical Review	18
2.2.1 Summary Of The Literature Review	22
2.3 conceptual Framework Of The Study	23
CHAPTER THREE	25
Research Methodology	25
3 Introduction.....	25
3.1 Research Design	25
3.2. Types And Sources Of Data	25
3.3 Target Population:.....	26
3.4. Data Collection Instruments And Procedure	27
3.5 Reliability Of The Instrument.....	27
3.6 Method Of Data Analysis	28
3.6.1 Descriptive Statistics	28
3.6.2 Inferential Statistics	29
3.7 Model Specification	29
3.8 Description Of Study Variables	30
3.9 Ethical Consideration.....	31
CHAPTER FOUR.....	32
Results And Discussion	32
4. Introduction.....	32
4.1 Response Rate Of Respondents.....	32
4.2 Demographic Information Of The Respondents.....	33
4.3 Description Of Factors Affecting Effectiveness Of Inventory Management Practice	34
4.5 Multiple Linear Regression Assumptions.....	48
4.5.1 multicollinearity Test Between Independent Variables.....	49
4.5.2 Normality Test.....	49
4.5.3 Linearity Test.....	50
4.5.4 Heteroscedasticity Test.....	51
4.6 The Effect Of Independent Variables On Effective Inventory Management	53
4.7 Discussion Of The Finding/Model Interpretation.....	55
CHAPTER FIVE	58
5. Summary Of Findings, Conclusions And Recommendations	58

5.1 Summary Of Major Findings	58
5.2 Conclusion	60
5.3 Recommendations.....	61
5.4 Limitation Of The Study.....	61
5.5 Future Research Direction	62
Reference.....	62
Appendix.....	66

LIST OF TABLES

Table 1: Target populations of study.....	26
Table 2: Final reliability test results.....	28
Table 3: Response rate of respondents.....	32
Table 4: Demographic information of the respondents	33
Table 5: Mean score measurement basis	35
Table6: Descriptive Analysis of Qualified staff.....	36
Table7: Descriptive Analysis of Funding.....	38
Table 8: Descriptive Analysis of information technology.....	40
Table 9 Descriptive Analysis of documentation.....	42
Table10: Descriptive Analysis of the overall effectiveness of inventory management.....	44
Table 11: Pearson’s correlation coefficient matrix.....	46
Table 12: Multicollinearity statistics.....	48
Table 13: Model Summary.....	52
Table 14: ANOVA.....	53
Table 15: Coefficient	53

List of figures

Figure 1. conceptual framework	23
Figure 2 Normal distribution Histogram results.....	48
Figure 3: p-p plot; Linearity test results.....	59
Figure 4: Scatterplot Heteroscedasticity test result.....	50

ABBREVIATIONS AND ACRONYMS

EOQ-Economic order quantity

EDI -Electronic Data Interchange

EPOS - Electronic Point of Sale

FRQCY - Frequency

ICT -Information communication technology

NGOs-None governmental organization

PPMS-procurement property management system

ROA - return on assets

SPSS-Statistical Package for social Sciences

WIP -Work-in progress

VIF -Variance inflation factors

CHAPTER ONE

INTRODUCTION

This chapter consists of Background to the study, Statement of the problem, Research questions, General and specific objective of the study, significance of the study, Scope of the study, structure of the thesis, and Operational Definition of Terms.

1.1 Background of the Study

In the world today, every organization wants not only to mitigate the system wide cost, but also to maintain minimum inventories along the supply chain while maximizing the service level requirements of the customer (Sandeep, 2007). This however cannot be achieved without modern technologies. The advancement of technology and innovation has shortened the product life cycle and thus improved inventory management systems of firms. Stock or Inventory constitutes a substantial proportion of the current asset group. It represents investments made for obtaining a return (Duru, Oleka Okpe, 2014). Inadequate inventory has an adverse potential effect on the smooth running of the business, while excess inventory involves extra cost, which can reduce the firm's profits (Panigrahi, 2013). Excessive stock is not desirable for longer periods because high inventory levels increase carrying cost and as inventory is increases; the profitability decreases (Priyank& Hemant, 2015). Hence, a suitable inventory control strategy will help in ensuring that the firms always keep an optimal amount of assets.

Brigham and Gapenski (2013) argue that inventory management is important because firms will ensure assets and stock are well managed and accurate demand forecasting is maintained to avoid unplanned procurement processes. This will assist the firm in executing successful procurement processes that match demand and supply forces.

An effective inventory management improves the firm's total performance through matching inventory management practices and a competitive advantage especially now that most organizations operates in a more competitive industries or sectors all over the world (Mahidin et al., 2015).

Wisner and Leong (2011) define inventory management as the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process usually involves

controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy.

Agus and Noor (2010) proper inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of goods included and the tax burden generated by the cumulative value of the inventory. Inventory management practices are activities and functions used by organizations to manage stocks of finished products, semi-finished products and raw materials.

Dryden et al. (2012) argue that inventory management involves keeping accurate records of finished goods that are ready for shipment. This often means posting the production of newly completed goods to the inventory totals as well as subtracting the most recent shipments of finished goods to buyers. The relevance of inventory management practices is that they make it possible to quickly convey information to sales personnel as to what is available and ready for shipment at any given time the problem of inventory has continued to receive much attention in most businesses. Inventory levels of raw materials, semi-finished and finished goods need to be effectively managed to control the cost of inventory (Kotler, 2002). It is common to find the balance sheet of an average company having inventory running to 60% of its current assets as capital tied down (Pandey, 2005).

Historically, inventory management globally has often meant too much inventory and too little management or too little inventory and too much management. There can be severe penalties for excesses in either direction. Inventory problems have proliferated as technological progress has increased the organization's ability to produce good in greater quantities, faster and with multiple design variations. The public has co pounded the problem by its receptiveness to variations and frequent design changes (Tersine, 1982).

Since the mid1980s the strategic benefits of inventory management and production planning and scheduling have become obvious. The business press has highlighted the success of Japanese, European, North American firms in achieving unparalleled effectiveness and efficiency in manufacturing and distribution. In recent years, many of the firms have 'raised the bar', yet again by coordinating with other firms in their supply chains. For instance, instead of responding to unknown and variable demand, they share information so that the variability of the demand they observe is significantly lower (Silver, PykeandPeterson, 1998). Inventory management practice in Jimma University in the success of any business relies on many factors, one of which is a

reliable inventory management system. Inventory management system provides information to efficiently manage the flow of materials, effectively utilize people and equipment, coordinate internal activities and communicate with customers. Inventory managers do not make decisions but provide the information to operation managers who make more accurate and timely decisions to manage their operations. Inventories were common to University, agriculture, manufacturing, wholesalers, hospitals, churches, prisons, electric supply companies, governments etc. This indicates how inventories and their management were important and deserve a serious attention in order to achieve organizational objective. There are also other constraints in areas of factors affecting effectiveness of inventory management practice, information, and aspects which include high inventory related to qualified man power, of poor stock record , of top management supports, information technology, budget earmarked for procurement, government policy, overstock, under stock, poor documentation, uncertainty of customer demands, Long supplier Leads times,(EOQ), long bureaucratic procurement procedure, and inaccurate procurement needs estimation. The research was conducted on the factors affecting effectiveness of inventory management practice in Jimma University.

The research provides academic knowledge of conducting research and to give solutions for the university affecting inventory management of the Jimma University. Most studies show that in the campus constitutes the major category of assets on the balance sheet. For instance, instead of responding to unknown and variable demand, they share information so that the variability of the demand they observe is significantly lower. Thus study was aimed to determine factors affecting effectiveness of inventory management practice in Jimma University.

1.2 Statement of the Problem

Inventories constitute the most significant part of current asset of large majority of organization. Because of that, a considerable amount of fund is committed in it by organizations. Therefore, it is of great importance to manage inventories efficiently and effectively so as to avoid unnecessary tying up of capital. Inventory management practices involve the active participation of various departments such as purchasing, production, sales and finance department. Inventory level should not be left to hence; it should be carefully planned. (David Jessop and Alex Morrison, 1994).

According to Drury (2004) inventory costs include holding costs, ordering costs and shortage costs. Holding costs relate to costs of having physical items in stock. These include insurance, obsolescence and opportunity costs associated with having funds which could be elsewhere but are tied up in inventory. Selecting the right level of inventory involves balancing three groups of costs namely, ordering cost which takes into consideration the costs involved in the process of ordering materials such as - costs of placing an order and receiving inventory, determining how much is needed, preparing invoices, transport costs and the cost of inspecting goods; carrying cost which is the cost involved in the transfer of ordered materials from the supplier to the recipients warehouse; and the cost of not carrying sufficient inventory which constitutes resultant costs of not performing adequate inventory in the organization such as shortage costs which result when demand exceeds the supply of inventory on hand. The costs include opportunity costs of making a sale, loss of customer goodwill, late charges and similar costs. Conceptually, the right level of inventory to carry is the level that will minimize these three groups of costs.

Bozarth and hand field (2007), inventory is such a critical resource in many organizations and efforts must be made to devote tools and techniques to manage it. In service providing industries including the New Edubiase Hospital, the desire is to implement the right policies and procedures that will best determine and regulate production schedules to establish requirements, parts, and materials needed to support service delivery and improve upon efficiency.

Jimma University is criticized by the stakeholder. There have been a lot of complaints from the stakeholder qualified man power, allocation of budget, information technology overstock, under stock, poor store management, uncertainty of customer demands, Long supplier Leads times, long bureaucratic procurement procedure,

Thus; the focus of this study is examining effectiveness of inventory management practice and factors such as qualified staff, funds, information technology and documentation.

Moreover, most literature was referred on assessments and efficiency rather than effectiveness of inventory management though they have common characteristics. Hence for this study those assessments and efficiency were reviewed more as they affect also effectiveness of inventory management practice. When the researcher see the gap of the literature researcher tries to see the studies that the other researcher have not seen those are: previous studies conducted; at national, at regional level, but not at grass root level, factors affecting effectiveness of inventory management practice at grass root level or district level may vary from area to area from

University to university. The other Concentration; earlier researchers were conducted on addressing specific factors that influence inventory management practice and performance of public hospital, and assessment of inventory management and competitive advantage in modern retail firms. But, this study tries to include factors affecting effectiveness of inventory management practice which is different in title from the other studies. The previous research done on an Assessment of the Factors Influencing Effectiveness of Inventory Control; Ministry of State for Provincial Administration and Internal Security Nairobi Kenya (Kariuki James Ng'ang'a2013), by using only qualitative approach but, in this study the researcher employed both qualitative and quantitative approach. The other is the previous researchers were focused only on factors influence efficiency of inventory management and assessment of inventory management practice but factors affecting effectiveness of inventory management practice was not studied even though with the same factors and also, they does not show which factors strongly influence among those factors, but this research prioritize among the factors those factors affecting effectiveness of inventory management practice strongly. As far as the researcher knowledge is concerned, there is no research conducted in the study area on the crucial issue of factors affecting effectiveness of inventory management practice among these root level functionaries. It is with this in mind that the study has been planned to fill the gap. Therefore, this research aims to find out factors affecting effectiveness of inventory management practice in JimmaUniversity. This study sought to fill this research gap by measuring factors affecting effectiveness of inventory management practice of Jimma University.

1.3. Basic Research Questions

- What is the effect of qualified staff on effective inventory management practice?
- How does funding affect effective inventory management practice?
- What is the effect of information technology on inventory management practice?
- How does documentation affect effective inventory management practice?

1.4. Objectives of the Study

1.4.1 General objective

The general objective of the study was to investigate the factors affecting effectiveness of inventory management practice of Jimma University.

1.4.2 The specific objectives

- To measure the effect of qualified staff on effective inventory management practice.
- To find out how funding affect effective inventory management practice.
- To determine the effect of information technology on effective inventory management practice
- To find out how documentation affect effective inventory management practice

1.5 Significance of the Study

I hope that the finding of this study was both theoretical and practical implications for the future study effectiveness of inventory management practices in the country. Theoretically, the study is expected to contribute to the improvement of knowledge about factors that affects effectiveness of inventory management practice in the case of Jimma University. It's also serving as stepping stone for the future researchers.

The implication of this study was benefit inventory managements that it helps to improve factors that affect their representation in effectiveness of inventory management practices and by suggesting how to overcome it.

It was a reference for many policy makers, researchers, students, NGOs and even other people who have close interest on the subject matter; Researchers on the subject matter will also refer this study as a literature review.

Finally, the study will add new knowledge to the existing literature on factors affecting effectiveness of inventory management practice. It will enable scholars and policy-makers to design more progressive procurement manager and policies aimed at ensuring to inventory managements.

1.6 Scope of the Study

The research mainly concentrates on the discussion relating to the factors affecting effectiveness of inventory management practice in the case of Jimma University. Considerable that several factors cause for low representation inventory management practices, however the researcher has chosen focus only on how qualified staff, funds, information technology and documentation for low representation of inventory management practices. It does not include other variables beyond the qualified staff funding, information technology and documentation, factors such as over stock, under stock longer supplier lead time, long bureaucratic procedure factors which are not be explored.

The study was conducted at only in Jimma University. Methodologically; this study was conducted based on census survey research. The study was based on cross-section time based in which data was collected between less than one-year time bounded.

1.7 Organization of the study

The thesis was organized into five chapters. First chapter is introduction. Second chapter contains a review of the literature with regard factors affecting effectiveness of inventory management practice. The research design and methodology is presented in third chapter. Next chapter presents data presentation, discussion and interpretation the results of the different methods used. Specifically, the results of surveys with questionnaires, interviews, and documentary analysis, are presented in this chapter. Finally, chapter 5 presents summary, conclusion and recommendations including areas where further may be productive.

1.8 Operational Definition of Terms

Effective inventory management: defined Effective inventory management practice for this study is defined as the ability to receive inventories with shorter lead time, using computerized record system, optimum utilization of inventories, utilization of storage capacity, and location of store and minimum carrying cost of inventories (Al-Khalil et.al, 2004).

Qualified staff: is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions (Baily and Farmer, 1982).

funding: According to Dobler and Burt (2006), Funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period.

Information technology: Information technology is a driving force of any firm as announced and Computers are the key tools of ICT which aids in stock control by ensuring that user requirements are satisfied through computation of the perfect number of stock to dispatch and stock to hold. (Carter and Price 2010).

Documentation: stock record system is the means of capturing and storing information and a facility for the analysis and use of this information so that the operation of the stores function and the control of stock can be performed in an efficient manner.

CHAPTER TWO

LITERATURE REVIEW

2. Introduction

This chapter contracts with concepts and theories that are applicable to the issues in this study. The chapter stretches an impression of Theoretical, Empirical literature and Conceptual Framework of the study that is linked to the research problem obtained in the previous chapter.

2.1 Theoretical Framework

2.1.1 Definition of inventory

Lysons and Gillingham (2003) defined Inventory as an American accounting term for the value or quantity of raw materials, components, assemblies, consumables, work-in progress and finished stock that are kept or stored for use as need arises.

(Coyle et al., 2003) defines Inventory as raw materials, work-in-progress, finished goods and supplies required for creation of a company's goods and services. The number of units and/or value of the stock of goods a company hold.

Rick (1998) defines Inventory as piles of money on the shelf and profit for the company or organization. Pandey (2005) added that inventories are classified as current assets because typically they will be sold within the year or during a firm's normal operating cycle if it should be longer than a year for retailing firms, inventories are often the largest and most valuable current assets.

The relevance of these theories to the study is that Inventory is to be seen as the largest investment in assets and represents one of the primary sources of revenue generation and subsequent earnings for an organization, therefore it has to be efficiently and effectively managed to reduce cost and increase profitability in the organization.

2.1.2 Inventory management

Effective inventory management is essential in the operation of any business (Hakansson and Persson, 2004) identifies three different trends in the development of logistics solutions within industry, one trend is concerned with the increased integration of logistics activities beyond

organization boundaries with an aim to reduce cost items such as capital costs for inventory and handling costs of flows.

Inventory as an asset on the balance sheet of companies has taken on increased importance because many companies are applying the strategy of reducing their investment in fixed assets, like plants, warehouses, equipment and machinery, and so on, which even highlights the significance of reducing inventory. Changes in inventory levels affect return on assets (ROA), which is an important financial parameter from an internal and external perspective. Reducing inventory usually improves ROA, and vice versa if inventory goes up without offsetting increases in revenue (Coyle et al., 2003).

2.1.3 Types of Inventory

Inventory varies in various organizations but the most common stock is stock of raw materials, work in progress, finished goods and inventory in supplies such as stationery and fuel.

According to Kakuku (2007), raw materials inventories are those inputs from suppliers that have not yet entered the manufacturing or transformation process. Those inventories are essential in helping a firm/ organization to overcome problems faced by purchasing departments. Suppliers often fail to deliver expected inputs to their internal inefficiencies. The business itself may fail to acquire inputs in time because its procurement function is sluggish and inefficient. Sometimes, the problems may be due to environmental factors well beyond the suppliers and the business itself. If there were no inventories of raw materials, any disruption in supply would be automatically passed on to operations functions. Operations would stall, as there would be no inputs to transform.

According to Pandey (2002), work in progress (WIP) is products that have been partially finished. These are semi-finished products at various stages of production and these inventories provide a link between input and output stages. They represent products that need more work before they become finished products.

Finished goods are completed products, which are ready for sale. They link production to marketing or consumption for unanticipated failure in production and also meet unpredictable variables in customer demand (Pandey, 2002). Finished goods inventory allows the firm flexibility in its production scheduling and in its marketing (Van Horne 2002)

According to Stock and Lambert (2001), said that inventories can be categorized into six distinct forms that are: Cycle stock is inventory that results from the replenishment process and is required in order to meet demand under conditions of certainty, that is, when the firm can predict demand and replenishment times (lead times) almost perfectly: In-transit inventories. In-transit are items that are enroute from one location to another. They may be considered part of cycle stock even though they are not available for sale and /or shipment until after they arrive at the destination: Speculation stock. Speculation stock is inventory held for reasons other than satisfying current demand. For example, materials may be purchased in volumes larger than necessary in order to receive quantity discounts, because of a forecasted price increase or materials shortage, or to protect against the possibility of a strike: Seasonal stock. Seasonal stock is a form of speculative stock that involves the accumulated of inventory before a season begins in order to maintain a stable labor force and stable production runs or, in the case of agricultural products, inventory accumulated as the result of a growing season that limits availability throughout the year: Dead stock is inventory that no one wants, at least immediately. The question is why any organization would incur the costs associated with holding these items rather than simply disposing of them. One reason might be that management expects demand to resume at some point in the future. Alternatively, it may cost more to get rid of an item than it does to keep it. But the most compelling reason for maintaining these goods is customer service for good service delivery toward an organization. Perhaps an important buyer has an occasional need for some of these items, so management keeps them on hand as a goodwill gesture.

2.1.4 Functions of inventories

Organizations hold inventories for a variety of reasons. According to Stevenson (1989) among the most important reasons, some of them are the following: -

- I.** To meet anticipated demand: when standard products are involved, organizations keep inventories in order to respond quickly to customer demand.
- ii.** To be able to buy or produce in 'economic' lot sizes: organizations typically buy more than is currently needed because there are usually certain economies involved.
- iii.** To separate various stages of operations: unexpected variations in supply or demand rates, equipment breakdowns and human error can create confusion with unless a certain amount of 'buffer' stock is maintained between stages.

iv. To maintain flexibility in scheduling: costs and complexities related to scheduling personnel and equipment sometimes make it desirable to produce on time and in quantities that do not directly correspond to current demand.

v. To safe guard against stock out: in many instance, demand rates and delivery times are subject to variability.

vi. To display items: most retail establishments benefit from displaying their goods because this allows customers to examine and compare the items.

vii. To allow for pipe line goods: after goods are produced, they are usually stored at least temporarily before being loaded on to trucks or trains for shipment to distributor, store, and so on. These goods in-transit are one form of inventory (Stevenson, 1989).

2.1.5 Objectives of Inventory Management

In general, the objective of inventory management is to minimize possible shortages and the total cost of carrying, restocking and purchasing inventories. More often, these costs are computed for one year. Thus, the goal is to minimize total annual cost, where:

Total Annual AnnualAnnualAnnual

$$\text{Annual cost} = \text{Holding cost} + \text{Replenishment cost} + \text{Purchase cost} + \text{Shortage cost}$$

As it turns out, not all of these costs pertain to every situation. In fact, as a general rule, usually only two/three of these costs are involved. This stems from a variety of reasons. For example, if quantity discounts are not a factor, purchase price is independent of order size, and order size decisions need not involve unit price. Likewise, shortages may be avoidable in certain cases, making it unnecessary to include that component in the decision. At other times, management will opt for a specified customer service level, thereby avoiding the issue of directly including the shortage cost in an analysis (William & Stevenson; 1989).

2.1.6 Inventory Management Practices

Inventory management practices can be defined as an activity that organizes the availability of goods to the customers from sales items to consumables and spare parts. A balancing act that enables operations to have long runs of operation for better efficiency and ensuring high inventory are ready for sale, purchasing long run orders for better efficiency and balancing act of working capital and cash flow. Inventory management practices helps businesses to optimize

their stock levels, a critical aspect for any organization trying to adapt to ever-changing consumer's demands. These practices enabled companies that adopted to succeed to boost their operational efficiency, offering their customers exactly what they need, when they need it. (Rafael Mayol, 2013)

Ogbadu, (2009) stated that for a reduction in depreciation, pilferage and wastages in inventory, sensible and wise management of inventory is key while ensuring availability of the materials as and when required. This was further shown by the researchers Lwika et al., (2013) who emphasized that for maximization of profits and survival of a business, which are the fundamental objectives for every firm, systematic and that being the case, specific performance indicators have been proved to depend on the level of inventory management practices.

The independent variables are the variables which have their impact or influence on the dependent variable. They help to ascertain the amount of variation that happens in the dependent variable Kothari, (1992). The value of the dependent variable depends on the independent variables. The independent variables will include: related qualified man power, documenting, information technology, funds. The dependent variable is effective inventory management. The relationship between independent variables and the dependent variable is of profound importance as it will clearly stipulate the factors affecting effectiveness of inventory management practice in the case of Jimma University.

2.17 The Benefits of Inventory Management

Inventory management increases profitability- Forecasting, controlling and managing inventory increases productivity, while reducing costs, resulting in greater profitability. Accuracy improvements & time savings, in addition to the reduction of fixing costly mistakes, can result in considerable cost savings across an organization. Inventory management improves decision-making Rapid, accurate data collection enables access to real-time business intelligence across all areas of your company Issue, event and project management tracking integrated with an inventory management system enables all associates to proactively identify & solve business issues. It increases customer satisfaction Responding to trends, seasonality, promotions & changing marketing conditions results in having the right products in stock for customers Properly identified products available to load enables customers to order & receive the correct Commodity Quickly Customer service tools integrated within an inventory management equips

the entire company to deliver consistent, personalized care for your customers. (PoulH.Zipkin, 2000).

Inventory management helps businesses to be successful. It is a crucial part of any business success.

1. Inventory Balance: Good inventory management helps you to figure out exactly how much inventory you have. This makes it easier to prevent product shortages and keep just enough inventories on hand without having too much.

2. Accurate Planning: Using smart inventory management, you can stay ahead of the demand curve, keep the right amount of products on hand and plan ahead for seasonal changes. This goes back to keeping your customers happy all year long.

3.Employee Efficiency: You can empower your employees to help you manage inventory. Training employees to use barcode scanners, inventory management software and other tools helps them make better use of their time and it helps your business make better use of its resources, both human and technological.

4. Inventory Tracking: If you have multiple locations, then inventory management becomes even more important because you need to coordinate your supplies at each location depending on differences in demand and other factors.

5. Time Saving: Inventory management is a great time-saving tool. By keeping track of all the products you have on hand; you can save yourself the hassle of doing inventory recounts to make sure your records are accurate. This once again requires inventory management software. (PanosKouvelis,2002).

2.1.8 Effective inventory management

According to Myowela and Alemanta (2011), effectiveness can be referred to doing more than before with the same resources as now (or less) which measures the impact that has been achieved that can be expressed either quantitatively or qualitatively. Effectiveness is the degree to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs and, whereas efficiency means “doing the thing right”, effectiveness means “doing the right thing”.

The ability to identify and do certain things in a special way that will contribute positively to the organization can be views as being effective. According to Dumas (2008), Redshaw (2010) being effective in terms of organizational set up can be viewed by effective internal processes of

an organization. Therefore, the degree to which target can be achieved by an organization is defined as being effective. The primary goals of organizational inventory management are to increase organizational effectiveness and efficiency to improve the ability of the organization to deliver goods and or services (Ronald, H 2005).

Effectiveness can also be defined as "the ability to identify and do the things that contribute to the organization". According to Redshaw (2010), organizational effectiveness can be defined in terms of the effectiveness of the internal processes of an organization. Consequently, effectiveness can also be defined as the degree to which targets are achieved within an organization (Al-Khalil et.al, 2004). Effective inventory management practice for this study is defined as the ability to receive inventories with shorter lead time, using computerized record system, optimum utilization of inventories, utilization of storage capacity, and location of store and minimum carrying cost of inventories.

2.1.9 Factors that affecting on inventory management practices

2.1.9.1 Knowledge and Skills possessed by staff

Stock management is no longer considered a clerical function performed independently by untrained individuals within a governmental agency (National Institute of Governmental Purchasing, 2001). Qualified staff that is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions. For an organization to succeed, qualification is therefore a pre-requisite and must be matched with job requirement, hence the need to hire and develop ambitious personnel. If staff involved in stock management is not qualified and competent, then there will be ineffectiveness in inventory management.

Bailey and Farmer (1982) says that for Stock control function to achieve a superior performance, it's necessary to recruit, train and develop personnel with the capacity and motivation to do better job.

Carter and price (1993) indicate that training of staff is vital if full use is to be made of their abilities and talents. Coe (1989) says that it's important to ensure that sufficient number of the appropriate caliber is available to the organization in pursuit of its objectives. Incompetent employees can render stock control virtually ineffective.

Lyson and Gillingham (2003) define training as a planned process to modify attitudes, knowledge or skill behavior through learning experience to achieve effective performance in an

activity or range of activities. Its purpose in the work situation is to develop the abilities of the individual and to satisfy the current and future human resource needs of the organization. The author further says that employees may be trained internally on the job or externally in a college offering supply chain management courses.

2.1.9.2 Funding

With enough funds the organization can run its activities efficiently and effectively while with inadequate funds an organization may have difficulties in running its activities (Carter & Price, 1993).

According to Dobler and Burt (2006), Funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period.

According to Burton (1981), other factors that may affect allocated funds include the variability in user demand patterns and frequent price variations. The stature of financial management in the organization can affect adversely its effectiveness and in the finance resource application in various activities. The 2005/2006 government financial settlement meant that many government institutions were forced to make substantial cuts in their services. Staffing levels have also been affected and many government institutions have had to make staffing cuts. Although this has meant that redundancies have been made, many authorities have chosen to leave positions vacant rather than choose this option. The loss of staff has resulted in the loss of specialist staffs with most institution employing clerks, and this has affected the individual services.

2.1.9.3 Information Communication Technology (ICT)

Information communication technology is a driving force of any firm as announced by Carter and Price (2010). To thrive in his day-to-day work, an Inventory manager requires 15 information communication technology. Computers are the key tools of ICT which aids in stock control by ensuring that user requirements are satisfied through computation of the perfect number of stock to dispatch and stock to hold. This is achieved by computer through comparing inventory variables (stock levels, demand and delivery dates). One of the systems that permits direct communication among firms without there being any human intervention is the Electronic Data Interchange (EDI).

All the firm's movements are properly coordinated by ensuring the supplier's and customer's computers as they cross-examine one another similar information, production plans and stock

levels. Due to swift and speed communication, the firm attains reduction in lead times, paperwork, staff costs and higher information accuracy. Another technology used in inventory management is Electronic Point of Sale (EPOS) whose main objective is to obtain information concerning goods sold through scanning. Also EPOS system has various activities that it conducts; sends out intra- and inter- stores messages, verifies checks, charges transactions and provides instant sales reports. This allows information to buyers, risk of obsolescence is reduced as well as theft cases and stock deterioration and that not only steer to boost customer service and therefore raise financial performance of a firm Lysons, (2012).

2.1.9.4 documentation / Stock Record Practice

Inventory accuracy defines how well the inventory records, specifically the quantities on hand, match the actual quantities in the storeroom. Accurate records are a prerequisite to effective inventory management. Susan & Michael (2000) accuracy of inventory records is necessary to provide satisfactory customer service, determine replenishment of individual items; ensure that material availability meets repair or project demand, analyze inventory levels and dispose of excess inventory.

Bailey and Farmer (1982) argue that stock recording are expected to maintain particulars of receipt, issues and balances remaining in stock for each individual item held in the storehouse daily.

Baily and Farmer (1982) argue that transactions must be posted promptly and correctly to the records if they are to provide accurate up-to-date information which the stock controller needs. If left pending for long, transactions can easily be forgotten and the objective of maintaining stock records will not be met because stock records will be indicating balances that are not real and hence the records will not be reliable. Therefore, maintaining accurate and up-to-date information of stock recording is one of the crucial tasks of warehouse personnel.

According to Carter and Price (1993), receipt of goods must be strictly controlled to ensure efficient stores management. Contributing to the function of receipt and inspection of goods, Jessop and Morrison (1994) agree that goods supplied to an organization must be properly looked after. Normally, a certain process of stores recording is followed, which in its natural course forms the basis of stores accounting system.

Jessop and Morrison (1994) argue items in stock represent money and therefore should not be misappropriated, wasted or improperly used. Storekeepers should have full details of the name,

designation and specimen signatures of all persons empowered to approve issue notes. Further, issue documents should contain the description and stores code number entered by the user who prepares the document in the first place.

According to Carter and Price (1993) specialized control documents have been developed to enable the issue of stock to be successfully monitored and controlled. It is important to ensure that all stock records are updated and that an accurate picture of the total stock situation can be maintained to ensure sufficient supplies of all materials.

Stock control as described by Jessop and Morrison (1994) is the operation of continuously arranging flows of materials so that stock balances are adequate to support the current rate of consumption, with due regard to economy. Stock control documentation therefore is the capture of data relating to stock balances, dues in, dues out, consumption record, forecast requirement, lead-time and economic order quantities (EOQ).

Jessop and Morrison (1994) argue stock records are important when estimating future consumption because past performance acts as a guide. Carter and Price (1993) argue that stock records and control are two sections of stores management that have to work very closely together because stock records provide statistical information.

Susan & Michael (2000) argue that stock records provide the management with the information which is used to ensure accountability through stocktaking and stock audit exercise. Jessop and Morrison (1994) argue that records can be posted manually but, where the volume and complexity of the documents handled is of major proportion mechanical methods are often to be more effective. Manual posting is comparatively slow, there is high risk of filling the wrong detail, and it can be easily misplaced or lost due to multiple handling as compared to computer posting system.

2.2. Empirical Review

Kariuki James Ng'ang'a (2013) an assessment of the factors influencing effectiveness of inventory control; Ministry of State for Provincial Administration and Internal Security; Nairobi. The key findings from the study revealed that: delays in procurement of goods, frequent stock-outs and uncertain change of prices were some of the effects of long bureaucratic procurement procedure. According to the study inadequate and untimely dispatch of funds has an effect in inventory control. The study also revealed that unavailability of stationeries/stores records, lack

of specific time or date for both posting stores records, lack of adequate qualified and well trained staff hinders effective performance. The researcher recommends that too much red tape and rigid rules and policies should be avoided; current inventory control practices and procedure need to be reviewed and redesigned.

SWALEH, Lucy Anisa (2014) the study used the National Aids Control Council (NACC) as its case study. The specific research objectives of the study were to investigate the effect of resource availability on effective implementation of inventory management systems in organizations, to determine the effect of technology on effective implementation of inventory management system in organizations, to investigate the effect of the government on effective implementation of inventory management system in organizations and to investigate the influence of top management support on effective implementation of inventory management system in organizations. The research study used descriptive in research design and further employed qualitative and quantitative research approaches. Semi-structured questionnaires and structured interviews were used as the instruments of data collection. The responses of the respondents were analyzed using qualitative and quantitative techniques. The study established that the organization lacked adequate financial resources to implement inventory management systems. The study established that Technology use has led to optimization of production. The study established that Public procurement policy has simplified the implementation of inventory management system in NACC. The study established that Top management officials have a positive direct effect on inventory management system usage.

ASTER MAMO (2016) This study examines the effectiveness of inventory management (A case study of Ethiopian Roads Authority) and interprets the result by relating with different experiences taken from previous studies, books manuals and different websites. Descriptive study design and purposive sampling technique. The collected data were analyzed quantitatively and qualitatively. The key findings from the study revealed that several surpluses scrape inventories are existing in the ware house and around store yard for many years, less modern inventory management system exist in the network districts. Lack of purchasing procedures throughout the organization, lack of use scientific method in determining their inventory level, the obsolete stocks has identified and counted by the Auditors and locked in one store. The researcher recommends for better improvement of the inventory management and control of ERA, by providing the constructive comments.

NAOMI (2016) The research design applied was the cross-sectional descriptive census survey of 48 Warehousing firms in Mombasa County. Also correlation survey was applied to show the link between the inventory management variables an operational performance. Data collection was by use of a questionnaire that was deduced by the "drop and pick" method and also e-mail for respondents who were not physically reachable. Cronbach's alpha test was used to test reliability of the questionnaires. This test was to measure internal consistency of the independent variables. According to Cronbach (1951), reliability coefficient of 0.70 is deemed "acceptable". From the results attained, most of the parameters had high internal consistency thus very acceptable. The computerized package that was used to carry out the data analysis was Microsoft excel and SPSS software. The R^2 Durbin-Watson analysis, ANOVA analysis, Multicollinearity model and multivariate regression analysis was used to determine the correlation between the inventory management practices and operational performance of the Warehousing firms in Mombasa County. The findings are presented in tables. It was clear that there was a significant relationship between inventory management practices and operational performance which was shown by a significance level 0.033 which was less than the 0.05 that was accepted in checking the significance level explained by the three independent variables of inventory management systems, strategic supplier partnerships and information communication technology.

Willy Muturi (2016) Inventory constitutes the most significant part of current assets in many manufacturing companies. Firms in Kisii town neither keep excess inventories to avoid an unnecessary tying down of funds as well as loss in fund due to pilferage, spoilage and obsolescence nor maintain too low inventories so as to meet users demand as at when needed. This study sought to examine the factors affecting the efficiency of inventory management in organizations in Kenya. The population for this study constituted 112 employees who work at with four firms in Kisii Town. Stratified random sampling was used to select a sample size of 56 respondents. Primary data was collected using a self-administered questionnaire and was analyzed by descriptive statistics. The study established that bureaucratic procurement procedures had a positive impact on the efficiency of inventory management among firms in Kisii town. The study revealed that documentation is crucial in ensuring efficient inventory management, stock records provide the management with the information which is used to ensure accountability through stocktaking and stock audit exercise. Also, funding positively affects efficiency of inventory management among firms in Kisii town to a great extent. The

study therefore recommended that there is need for firms in Kisii town to enhance their bureaucratic procurement procedures through elimination of overlapping or conflicting jobs or duties and behavior of the system is predicable.

Hari Bahadur (2017) this study entitled 'factors affecting the efficiency of inventory management of Janapriya Multiple Campus, Pokhara' is to assess the factors that effect on inventory management of the campus. Basically the study is based on primary data including 21 sample out of total population 28. Stratified random sampling is used to select a sample size of 21 respondents. Structured questionnaire and other official documents are used to collect data from primary sources. Samples were three groups of office staff. Group wise distribution of sample was top level, middle level and assistant level. The collected data are tabulated and presented according to the needs and objectives of the study. Descriptive statistics of mean and standard deviation were used for data analysis. Factors related with proper record keeping of inventory, financial resources, skill possessed by store staff and bureaucratic procurement procedure positively effect on the effectiveness of inventory management. Proper inventory record, stock information and competent & qualified store employees are very important for the effectiveness of inventory management. Sufficient fund, skillful store clerks, training and development for store staff, few quality suppliers and easy process of budget release are inevitable for superior inventory management.

Okwaro, Fredrick, Iravo, Mike, Berut, Zipporah (2017) Most of parastatal in Kenya face problems of efficiency in their inventory management systems. Despite this fact, limited scientific research has been undertaken to examine the factors that influence inventory management efficiency in Kenya Seeds Company. The main objective of the study was to assess factors affecting the effectiveness of inventory management practices in Kenya Seed Company. The study adopted a case study research design to produce detailed description in order to evaluate the phenomena. The target population was 110 management staff working at the Company's procurement departments from which a sample size of 87 respondents was drawn. Questionnaires were used to collect data and descriptive statistics data analysis method applied to analyze data using Statistical Package for Social Sciences version 20. Data analysis involved inferential statistics where regression analysis was used to establish the association between study variables at 95% confidence level, p-value ± 0.05 . Staff training, level of technology, stock evaluation and procurement policies had a positive and significant association on the efficiency

of inventory management at Kenya Seed Company. The results showed that most of the staff do not have necessary competency to run the procurement function, there is poor stock audit practices, outdated procurement systems and long bureaucratic procedures. The research finding is helpful to academicians, procurement officers and the Kenya seed company as a whole on the determinants of procurement performance

2.2.1 Summary of the literature review

It is hard to find any study on factors affecting effectiveness of inventory management practice country. Because of, a few studies were conducted on the assessments and efficiency of on inventory management practice. Therefore, it is difficult for the researcher to present any empirical evidence on the issue relevant to this part of the world. However, the studies conducted elsewhere especially in the developing countries were reviewed and presented. Moreover, most literature was referred on assessments and efficiency rather than effectiveness of inventory management though they have common characteristics. Hence for this study those assessments and efficiency were reviewed more as they affect also effectiveness of inventory management practice. When the researcher see the gap of the literature researcher tries to see the studies that the other researcher have not seen those are: previous studies conducted; at national, at regional level, but not at grass root level, factors affecting effectiveness of inventory management practice at grass root level or district level may vary from area to area from University to University. The other Concentration; earlier researchers were conducted on addressing specific factors that influence inventory management practice and performance of public hospital, and assessment of inventory management and competitive advantage in modern retail firms. But, this study tries to include factors affecting effectiveness of inventory management practice which is different in title from the other studies. The previous research done on an Assessment of the Factors Influencing Effectiveness of Inventory Control; Ministry of State for Provincial Administration and Internal Security Nairobi Kenya (Kariuki James Ng'ang'a2013), by using only qualitative approach but, in this study the researcher employed both qualitative and quantitative approach. The other is the previous researchers were focused only on factors influence efficiency of inventory management and assessment of inventory management practice but factors affecting effectiveness of inventory management practice was not studied even though with the same factors and also, they does not show which factors strongly influence among those factors, but this research prioritize among the factors those

factors affecting effectiveness of inventory management practice strongly as far as the researcher knowledge is concerned , there is no research conducted in the study area on the crucial issue of factors affecting effectiveness of inventory management practice among these root level functionaries. It is with this in mind that the study has been planned to fill the gap. Therefore, this research aims to find out factors affecting effectiveness of inventory management practice in JimmaUniversity. It is with this in mind that the study has been planned to fill the literature gap.

2.3 Conceptual Framework of the study

A Conceptual framework is a description of a comprehensive conceptual model framework which is relevant to the research problems. It shows the general literature review part by using frame work to give clear understanding for theoretical and empirical review. it includes independent variables identified qualified staff, funding, information technology and documentation on one hand effective inventory management practice as dependent variable. Effective inventory management practice is shown on the right side by taking inventory utilization as a proxy variable while the independent variables are shown on the left hand side in figure .1

INDEPENDENT VARIABLES

DEPENDENT VARIABLE

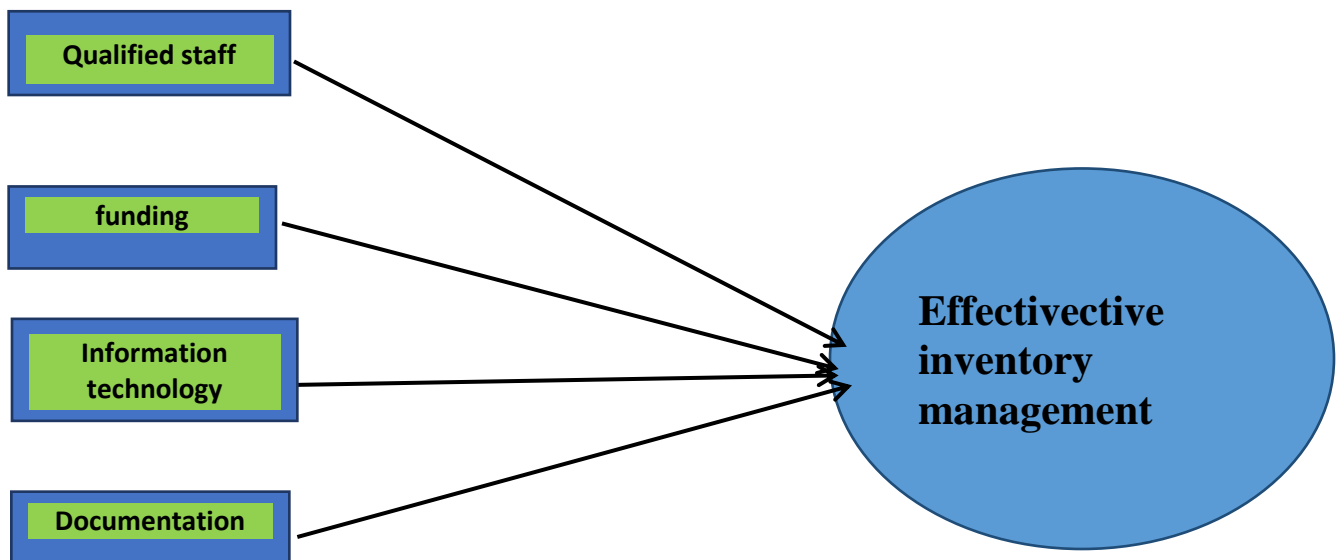


Figure 1 conceptual frame works on factors affecting effectiveness of inventory management practice. Source: Adopted with modification from Kariuki James Ng'ang'a (2013)

CHAPTER THREE

RESEARCH METHODOLOGY

3 Introduction

This chapter gives an outline of the research methodology used in the study. Therefore, the research design, target population, sampling procedure and target population and sampling technique, types and source of data, a description of the method of data collection techniques is given. In the last part of this chapter the statistical method used to analyse the data, was discussed.

3.1 Research Design

A research design is a conceptual structure that shows how all the major parts of the research project come together. According to Kothari (1985) it constitutes the blueprint for the collection, measurement and analysis of data. The study was designed to employ cross-sectional studies which had been taking study with in a particular timeframe. In this study, the descriptive and explanatory research design was used to fulfil the objectives of the research, because descriptive research design was employed for the data that the researcher collects from respondents through questionnaire and more appropriate to detail description of the findings displayed in tables. According to Kothari (2004) the emphasis of explanatory study is on studying a situation or a problem in order to explain the relationships between variable. In this case the researcher used to examine the relationship between independent variables and dependent variable. Although, explanatory method was used to determine each factors affecting on effectiveness of inventory management. Also in order to achieve the main objective of this study, both qualitative and quantitative methods were used to analyse the data collected from respondents.

3.2. Types and sources of Data

To respond the stated research questions and to achieve the intended objectives, the study used both quantitative and qualitative type. For the proper achievement of the objectives of the study; the researcher was used primary data and secondary data source

- Primary Data Sources: The Primary data was gathered from respondents (whom are primary Sources). These are administrative director and process owner

- Secondary Data Sources: The main sources used for secondary data are: Journal articles, internet, magazines, newspapers and books related to the title of the study and these were consulted at length to extract the information required to support the findings from the study respondents.

3.3 Target Population:

The target population of this study was 85 employees of in Jimma University. The respondents were from all the four departments within the universities since the inventory management practices was an issue that affects the entire organization. The target population of this study included 7 procurement officer, 63 procurement assistant, 10 stores men’s and 5 Administration director. The researcher used census method for the study due to the limited number of respondent which allowed for the whole population to be included in the study and Census is a process of collecting data by distributing questionnaire to all population in the study area.

Table 1. target population of study area

Category	Main campus	Business and Economics	Agricultural Collage	Technology Collage
Administrative Director	2	1	1	1
Procurement Officer	4	1	1	1
Procurement Assistant	53	1	4	5
Store men	7	1	1	1
Population	66	4	7	8
Total Population	85			

Source: Jimma University, 2018

3.4. Data collection instruments and procedure

The researcher was used both primary and secondary data sources to achieve objective of the research. Primary data were collected mainly using questionnaire and interview to the respondents. 28 major questions for respondents were prepared. This helps the researcher to confirm the data collected from respondent through the questionnaire. Secondary source of data was collected from different books, journals, articles and previous researches that is related with inventory management practice. Finally, the modified questionnaire will be distributed to the respondents for the collection of data from the study sample. Factors affecting effectiveness of inventory management practice was measured using Likert scale with five responses strongly disagree, disagree, neutral, agree and strongly agree. “The Likert scale method was preferred to make questions interesting to respondents and thereby enhance their cooperation, ultimately to ensure maximum response rate.”

3.5 Reliability of the instrument

The researcher had tried to avoid the error that likely happen due to shortage of instrument or inability of the instrument to measure what is intended to measure and crosses validate the response of the questionnaire with the document analyzed. Then, the improved language clarity of the questionnaire was used through refining the instruments and avoiding personal bias of the researcher. A performance of reliability test was used to check the consistency and accuracy of the measurement scales.

Checking the validity and reliability of data collecting instruments before providing to the actual study subject is the core to assure the quality of the data (Kerr et al., 2006). After the dispatched questionnaires“ were returned, necessary modification on items and complete removal and replacement of unclear questions were done.

Table 2: Final reliability test results

Scale	Number of attributes	Cronbach's Alphas' Results
Qualified staff	5	0.811
Funding	4	0.783
Information technology	5	0.796
Documentation	6	0.864
effective inventory management	4	0.721
Average		0.795

Source: Survey result, 2018

As suggested by researcher (Davis 2000) an alpha value of 0.7 or above is considered to be reliable. In this research average test results of the Cronbach's alpha values was 0.795.

Therefore, the result is greater than 0.7 and it indicates there is not reliability problem in the instrument (questionnaires").

3.6 Method of Data analysis

3.6.1 Descriptive statistics

Both primary and secondary sources of data were analyzed using both qualitative and quantitative methods. The collected data was quantified and edited thoroughly. Later the data was coded and computed. The competed data had been tabled to the requirements. The influence of the variables designed for each factor has been quantified with Likert scale ranging from 1 to 5. Statistical tools such as mean, standard deviations, percentage, and frequency of occurrence were used to reach the objectives meaningfully and analyze and interpret the data.

Based on the nature of the data collected through questionnaires, interview, and documents, the following procedures and statistical tools were employed. Data was checked for consistency and completeness on daily basis then is coded, checked, and entered to computer. Finally, the statistical package for social sciences (SPSS) version 20 was used for processing and analyzing the data obtained from questionnaires. Descriptive statistics like frequencies, percentage and figure was applied to facilitate meaningful analysis and interpretation of

research findings. Qualitative data obtained through interviews are analyzed through descriptive method of analysis.

Descriptive statistical tools like mean, standard deviation, percentage and frequency of occurrence and also the researcher was used inferential tools such as; Pearson's correlation and multiple linear regression to determine the effect of independent variables on effectiveness of inventory management practice from transformed qualitative data to quantitative.

3.6.2 Inferential Statistics

Inferential statistics is used to identify the degree of correlation between the variables using Pearson's Correlation. The model is tested by Multicollinearity Test, Linearity Test and Normality Test and significance test using multiple linear regression models by using SPSS 20 version Excel will use for data analysis tools.

3.7 Model specification

To analyze the data, different kinds of statistical methods including descriptive statistics, and inferential statistics (correlation and multiple linear regressions) were employed to identify and predict the relation and contribution each of the significant predictors for the study objectives.

Finally, the results of both descriptive as well as inferential results were presented by appropriate figures and tables. Thus, the following multiple linear regression was developed to make the research more effective in analyzing the influences of independent variables (qualified staff, funding, information technology and documentation) on the dependent variable (effective inventory management).

Gujarati (1995) defines regression as follows

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Where, Y = the dependent variable in the model, X_1 = qualified staff, X_2 = funding, X_3 , information technology, X_4 = documentation

β_0 = is the constant, α represent the coefficient and

u_i = is the error term.

$$u_i = Y - \beta_0 - \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Multiple linear regression assumptions were conducted based on Gujarati (1995) and Fidell (2001). Checking goodness of-fit carry significant benefits for the research; because once the model is fitted it is effective in describing the outcome of variables. Let summarize each assumption one by one;

Multicollinearity; it meant the presence of exact linear relationship between explanatory variables of a regression model. Therefore, independence of independent variables was tested by variance inflation factors and tolerance.

VIF (X_j) = $1/1-R_j^2$ Tolerance = $1-R_j^2$, Where X_j = the j^{th} explanatory variables regressed on the other independent variables, R_j^2 = the coefficient of determination when the variable X_j regressed on the remaining explanatory variables.

Normality; one of the linear regression assumption used to the normality of the distribution of residuals at each value of dependent variable. This means the errors are normally distributed and the plot of the values of the residual should be normal curve Keith, (2006). According to Gujarati (1995) u_i are independently and normally distributed with mean zero and a common variance α^2 was given as; $u_i \sim IN(0, \alpha^2)$

Homoscedasticity; the variance of residuals for every set of values for the independent variable is equal and violation of heteroscedasticity. This means that the researcher assumes that errors are spread out consistently between the variables. Symbolically described as follow;

$$\text{var} = \left(\frac{u_i}{(x_1, \dots, x_k)} \right) \alpha^2$$

For all i U_i is disturbance term or error term X_k is explanatory variable α^2 is the constant or homoscedastic variance of u_i

3.8 Description of study variables

The important variables investigated in the research are dependent and independent variables. Dependent variable is a variable that is affected or explained by another variable. An independent variable is a variable that causes change in another (Sarantakos, 1998).

Dependent variable:

Effective inventory management: defined Effective inventory management practice for this study is defined as the ability to receive inventories with shorter lead time, using computerized

record system, optimum utilization of inventories, utilization of storage capacity, and location of store and minimum carrying cost of inventories (AI-Khalil et.al, 2004).

Independent variable

Qualified staff: is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions.

funding: Funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period

Information technology: Information technology is a driving force of any firm as announced and Computers are the key tools of ICT which aids in stock control by ensuring that user requirements are satisfied through computation of the perfect number of stock to dispatch and stock to hold. (Carter and Price 2010).

Documentation: a set of documents provided on paper or online or on digital or analog media such as audio-tape or CDs. stock record system is the means of capturing and storing information and a facility for the analysis and use of this information so that the operation of the stores function and the control of stock can be performed in an efficient manner.

3.9 Ethical Consideration

The study was primarily focused to gather primary qualitative and quantitative data to analyze the factors affecting effectiveness of inventory management practice of Jimma University. The study neither involves any experiment on human subjects nor conducted without the consent of the study participants. Above all, the researcher did not ask the study participants to engage into risks as a result of participating in this study. Besides, informed verbal consent is obtained from the key respondents during data collection. The respondents are given the right to refuse or take part in the study. All the primary and secondary data collection in the organization was under the permission of the managers and without any offence in ethical rules during the whole research process.

CHAPTER FOUR

RESULTS AND DISCUSSION

4. INTRODUCTION

This chapter deals with results and discussions of the data that are categorized into two parts. The first part treats the characteristics of the respondents which describe the study population by gender, age, educational background and service year, while the second part deals with the analysis of findings of the study that were gathered through questionnaire and interview. In this study, both quantitative and qualitative methods of analysis were employed and the report was organized in a way to answer research questions raised in this research sequentially. Quantitative data which were collected through questionnaires and analyzed were supported and additionally evidenced by qualitative data which was collected from interviews.

4.1 Response Rate of Respondents

After a letter submitted from Jimma University to the Jimma university procurement office in order to cooperate in providing the necessary data office head assigned the process owners to take the responsibility in handling the case. So the process owners arranged how to access those respondents and their sections. Thus based on the prepared schedule 85 questionnaires were distributed to the participants and from these 6 respondents did not return back the questionnaire. Due to this reason, 93% of the distributed questionnaires are collected, almost all respondent expresses their view properly. Regarding an interview two divisions, such as Administrative director and process owner were participated. The participants of an interviewee clearly share their idea and the practical knowledge for both structured and semi structured interview questions; in addition to this the interviews were conducted with more than one-time contact, which means the contact does not include the introduction and informed consent confirmation time.

Table3: Response rate

No	Data collection tools	No.of respondents	No.of answered	No.of un answered	Respondents rate
1.	Questionnaires	85	79	6	93
2.	Interviews	2	2		100

4.2 Demographic information of the respondents

The results obtained from demographic information of the structured questionnaires were presented through frequency (FRQCY) and valid percentage as shown on the table below.

Table 4: Demographic characteristics of respondents

Variables	Categories	Frequency	Percentage
Gender of Respondents	Male	46	58.2
	Female	33	41.8
	Total	79	100.0
Age of the respondent	18-25yr	23	29.1
	26-35yr	28	35.4
	36-45yr	13	16.3
	46-55yr	9	11.4
	>56yr	6	7.6
	Total	79	100.0
Educational Background	Below certificate	3	3.8
	Certificate	7	8.9
	Diploma	26	32.9
	Degree	37	46.8
	Master's degree	6	7.6
	Total	79	100.0
service year of respondents	<1yr	5	6.3
	2-5yr	18	22.8
	6-10yr	26	32.6
	10-15yr	23	29..1
	>15yr	7	8.9
	Total	79	100.0

Source: own survey,2018

As it has been indicated in the above table 4.2 out of 85 respondents, 46 were male and 33 were female respondents this implies that there is no significant difference on male and female employment in the organization. there for it leads to positive contribution towards inventory management practice of the organization. Regarding age among the respondents As shown in the above table 4.2 it indicates that 35.4% of respondent's age is grouped between 26-35 years old, 29.1% of respondents age is grouped between 18-25 years old whereas, 16.3% of respondents age is grouped 36-45 years old , 11.4% of respondents age is grouped between 46-55 years old and 7.6 of respondents age is grouped between greater than 56 years old this implies that most of the respondents are young and also all of the respondents are above 18 years old this could give reliable data for the study.

As it can be seen from the above table 4.2 the majority of respondents 37 (46.8%) were first degree holders. 26 respondents (32.9%) were diploma holders. 7 respondents (8.9%) certificate holders and 6 respondents (7.6) were master's holders and 3 respondents (3.8%) were below certificate. This implies that only 3.8% of respondents are not acquired knowledge through university or collages.

As shown in the above table 4.2, 26 respondents (32.9%) had 6-10-year work experience whereas, 23 respondents (29.1%) had 6-10-year work experience, 18 respondents (22.8%) had 2-5 year work experience, 7 respondents (8.9%) had greater than 15-year experience and 5 respondents (6.3%) had less than 1-year experience This implies majority of the respondents have work experience and that they had enough information regarding on the effectiveness of inventory management practices in the organizations.

4.3 Description of factors affecting effectiveness of inventory management practice

This part focuses on respondent's opinions on factors influencing effective inventory management practice. There eight independent variables examined in the study. Four variables among demographic factors (gender, age, educational background and service year) were analyzed separately. Results of the analysis of the remaining four explanatory variables relating to certain organizational factors (qualified staff, funding, information technology and documentation) were presented separately which were identified during interview. Respondents

required to rate their level of agreement on items related to their attitude towards themselves that are believed to be a factor using a five point Likert scale.

Based on the responses of respondents the descriptive analysis was performed to compare using mean and standard deviation. The analysis is based on the assumption Zaidatol (2009) comparison bases of mean score for five point Likert scale (i.e. strongly dis agree = 1, dis agree = 2, Neutral = 3, agree =4, and strongly agree = 5) instruments is used to compare the mean value.

Table 5: Mean score measurement assumptions

Mean Score	Description
< 3.39	Low
3.40 - 3.79	Moderate
> 3.80	High

source: Zaidation (2009)

According to Zaidation (2009), the mean score below 3.39 is considered as low; the mean score from 3.40 up to 3.79 is considered as moderate and mean score above 3.8 is considered as high.

Table 6: Descriptive Analysis of Qualified staff

Attributes of independent variables	Usability implication choice	Frequency	Percent	mean	Std,devation
qualified employees helps to minimize cost of inventory management.	Neutral	2	2.5	4.44	0.549
	Agree	40	50.6		
	Strongly agree	37	46.8		
	Total	79	100.0		
Qualification should be matched with job Requirement	Neutral	1	1.3	4.48	0.528
	Agree	39	49.4		
	strongly agree	39	49.4		
	Total	79	100.0		
Training program is necessary for effective inventory management.	Agree	38	48.1	4.52	0.503
	strongly agree	41	51.9		
	Total	79	100.0		
Knowledge of stock taking is inevitable for store staff	Neutral	3	3.8	4.27	0.524
	Agree	52	65.8		
	Strongly agree	24	30.4		
	Total	79	100.0		
Staff skills on inventory management affect inventory management practice.	Agree	32	40.5	4.59	0.494
	Strongly agree	47	59.5		
	Total	79	100.0		
Average mean and std.				4.46	0.5196

Source: Survey result, 2018

The study sought to determine the extent to which respondents agreed with the above statements relating to the influence qualified staff on the effectiveness of inventory management practice. The majority of respondents agreed Staff skills on inventory management affect inventory management practice shown by a mean of 4.59 and a standard deviation of 0.494, qualified employees helps to minimize cost of inventory managements shown by mean of 4.4 and standard deviation of 0.549, Qualification should be matched with job Requirement as shown by a mean of 4.48 and standard deviation of 0.528, Training program is necessary for effective inventory management shown by a mean of 4.52 and standard deviation of 0.503 and finally Knowledge of stock taking is inevitable for store staff shown by a mean of 4.27 and standard deviation of 0.524. From the findings the study revealed that the grand mean for the study was 4.46(high extent) and standard deviation of 0.5196 implies there was a significant difference of variables among respondents The results are similar with the finding of other scholars. Bailey and Farmer (1982) say that, if staff involved in stock control is not qualified and competent, then there will be ineffectiveness in inventory control. According to Bailey et al (2012), in inventory management practice to achieve a superior performance, it's necessary to recruit, train and develop personnel with the capacity and motivation to do better job. Training of staff is vital if full use is to be made of their abilities and talents. For an organization to succeed, qualification is therefore a prerequisite and must be matched with job requirement, hence the need to hire and develop ambitious personnel. If staff involved in inventory management is not qualified and competent, then there will be ineffectiveness in inventory management.

During interview as administrative director and process owner founded that on educational qualification of the employee the result shows that the employee has educational qualification of certificate and above but no one has directly related educational qualification to inventory management.so, the unrelated educational qualification has negative impact on the effectiveness of inventory management

Table 7: Descriptive Analysis of Funding

Attributes of independent variables	Usability implication choice	Frequency	Percent	Mean	Std,deviation
Sufficient fund for inventory contribute for efficient service of an organization.	strongly dis agree	1	1.3	4.11	0.816
	dis agree	5	6.3		
	Neutral	1	1.3		
	Agree	49	62.0		
	strongly agree	23	29.1		
	Total	79	100.0		
Sufficient fund is necessary to maintain sustainable relation with quality suppliers	Neutral	7	8.9	4.32	0.631
	Agree	40	50.6		
	strongly agree	32	40.5		
	Total	79	100.0		
Funds can be a constraining factor to effective inventory control.	Neutral	14	17.7	4.25	0.742
	Agree	31	39.2		
	strongly agree	34	43.0		
	Total	79	100.0		
Funding can affect effective inventory management practice.	dis agree	1	1.3	4.51	0.638
	Neutral	3	3.8		
	Agree	30	38.0		
	strongly agree	45	57.0		
	Total	79	100.0		
Average mean and std.				4.2975	0.70675

Source: Survey result, 2018

The study required to determine the extent to which respondents agreed with the above statements relating to the influence funding on the effectiveness of inventory management practice. Majority of the respondents agreed that Funding can affect effective inventory management practice as shown by a mean of 4.51 and standard deviation of 0.638, Sufficient fund is necessary to maintain sustainable relation with quality suppliers shown by mean of 4.32 and standard deviation of 0.631, Funds can be a constraining factor to effective inventory control as shown by a mean of 4.25 and standard deviation of 0.742 and finally Sufficient fund for inventory contribute for efficient service of an organization shown by a mean of 4.11 and standard deviation of 0.816. The study sought to established the extent to which respondents agreed with the above statement, from the study findings, the average mean of the study was 4.2975(high extent) and standard deviation of 0.70645 implies there was significant difference of variables among respondents. The above findings are similar with the finding of (Dobler et al. 2000). According to Dobler et al (2000), funds can be a constraining factor for effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period. Resources lead to a better organizational commitment and also overcome organizational obstacles. Sufficient resources also lead to organizational implementation success and project implementation success the stature of financial management in the organization can affect adversely its effectiveness and in the finance resource application in various activities.

the interview conducted with key informants on funding indicated that the allocated budget was not sufficient for the whole inventory management process. because of these shortage of budget many materials that are very important for inventory management are not fulfilled (such as lack of modernized shelf, lack of store, lack of different modernized software on inventory control and storing materials.

Table 8: Descriptive Analysis of information technology

Attributes of independent variables	Usability implication choice	Frequency	Percent	mean	Std,devation
Manual usage of document affects inventory management activity.	strongly dis agree	2	2.5	3.91	1.134
	Disagree	12	15.2		
	Neutral	6	7.6		
	Agree	30	38.0		
	strongly agree	29	36.7		
	Total	79	100.0		
The organization use latest technology in stock management	Strongly dis agree	9	11.4	3.57	1.375
	Disagree	12	15.2		
	Neutral	8	10.1		
	Agree	25	31.6		
	strongly agree	25	31.6		
	Total	79	100.0		
The organization workers have knowledge of information technology practice	Strongly dis agree	1	1.3	4.03	1.037
	Dis agree	10	12.7		
	Neutral	5	6.3		
	Agree	33	41.8		
	strongly agree	30	38.0		
	Total	79	100.0		
IT has provided greater data accuracy on inventories	Strongly dis agree	6	5.1	3.82	1.279
	Dis agree	11	13.9		
	Neutral	3	3.8		
	Agree	30	38.0		

	strongly agree	29	36.7		
	Total	79	100.0		
IT has enabled generation of real time inventory reports for effective inventory management processes	Strongly dis agree	6	7.6	3.58	1.215
	Dis agree	12	15.2		
	Neutral	9	11.4		
	Agree	34	43.0		
	strongly agree	18	28.0		
	Total	79	100.0		
Average mean and std.				3.782	1.208

Source: Survey result, 2018

The study required to determine the extent to which respondents agreed with the above statements relating to the influence information technology on the effectiveness of inventory management practice. The majority of respondents agreed The organization use latest technology in stock management shown by a mean of 0.155 and a standard deviation of 1.375, IT has provided greater data accuracy on inventories as shown by mean of 0.144 and standard deviation of 1.279, IT has enabled generation of real time inventory reports for effective inventory management processes as shown by a mean of 0.137 and standard deviation of 1.215, Manual usage of document affects inventory management activity as shown by a mean of 0.128 and standard deviation of 1.134 and finally The organization workers have knowledge of information technology practice as shown by a mean of 0.117 and standard deviation of 1.037. From the findings the study revealed that the grand mean for the study was 3.782 (moderate extent) and standard deviation of 1.208 implies there was a significant difference of variables among respondents These finding agrees with findings of Chaffy & Wood (2005), who found that effectiveness of an inventory management system depends on the quality of information it takes in and the capacity of the organization information technology (IT).

The interview conducted with key informants on applicability of modern soft wares on inventory management they responded that the PPMS (Property management system) software is installed or implemented in the organization but, this software doesn't work properly because of breaks in network and electric infrastructure

Table 9: Descriptive Analysis of documentation

Attributes of independent variables	Usability implication choice	Frequency	Percent	Mean	Std,deviation
Accuracy of inventory records is necessary to provide satisfactory customer service.	Neutral	3	3.8	4.38	0.562
	Agree	43	54.4		
	strongly agree	33	41.8		
	Total	79	100.0		
Accuracy of inventory records is necessary to determine replenishment of individual items.	Neutral	2	2.5	4.48	0.551
	Agree	37	46.8		
	strongly agree	40	50.6		
	Total	79	100.0		
Proper inventory record is necessary to overcome over stocking.	Neutral	4	5.1	4.39	0.587
	Agree	40	50.6		
	strongly agree	35	44.3		
	Total	79	100.0		
Proper inventory record is necessary to overcome understocking.	Neutral	7	8.9	4.33	0.635
	Agree	39	49.4		
	strongly agree	33	41.8		
	Total	79	100.0		
Accuracy in records provide the management with the information which is used to ensure accountability.	Neutral	1	1.3	4.47	0.527
	Agree	40	50.6		
	strongly agree	38	48.1		
	Total	79	100.0		
Accuracy of inventory records is necessary to provide effective service.	Neutral	3	3.8	4.56	0.572
	Agree	39	36.7		
	strongly agree	47	59.5		
	Total	79	100.0		
Average mean and std.				4.435	0.57233

Source: Survey result, 2018

The study sought to determine the extent to which respondents agreed with the above statements relating to the influence documentation on the effectiveness of inventory management practice. majority of the respondents agreed that Accuracy of inventory records is necessary to provide effective service as shown by a mean 4.56 and standard deviation 0.572 , Accuracy of inventory records is necessary to determine replenishment of individual items as shown by a mean of 4.48 and standard deviation of 0.551, Accuracy in records provide the management with the information which is used to ensure accountability as shown by mean of 4.47 and standard deviation of 0.527 , Proper inventory record is necessary to overcome over stocking as shown by a mean of 4.39 and standard deviation of 0.587 , Accuracy of inventory records is necessary to provide satisfactory customer service as shown by mean of 4.38 and standard deviation of 0.562, and finally Proper inventory record is necessary to overcome under stocking as shown by a mean of 4.33 and standard deviation of 0.635 . from the study findings, the average mean of the study was 4.435 (high extent) and standard deviation of 0.57233 implies there was significance difference of variables among respondents. The above findings concur with the findings by (Susan, 2000) according to Susan (2000), accuracy of inventory records is essential to provide satisfactory customer service, determine replenishment of individual items; ensure that material availability meets repair or project demand, analyze inventory levels and dispose of excess inventory. Stock records also provide the management with the information which is used to ensure accountability through stocktaking and stock audit exercise.

The interview conducted with key informants on document handling of the organization revealed that the document handling system of the organization was manual and not supported by modernized technologies and soft wares. as they mentioned these problems negatively influence the effectiveness of inventory management in terms of time, cost and availability etc. On the other hand, these document were not regularly updated because of this problem most of the time they face inaccuracy.

Attributes of independent variables	Usability implication choice	Frequency	Percent	Mean	Std,deviation
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The organization effective inventory management is poor/low.	strongly dis agree	4	5.1	3.8	1.091
	dis agree	8	10.1		
	Neutral	8	10.1		
	Agree	39	49.4		
	strongly agree	20	25.3		
	Total	79	100.0		
The work environment is conducive for inventory management practices for workers	strongly dis agree	4	5.1	3.95	1.120
	dis agree	9	11.4		
	Agree	40	50.6		
	strongly agree	26	32.9		
	Total	79	100.0		
The organization make on time inventory	strongly dis agree	2	2.5	3.85	1.051
	dis agree	11	13.6		
	Neutral	5	6.3		
	Agree	40	50.6		
	strongly agree	21	26.6		
	Total	79	100.0		
The organization document handling is poor.	Strongly dis agree	1	1.3	4.00	1.038
	dis agree	12	15.2		
	Agree	39	49.4		
	strongly agree	27	34.2		
	Total	79	100.0		
Average mean and std.				3.9	1.075

Table 10 Descriptive Analysis of the overall effectiveness of inventory management practice

Source: Survey result, 2018

the study sought to established the extent to which respondents agreed with the above statement, Majority of the respondents agreed that The organization document handling is poor as shown by a mean of 4.00 and standard deviation of 1.038, The work environment is conducive for

inventory management practices for workers as shown by mean of 3.95 and standard deviation of 1.120, The organization make on time inventory as shown by a mean of 3.85 and standard deviation of 1.051 and finally The organization effective inventory management is poor/low as shown by a mean of 3.8 and standard deviation of 1.091. from the study findings, the average mean of the study was 3.9(moderate extent) and standard deviation of 1.075 implies there was main difference of variables among respondents.

4.4 Association between factors and dependent variable

According to Wajahat (2010) before the start of regression analysis it is important to check the correlation test between dependent variable and independent variables. The Pearson correlation scale ranges from -1 to 1, any value greater than zero indicate a positive direct relationship between the two variables, which implies that every increase in the independent variable will lead to increase the independent variable, while any value less than zero indicate a negative indirect relationship between two variables, this means that every increase in the independent variable will lead to the decrease on the dependent variable (Hafiz, 2007). Different authors suggest different interpretations; However, Cohen (1998) suggests about strength of relationship as: $r = 0.10$ to 0.29 or -0.10 to -0.29 small(weak) relationship, $r = 0.30$ to 0.49 or -0.30 to -0.49 medium (moderate) relationship and 0.50 to 1 or -0.50 to -1 large (strong) relationship. The following table shows the relationship between each variable.

Table 11 Pearson’s correlation coefficient matrix

Correlations	1	2	3	4	5
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	Pearson Correlation	1				
Qulifedstaff	Sig. (2-tailed)					
	N	79				
	Pearson Correlation	.740**	1			
Funding	Sig. (2-tailed)	.000				
	N	79	79			
	Pearson Correlation	.612**	.372**	1		
Information	Sig. (2-tailed)	.000	.001			
	N	79	79	79		
	Pearson Correlation	.609**	.853**	.243*	1	
Documentation	Sig. (2-tailed)	.000	.000	.031		
	N	79	79	79	79	
	Pearson Correlation	.654**	.631**	.627**	.795**	1
Effective Inventory	Sig. (2-tailed)	.000	.000	.002	.000	
	N	79	79	79	79	79

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

From the above table 9 result it can observed that documentation is the most correlated variable with effective inventory management (with the r value of 0.795) and it was followed by qualified staff (with the r value of 0.654), funding (with the r value of 0.631) and information technology (With the r value of 0.627) respectively.

As a result of existing relationship, the effective inventory management may have been affected stated independent variables.

4.5 Multiple linear regression assumptions

Testing assumption of multiple linear regression analysis model is very important before running regression analysis. So each assumption results were discussed in the following subtopics. In the previous section of this paper the descriptive and inferential analysis was carried out separately with the existence of association between the dependent and independent variables with the intension identifying factors affecting effectiveness of inventory management practice. However, identification of these factors is not enough for meaningful conclusion. Therefore, the influence each independent variable must be assessed and identified sequentially. The researcher used multiple linear regression model to identify the effects of four factors on effectiveness of inventory management practice.

4.5.1 Multicollinearity Test between independent variables

According to Gujarati (2003) Multicollinearity tests helps identify the high correlation between explanatory variables and to avoid double effect of independent variable from the model. When independent variables are multicollinear there is overlap or sharing of predictive power. Predictor variable should be strongly related to dependent variable but not strongly related to each other. This may lead to the paradoxical effect, whereby the regression model fits the data well but, none of the explanatory variables (individually has a significant impact in predicting the dependent variable. For this purpose, variance inflation factor (VIF) and tolerance test were used to check Multicollinearity for variables if the value of VIF is less than 10 there is no Multicollinearity and on the other hand if VIF greater than or equal to 10 there is a serious Multicollinearity problem. According to Gujarati, (2003) to avoid serious problem of Multicollinearity omitting the variable with 10 and more from the analysis. In addition, tolerance is an indicator how much of the variability of independent variable is not explained by the other independent variable in the model and is calculated using the formula $1 - R^2$ for each variable. If the value is very small (less 0.1), it shows the multiple correlation with other variable is high.

Table 12 Multicollinearity statistics

Variables	Tolerance	VIF(variance inflation factors)
Qualified staff	0.692	1.445
Funding	0.648	1.544
Information technology	0.696	1.436
documentation	0.807	1.239

Table 10 shows the computation result that the value of VIF all variables were by far less than 10 and the value of tolerance statistics being above 0.1 they were accepted entered in to regression model for the estimation of variables.

4.5.2 Normality test

Normality assumption is around the mean of the residuals is zero and used to determine whether a data set is well modeled by a normal distribution or not and also to indicate un underlying random variable is to be normally distributed (Gujarati.2009). There the researcher was used histogram methods of testing the normality of the data. If the residuals are normally distributed about its mean of zero, the shape of histogram should be a bell-shaped and regression

standardized residual plotted between -3.3 and 3.3. From the figure below data normality can be indicated

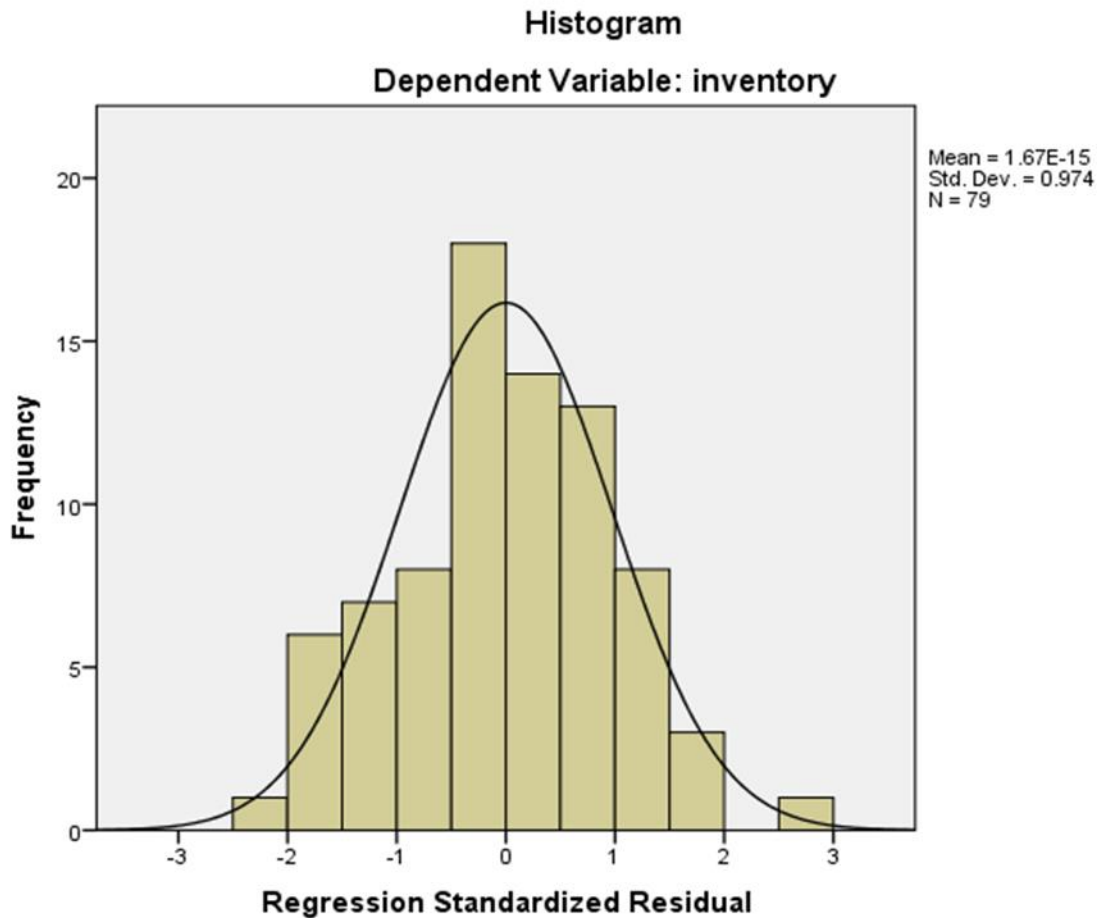


Figure 2 Normal distribution Histogram results

Source; survey result, 2018

4.5.3 Linearity Test

Linearity is used check whether all the estimates of regression including regression coefficients, standard errors and tests of statistical significance are biased or not (Keith, 2006). This can be checked by p-p plot residuals as indicated by figure 3 below. There is no linearity problem on the data for this study if p-p residual follows at straight line.

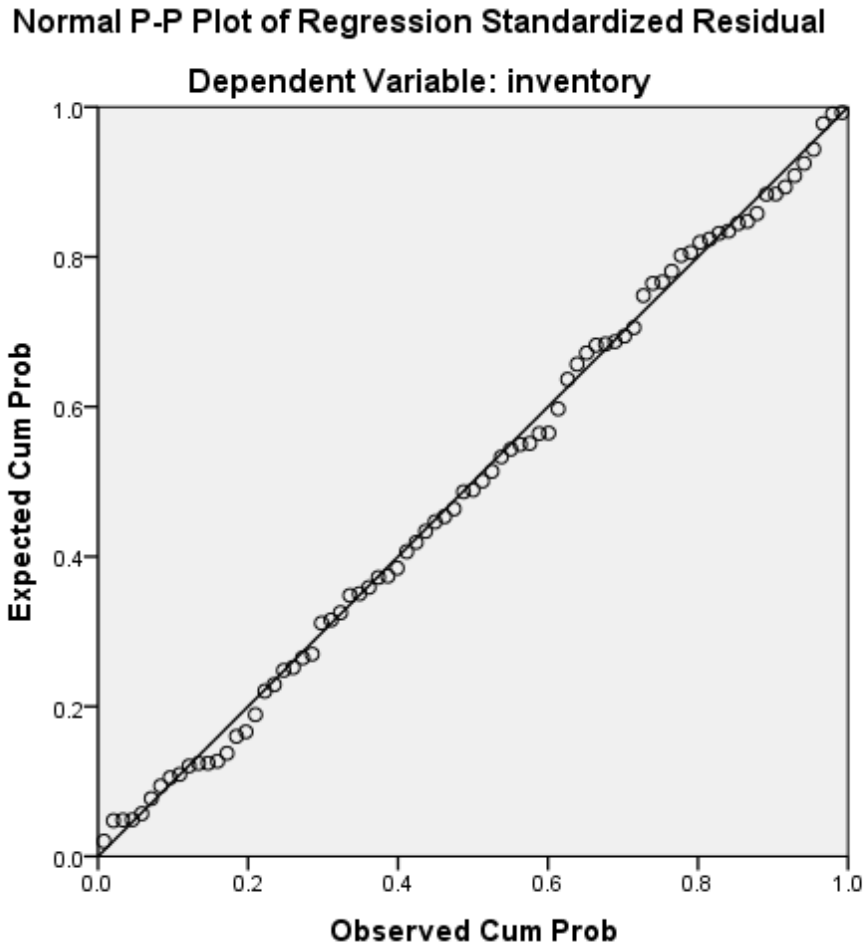


Figure 3: p-p plot; Linearity test results

Source; survey result, 2018

4.5.4 Heteroscedasticity test

Heteroscedasticity is the equality or violation of the residuals for every set of values for independent variable. So the researchers assume that errors are spread out constantly between the variables. Heteroscedasticity problem exist when scatterplot is greater than 3.3 and less than -3.3. Therefore, as it was indicated in figure 4 below the data did not violate Heteroscedasticity

assumption and instead it was homoscedastic.

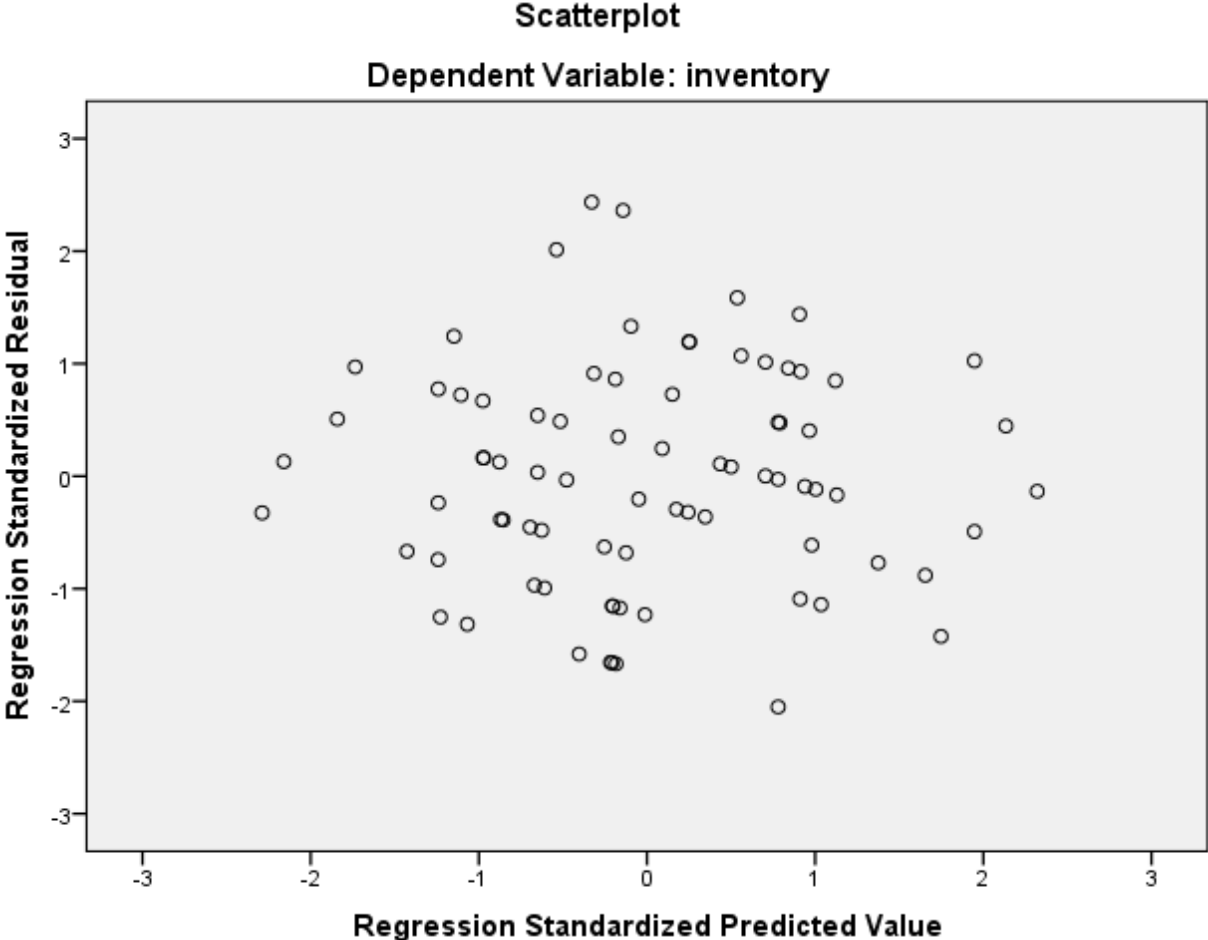


Figure 4: Scatterplot Heteroscedasticity test result

Source; Survey result, 2018

4.6 The effect of independent variables on effective inventory management

After the model assumption was checked presentation and interpretation of the analysis output is mandatory. The prediction or estimation of the value one variable (the dependent or the predicted variable; called as Y from one or more independent or predictor variables (called as X) (Keith, 2006).

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.849 ^a	.721	.706	.18604

a. Predictors: (Constant), qualified staff ,funding, information technology,docemention

b. Dependent Variable effective inventory management

Source; survey result, 2018

The above table show that R value is 0.849 which indicates there is a positive relationship between effective inventory management and independent variables namely; qualified staff, funding, information technology and documentation. In the model summary adjusted R square tells us the goodness fit of the model and its value which is 0.706 means the four all independent variables are able to measure/predict effective inventory management at 70.6 (0.706x100) percent. The marginal value provides the impact that unit changes in the individual independent variable have on effective inventory management when all other variables are held constant.

Table 14: ANOVA**ANOVA^a**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.505	4	3.126	11.647	.000 ^b
1 Residual	19.862	74	.268		
Total	32.367	78			

a. Dependent Variable: effective inventory management

b. Predictors: (Constant), qualified staff, Funding, information technology, documentation.

As indicated in table 12 the total sum of square (32.367) is equal to the sum of explained sum of square (12.505) and residual sum of squares (19.862). The study of these total sum squares is known as analysis of variance (ANOVA) from regression point of view. To assess the statistical significance of the result, it is necessary to look in the table labeled ANOVA. The ANOVA table indicates the model as a whole is reasonably fit and significant association between independent variables and effective inventory management. This means the value of F is 11.647 (mean square of regression divided by mean square of residual), and it is significant at p value 0.000 ($p < 0.05$). It can be calculated that this dimensions have significant impact on effective inventory management in jimma university. The beta coefficient was indicated as the following table.

Table 15: Coefficient

Model	Unstandardized		Standardized	T	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	.734	.285		2.581	.011
Qualified staff	.262	.056	.330	4.663	.000
funding	.333	.086	.272	3.855	.000
1 Information	.190	.054	.192	3.516	.001
technology					
Documentation	.164	.059	.204	2.782	.006

a. Dependent Variable: effective inventory management

** Significant $p < .05$, $p < .01$

The dependent (Y) and independent (X) variables relationship can be explained as;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$, where β_0 is constant, β_n is the coefficient of independent variables (Satendra et, 2011). The researcher was used unstandardized beta coefficients to compare or prioritize the effect of independent variables on independent variable and to construct regression equation. If we substitute the coefficient from the above table, the equation becomes;

Effective inventory management = 0.734 + (0.262) qualified staff + (0.333) funding + (0.190) information technology + (0.164). From this we can understand that the marginal values provide the impact that a unit change in the individual independent variables has on different effective inventory management when other variables are held constant.

4.7 Discussion of the finding/model interpretation

Linear multiple regression was performed to test the spotted independent variables to answer the research questions based on the research problem and objectives. All the four independent variables included in analysis were significantly affecting effective inventory management. All the significance values were found to affect effective inventory management significantly at less than 0.05 and less than 0.01 probability levels. These were qualified staff, funding, information technology and documentation. Each of them were evaluated and presented as follows

1 Qualified staff: -is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions. The model result showed that qualified staff has positively and significantly affect the effective inventory management practice of the organization at less than 5% significant level and beta value of 0.262. More ever The beta value implies that an increase in well trained qualified staff by one unit leads to an increase in effectiveness of inventory management by 0.262 unit. There for the organization should employ qualified employees to increase effectiveness of inventory management practice. The research carried out by Bailey and Farmer (1982 agrees with this finding say that, if staff involved in stock control is not qualified and competent, then there will be ineffectiveness in inventory control.

2funding: Funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period. The model result showed that funding has positively and significantly affect the effective inventory management practice of the organization at less than 5% significant level and beta value of 0.333. More ever The beta value implies that an increase in funding by one unit leads to an increase in effectiveness of inventory management by 0.333 unit. This finding was consistent with (Dobler et al. 2000). According to Dobler et al (2000), funds can be a constraining factor for effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period. Resources lead to a better organizational commitment and also overcome organizational obstacles. Sufficient resources also lead to organizational implementation success and project implementation success the stature of financial management in the organization can affect adversely its effectiveness and in the finance resource application in various activities.

3Information technology is a driving force of any firm as announced and Computers are the key tools of ICT which aids in stock control by ensuring that user requirements are satisfied through computation of the perfect number of stock to dispatch and stock to hold. (Carter and Price 2010).The model result show that has a positive and significant effect on effective inventory management practice of the organization at p value ≤ 0.05 and beta value of 0.190 The beta value implies that an improvement in information technology by one unit will increase the effectiveness of inventory management practice by 0.190. These finding agrees with findings of Chaffy & Wood (2005), who found that effectiveness of an inventory management system depends on the quality of information it takes in and the capacity of the organization information technology (IT)

4 Documentation: a set of documents provided on paper or online or on digital or analog media such as audio-tape or CDs. stock record system is the means of capturing and storing information and a facility for the analysis and use of this information so that the operation of the stores function and the control of stock can be performed in an efficient manner. The model result show that has a positive and significant effect on effective inventory management practice of the organization at p value ≤ 0.05 and beta value of 0.164 The beta value implies that an improvement in documentation by one unit will increase the effectiveness of inventory management practice by 0.164. Poor documentation had negative impact on effective inventory

management practice the finding is agreed with other researcher work Susan & Michael (2000), Bailey and Farmer (1982), Namagembe, (2010) revealed that a there is significant positive relationship between information sharing and inventory management practice. There for organization need to use fully computerized record system to be effective in inventory management.

CHAPTER FIVE

5. Summary of Findings, Conclusions and Recommendations

This part of the study tried to summarize and conclude the key findings which arose out of the study and pass possible recommendations as remedies to alleviate the existing and observable potential hurdles.

5.1 Summary of Major Findings

The main objective of this study is to investigate the factors affecting effectiveness of inventory management practice of Jimma University. The data obtained from the respondents was analyzed by using various statistical tools. After analyzing the information gathered through questionnaires and interviews the following findings were presented.

- ❖ Inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy. An effective inventory management improves the firm's total performance through matching inventory management practices and a competitive advantage especially now that most organizations operates in a more competitive industries or sectors all over the world.
- ❖ From the findings, the questionnaires that were completed and returned by respondents were 79 out of 85, representing a response rate of 93%. The respondents were Administrative Director, Procurement Officer, Procurement Assistant and Store men.
- ❖ The descriptive results of background information of respondents indicated that majority of the total respondents 46(58.2 percent) were male and 33(41.8 percent) were female respondents this implies there is no grate difference on male and female employment in the organization. There for it leads to positive contribution towards inventory management practice of the organization. Regarding the age of 35.4% of respondent's age is grouped between 26-35 years old, 29.1% of respondents age is grouped between 18-25 years old, 16.3% of respondents age is grouped 36-45 years old, 11.4% of respondents age is grouped between 46-55 years old and 7.6 of respondents age is grouped between greater than 56 years' old this implies that most of the respondents are young and also all of the respondents are above 18 years' old this could give reliable data for the study.

- ❖ The results of the descriptive statistical analysis indicated that, the major respondents were agreed responded by qualified staff, funding, information technology and documentations.
- ❖ mean score measurement of independent variables of the organization in studied area are as expressed with high and low priority to use it: qualified staff 4.46 (large), documentation 4.435(large), funding 4.2975 (large) and information technology 3.782(moderate).
- ❖ The study was designed to employ cross-sectional studies which had been taking a study within a particular timeframe. The design of the thesis was both descriptive and explanatory research design. Both descriptive and explanatory research design was used to achieve the objectives of the research and also both qualitative and quantitative method was used to analyze the data collected from 85 respondents.
- ❖ The correlation result displayed that, the four factors affecting effectiveness of inventory management practice (qualified staff, funding, information technology, and documentation) were positively related to effective inventory management.
- ❖ Regression finding further show that, funding had relatively strong and direct relationship with effective inventory management at β value.333 and followed by qualified staff at β value.262, information technology at β value.190 and documentation at β value .164respectively.
- ❖ The regression model result indicates that, qualified staff has a positive and significant effect on effective inventory management, funding has a positive and significant effect on effective inventory management, and information technology has a positive and significant effect on effective of inventory management, and documentation has a positive and significant effect on effective inventory management.
- ❖ Based on interview finding: educational qualification of the employee the result shows that the employee has educational qualification of certificate and above but no one has directly related educational qualification to inventory management.so, the unrelated educational qualification has negative impact on the effectiveness of inventory management. In addition, the finding of the key informants on funding indicated that the allocated budget was not sufficient for the whole inventory management process. because of these shortage of budget many materials that are very important for inventory management are not fulfilled (such as lack of modernized shelf, lack of store, lack of different modernized software on inventory control and storing materials. Besides On the applicability of modern soft wares on inventory

management they responded that the PPMS (Property management system) software is installed or implemented in the organization but, this software doesn't work properly because of breaks in network and electric infrastructure. Lastly on document handling of the organization revealed that the document handling system of the organization was manual and not supported by modernized technologies and soft wares. as they mentioned these problems negatively influence the effectiveness of inventory management in terms of time, cost and availability etc. On the other hand, these document were not regularly updated because of this problem most of the time they face inaccuracy

5.2 Conclusion

During the investigation the researcher used both descriptive and inferential statistics and based on the findings made the research project to an end by outlining the following classic conclusion

- ❖ The study reveals that if staff involved in inventory management is not qualified and competent, then there will be ineffectiveness in inventory control. Therefore, to achieve a superior performance, it's necessary to recruit, train and develop personnel with the capacity and motivation to do better job, thus the study concluded that the skills possessed by staff had a positive effect on the effectiveness of inventory management practice.
- ❖ Absence of sufficient and timely dispatch of funds results in failure to achieve the planed goals, under stocking of inventories, poor utilization of both human and physical resources. The availability of sufficient resource leads to a better organizational commitment and also ability to overcome obstacles
- ❖ As indicate from regression analysis It can be concluded that information technology affected or has influence on the effectiveness of inventory management. The lack of immediate update of inventory records used in stock control leading to inefficiencies in updating previously accumulated documentation work and finally indirect violation of inventory control regulations due to late entry. Failure to have a specific time or date for posting of inventory records greatly affected inventory control.
- ❖ The current documentation system is not effective because the organization has no specific period of time to update its inventory and also they use both manual and computerized recording system. The manual recording system results in discrepancies between actual and

physical balances. Accuracy of inventory record is necessary to provide satisfactory customer service and also to meet project demand.

5.3 Recommendations

Based on the findings and conclusion, the researcher forwarded the following recommendations.

- ❖ The qualified staff is very essential in improving the effectiveness of inventory management so, the organization has to focus on improving the qualification of human resource through training and upgrading.
- ❖ The inventory management higher officials have to prepare the plan that improve the shortage of budget and trying to allocate the appropriate budget for inventory management systems.
- ❖ For the university administration allocating sufficient budget for different department is very essential in making them effectively so it recommended that the university has to allocate sufficient budget for inventory management.
- ❖ Since this information technology have effect on effectiveness of inventory management of the organization. The organization should find the means by which this problem solved. this may include install or avail the software which work off line thus the documentation problem of the organization can solve.
- ❖ The documentation system of the organization has to be needs improvements of the manual documentation systems through by automating system.

5.4 Limitation of the study

The study was mainly focused on factors affecting effectiveness of inventory management practice on jimma university. But there might have factors beyond qualified staff, funding, information technology and documentation that can determine inventory management practice effectiveness. And those factors were not addressed by this study. This study also conducted only

in jimma university as a case study so the finding of the study may not fully represent all other organization.

5.5 Future research direction

Despite the successes scored during the study, some factors have not been properly accounted for due to its scope. In this regard, the researcher recommends further research in the following areas:

- Future researcher should investigate other factors that determine effective inventory management practices.
- Future researcher can investigate on factors affecting effectiveness of inventory management practice by taking large sample from different Ethiopian institutions and higher organization.

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APPENDIX
JIMMA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF LOGISTICS TRANSPORTATION MANAGEMENT
(LLTM)

Questionnaire for employees in the organization

Dear Participants my name is Hailemichale bogale. I am a postgraduate student in the Department of Management: logistics transportation management program at Jimma University. Now I am conducting a research in the area of “factors affecting effectiveness of inventory management practice”. This study is conduct on case of jimma university all procurement staff. Therefore, your answers are very important and valuable for the successful completion of the study. Please fill out all of the questions to the best of your knowledge accordingly the questions require. The information you provide will be kept confidential and will be used for this research purpose only. Thank you very much for your cooperation in advance! Thank you in advance for your cooperation.

General Instructions

- ❖ Please complete the questionnaire privately so that you are able to answer the questions honestly and as accurately as possible.
- ❖ No need to write your name
- ❖ Put (√) inside the box or table for an alternative you think is right

Section A: Personal Information

I. Fill the space and circle the one related to your personal information

1. Gender:

Male female

2. Age:

18–25 Years 36–45 Years 55–65 years
 26–35 Years 46–55 years

3. Educational Background

Below certificate certificate Master's Degree
 First Degree Diploma

4. Service year of respondents

Less than one year 2–5 years above 15 years
 6–10 year 10–15 years

Section b

Qualified staff

Indicate your level of agreement with the following statements relating to effects of skills possessed by staff on effective inventory management practice in jimma university.

(Key =5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree- 1-strongly disagree)

No	Statement	1 strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1.	qualified employees helps to minimize cost of inventory management.					
2.	Qualification should be matched with job Requirement.					
3.	Training program is necessary for effective inventory management.					
4.	Knowledge of stock taking is inevitable for store staff.					
5.	Staff skills on inventory management affect inventory management practice.					

Funding

Indicate your level of agreement with the following statements relating to effects of funding on effective inventory management in jimma university

(key =5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree 1- strongly disagree)

No	Statement	1 strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1	Sufficient fund for inventory contribute for efficient service of an organization.					
2.	Sufficient fund is necessary to maintain sustainable relation with quality suppliers					
3.	Funds can be a constraining factor to effective inventory control.					
4.	Funding can affect effective inventory management practice.					

Information technology

Indicate your level of agreement with the following statements relating to effects of information technology on effective inventory management in jimma university.

(key =5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree 1- strongly disagree)

No	Statement	1 strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1.	Manual usage of document affects inventory management activity.					
2.	The organization use latest technology in stock management.					
3.	The organization workers have knowledge of information technology practice.					
4.	IT has provided greater data accuracy on inventories.					
5.	IT has enabled generation of real time inventory reports for effective inventory management processes.					

Documentation

Indicate your level of agreement with the following statements relating to effects of documentation on effective inventory management in jimma university

(key =5-Strongly Agree, 4-Agree, 3Neutral, 2-Disagree- strongly disagree)

No	Statement	1 Strongly disagree	2 disagree	3 Neutral	4 agree	5 Strongly agree
1.	Accuracy of inventory records is necessary to provide satisfactory customer service.					
2.	Accuracy of inventory records is necessary to determine replenishment of individual items.					
3.	Proper inventory record is necessary to overcome overstocking stocking.					
4.	Proper inventory record is necessary to overcome understocking.					
5.	Accuracy in records provide the management with the information which is used to ensure accountability.					
6.	Accuracy of inventory records is necessary to provide effective service.					

The overall Effective inventory management practice

Please kindly indicate your level of agreement by putting (√) with the following statements relating to effective inventory management practice in jimma university.

(Key =5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree- 1-strongly disagree

No	Statement	1 Strongly disagree	2 disagree	3 Neutral	4 agree	5 Strongly agree
1	The organization effective inventory management is poor/low.					
2.	The work environment is conducive for inventory management practices for workers .					
3.	The organization make on time inventory.					
4.	The organization document handling is poor .					

Source: adopted from; Kariuki James Ng'ang'a (2013)andBhandari (2017) with some modification

Appendix II: Interview questions for administrative director and process owner

- 1) How about the educational qualification of employee in your organization (is there qualification of has its impacts on the effective inventory management /not how?)
- 2) How about the allocation of fund for inventory management (is there sufficient, scarcity)?
- 3) Does the organization used to the different modern software on the effectiveness of inventory management practice?
- 4) How the effectiveness of document handling in your organization (is there document is regularly update, accuracy, timely available)?