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Evaluating the Effectiveness of Inventory Management Practice and Its' Challenges on Manufacturing Companies in Yirgalem Agro-Industrial Park, Ethiopia

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Abstract: The goal of managing inventory is to maintain optimum level balance within a manufacturing firm because excess and inadequate inventory are not desirable. Effective inventory management is leads the high success of any company specifically in the manufacturing industry is undeniable. The primary purpose of this study was to evaluate the effectiveness of inventory management practices and the challenges of manufacturing companies operating in Yirgalem agro-industrial parks, Ethiopia. The descriptive research design with a mixed approach was adopted. Primary and secondary data source was used. Primary data collected through open and closed-ended questionnaires, interviews, and field observation methods. The secondary data was collected from empirical publications research and books. Total of 18 respondents' were selected purposively. Percentage, mean average, and narrative techniques were used to analyze the collected data. The result revealed that, the effectiveness of inventory management practice in manufacturing companies operating in Yirgalem agro-industrial parks was moderate. Also, as the result showed the companies adopted EOQ, JIT, ABC, and MRP and also both computerized and manual inventory techniques. The study recommended that, the companies should improve the inventory management practice effectiveness level to be more successful. However, the trend of classifying the inventory items as classes A, B, and C, based on cost volume should be improved. Besides, the study found that, the supply chain relationship of companies was good, but needs to create more linkage with suppliers to get sufficient raw material for production. Additional investors should be attracted and motivated by governments through good advertising about the Yirgalem agro-industrial park, implementing appropriate tax strategy, and may facilitate long-term loan for local investors to generate sufficient intended economic contribution for the country, Ethiopia.

Keywords: Effectiveness of Inventory Management Practice, Inventory Techniques, Yirgalem Agro-Industrial Park

1. Introduction

1.1. Background of the Study

Inventory refers to merchandise held purpose for sale, raw materials for production, and raw materials in the production process. Also, inventories are defined as stocks of raw materials, work in progress, finished goods, and supplies held by the business organization to facilitate operations in the production [16]. Inventory management refers to includes planning, coordinating, and controlling activities related to the flow of inventory into, though, and out of an organization [8].

Inventory management is important because materials costs often account for more than 40% of total costs of manufacturing companies and more than 70% of total expenses in merchandising companies [8]. Inventory plays a decisive role in the growth and survival of an organization in the sense that faller to effective efficient management of inventory was mean that the organization was fail to meet its objectives [2]. The basic goal of inventory management is to maintain optimum level balance within a manufacturing firm because excess and inadequate inventories are not desirable. AS pointed out by another author the associated problem with managing inventory is that the availability of excessive

inventories leads to carrying costs, unnecessary tie-up of the firms' funds and loss of profit, and liquidity risk, while, in adequate inventories, level causes production to hold up and failure to meet the commitment of customers (demand) of customers and results shift to competitors and also leads permanents loss for a firm is face [16]. Furthermore, the author stated that management of inventory the firm is always faced with the problem of meeting two conflicting needs: - maintaining a large size of inventory for efficient and smooth production and sales operations and maintaining a minimum level of inventory to maximize profitability. However, either excessive or inadequate inventories situation is not desirable or also its dangers of excessive inventories are that stockholding costs are too high and as a result, the firm's profitability is reduced. Therefore to control or avoid such a situation effective inventory management is a vital part of the manufacturing organization to be more competitive and also it ensures that continuously supply of raw materials to facilitate production, maintain sufficient stock of raw materials for periods of shortage of raw materials supply, and price anticipate, maintain sufficient finished goods inventories for sales operation and demand of customers, minimize carrying cost and time, and keep optimum inventories level throughout production periods [16]. So Effective inventory management is the causes the high success of any company specifically in the manufacturing industry is undeniable.

The agro-industrial park is one of the manufacturing companies engaged in processing raw agricultural inputs into final products. This industrial park is targeted to contribute to the economic growth of the nation through poverty reduction, job creation, and generally structural transformation of the Ethiopian economy is the main goal of its foundation. There are four (4) integrated agro-industrial parks in Ethiopia Yirgalem agro-industrial Park, in the Sidama region, Bulbula agro-industrial Park in the Oromia region, Bure agro-industrial Park in the Amhara region, and Baker agro-industrial Park in Tigrai region. Of these, this study was focused on Yirgalem agro-industrial Park found in Ethiopia.

1.2. Statements of the Study Problem

Despite that, the success or faller of any business organization, particularly manufacturing industries, primarily depends on the inventory management practices they have to adapt within the firm. As stated by prior authors many organizations in today's business environment are forced to increase their market share both locally and globally to survive and sustain growth objectives but the challenge is how to keep the substantial level of inventory to meet the demands of its customers and also control it to prevent both overstocking and stock-outs [1]. To point out this view the prior researchers attempted to identify the practice and bottleneck of inventory management in various manufacturing companies at global as well as national levels. For example, due to a lack of effective and efficient inventory management practices in some organizations in Ghana a result most organizations are not successful [1]. Besides the author find out that even though there is a

relatively good inventory management practices and internal control procedures also company faced serious long lead time challenges due to bureaucratic procedures in ordering parts leading to the cancellation of purchase orders and losing customers. Also, the study investigated inventory management and performance of SMEs in the manufacturing sector of Harare, Zimbabwe and the finding showed that most SMEs manufacturing industries used just-in-time (JIT) inventory management techniques, no computerized system was used, so they faced challenges in the supply chain to make sure they have constant communication with their suppliers so, that reduce material receiving time [20]. Besides, the academic research carried on inventory management practices in the manufacturing industry in Kenya, Mombasa, indicated that organization inventory management practices are low because the company had not adopted computerized inventory management practices; they had not used inventory management system (IMS) radio frequency, bar code, and ware [21]. The same study evaluated the inventory management and control system in International Breweries Plc in Nigeria using a survey research design and the result of the study showed that the company operates an effective, efficient, adequate, and properly implemented inventory management and control system as responses were in 100% affirmative [2].

The similar study conducted on SMEs in Batu Pahat, Johor, in Malaysia identified that, the challenges of inventory management problems faced by manufacturing organizations were underproduction, overproduction, stock out situation, delays in the delivery of raw materials and discrepancy of records [25]. Also, the another study examine inventory management practices on the performance of the production department in a case of manufacturing firms in Mombasa, Kenya showed that the firms had used the action level methods, just-in-time, periodic review technique, material requirement planning (MRP) and economic order quantity (EOQ) and so recommends that MRP inventory management practice was most effective in contributing to performance e of the targeted manufacturing industry [23]. In addition the study evaluated inventory management and control on seven up and green cork seals, a manufacturing firm in Nigeria points out that, effective inventory management and control system has contributed to the profitability of manufacturing firms and also inventory system adopted in the studied firm was effective but its needs to diversify to reduce loss from damage [22].

The study conducted in Ethiopia assess inventory management practice at Hawassa Textile Factory in Ethiopia and revealed that the company used a manual inventory management system, holds too much or too little inventory, and also the company had used ABC inventory management techniques by ignoring other techniques so, the failure to provide services to the company on time and gave more attention to the most important materials and less attention to C items [12]. In addition, the researcher find out that the company has a weak inventory management system due to the absence of well-skilled, educated, and experienced manpower. Also, similar study examines the inventory management

system of Habesha Cement Share Company in Ethiopia and founds that to some extent company was effective in managing the inventory level [13]. However; further improvement is needed in areas like inventory physical counting inspection, handling of overstocking and under stocking of inventories, data accuracy, and real-time report preparation. Moreover, the Company is mainly used a perpetual inventory system to determine the materials demand of the customers. However, lack of management support, insufficiently qualified staff, and shortage of training are the major problems in the assessment of inventory management practices in the studied firm. The same study made by another academic researcher assess inventory management practices in manufacturing firms founds in Hawassa city, Ethiopia indicated that the companies experienced a lot of procedures to keep their stock always available to meet customers' demands the so the results very good inventory management practice but face long lead time challenges due to bureaucratic procedure in order part leading to the cancellation of the purchase order and loses customers [27]. Further More, the study assesses inventory management practices, challenges, and prospects - the case of the Asella malt factory in Ethiopia, indicated that the factory did not give an emphasis on inventory management practices like EOQ, and JIT is also the main challenges that hindered implementation of inventory management practices in the factory were; reluctant to invest in modern technologies which enhance effective inventory management, and inadequate resource for implementing inventory management practices, lack of proper training, failure of top management to involve employees in inventory management related decision and poor record-keeping, poor coordination and communication, unreliable suppliers and poor infrastructure and recommended that the factory should embrace inventory management practices to improve and enhance effective inventory management [10].

1.3. General Objective of the Study

The general objective of this study is to evaluate the effectiveness of inventory management practices on manufacturing companies in Yirgalem agro-industrial park, Ethiopia. While specific objectives are:

i. To evaluate the effectiveness of inventory management practice of manufacturing companies in Yirgalem agro-industrial park, Ethiopia.
ii. To find out the adopted inventory management practice of manufacturing companies in Yirgalem agro-industrial park, Ethiopia.
iii. To assess the existence of good supply chain relationship of manufacturing companies in Yirgalem Agro-industrial park, Ethiopia.

1.4. Significance of the Study

The main goal of this study was to evaluate the effectiveness of inventory management practices on manufacturing companies found in the Yirgalem agro-industrial park in Ethiopia. Thus, the result of the study will help management to make strategic decisions related to effective and efficient inventory management practices, make equilibrium of supply and demand, help in planning future demands in the company, and help create awareness for both staff and management of those are involved in inventory management line. For the government, it serves as a ground to evaluate, plan and may improve the activities of the study industry park. Finally, this research work will serve as future reference material for both academia and policymakers who need to research the same area and topic.

2. Review of Related Literature

2.1. Inventory Management Practices

Inventory management is a blueprint of the inventory management system and includes the physical infrastructure, the planning, and control structure, the management information architecture as well as the organizational embedding of the inventory system [4]. The main goal of Inventory management is that make sure the right item is offered at the right time, stored in a right place, and minimizes the cost of stock [5, 6]. The most of the time the efficiency of inventory management procedures and practices are under question for management because many times the result of a procedure of managing inventory have a problem of shortage, leading different weakness may be a loss that happens a result of over stock level, under stock level, expiry inventory, failure to achieve the set goal [14]. Inventory management practice can be described variously, for example the author, describe Inventory management practices as the models that are used to record, consolidate, track, analyze and report when the inventories are going down or there are excess inventories in the firm and Such models include; Just-in-Time (JIT), Materials Requirement Planning (MRP), Vendor Managed Inventory (VMI) and economic order quantity and others [11]. Another author defined Inventory management practices as the system adopted by a firm to manage the investment made in stock [18]. Also, the inventory management practices are concerned with the recording as well as monitoring of the level of inventory, projecting demand in the future in addition to making the decision when to order and how it should be ordered and also supports the coordination of the purchase, manufacturing activities along with distribution to meet the marketing needs of ensuring that products are availed to a consumer [28].

2.2. Inventory Management Techniques

i. ABC Approach

The ABC approach is the simplest approach to inventory management in which the basic idea is to divide the inventory into three groups. The basic assumption under this approach is that a small portion of inventory in terms of quantity might represent a large portion in terms of inventory value. For example, this situation would exist for a manufacturer that uses some relatively expensive, high-tech components and some relatively inexpensive basic materials

in producing its products [26]. Also, the ABC approach ranks using the following criteria: A class items represent 70–80% of the firm's annual consumption approximation and just 10–20% of aggregate stocked items. Class B items represent 15–25% of annual use esteem and 30% of aggregate stock and items under C characterize 5% of the annual application of esteem and half of the total stocked items.

ii. The Economic Order Quantity Model

The economic order quantity model is also known as the Wilson EQQ model defines the optimal quantity to order that minimizes total variable costs required to order and hold inventory [19]. It also refers to the optimal ordering quantity for an item of stock that in the minimization of costs. In this inventory management technique, the demand for the item is known with certainty, the lead time is known and fixed, the receipt of the order occurs in a single instant, quantity discounts are not calculated as part of the model, and shortages of inventory or stock out do not occur. The economic order quantity (EOQ) model is concluded as the best-known approach for explicitly establishing an optimal inventory level. It indicates how much the firm should have inventory on hand at any particular time and what order size the firm should use when it restocks its inventory [26].

iii. Materials Requirements Planning (MRP)

Material Requirements Planning (MRP) is a production planning and inventory control system which have three main functions: (i) the system helps ensure that the appropriate materials are available for production and necessary products are available for customers to avoid a shortage, (ii) reduces waste by maintaining only the lowest possible materials and product levels in stock, (iii) helps plan manufacturing functions, delivery schedules and purchasing [24]. The basic idea behind MRP is that, once finished goods inventory levels are set, it is possible to determine what levels of work-in-progress inventories must exist to meet the need for finished goods. From there, it is possible to calculate the number of raw materials that must be on hand. This ability to schedule backward from finished goods inventories stems from the dependent nature of work-in-progress and raw materials inventories. MRP is particularly important for complicated products for which a variety of components are needed to create the finished product [26].

iv. Just-in-Time Inventory Just-in-time (JIT).

Just in time was originated and implemented by Japan Toyota and other Japanese manufacturing firms with great success in eliminating production waste. It has proven capable of effectively cutting production costs and waste while improving productivity, quality, and efficiency of manufacturing firms in both developed and developing economies [15, 7, 9]. In a Just-in-time (JIT) system the purchase of materials (or goods) is made when they are delivered just as needed for production (or sales) so this system is used to reduce costs of carrying inventories like warehousing, handling, shrinkage, and other related costs. The basic goal JIT techniques are to have only enough inventory on hand to meet immediate production needs that

inventories are reordered and restocked frequently and it needs a higher degree of cooperation among suppliers to avoid shortages requires. This type of inventory practice is an important part of a larger production planning process [26]. Even if JIT saves a lot of money for the company it isn't free from the risk of unexpected disruption in the supply chain may lead the company to cost a lot of money [17].

v. Computerized Inventory Management Systems:

A computerized Inventory Control System is the integration of sub-functions involved in the management of inventory into a single cohesive system. It is software installed on the computer systems that enables a firm to keep a check on the inventory levels by performing the automatic counting of inventories, recording withdrawals, and revising the stock balance. Implementing an automated (computerized) inventory management system in firms particularly manufacturing companies has the following advantages, quick and accurate counting, reducing shrinkage and missing inventory, better receiving and shipping, and real-time inventory management information.

3. Research Methodology

3.1. Description of the Study Area

The main goal of the study was to evaluate the effectiveness of inventory management practice and its challenges in the Yirgalem agro-industrial park in Ethiopia. Yirgalem agro-industrial Park is one of the integrated manufacturing companies established in 2018G.c. It is located in, the Sidama region, Yirgalem town, Ethiopia, the distance from Addis Ababa, Hawassa, and Yirgalem town is 318km, 45km, and 5km respectively, and 1.5km the main road of Addis Ababa to Kenya, Nairobi and geographically located at 742986.866 N to 745714.474 N, and 427277.856 E to 428892.869 E.

3.2. Research Design and Approach

The main objective of this study is to evaluate the effectiveness of inventory management practice in the Yirgalem agro-processing industrial park in Ethiopia. Thus, a descriptive research design with a mixed approach was employed to increase the quality as well as reliability of targeted data. Quantitative aspects of data are collected through questionnaires and the qualitative aspects of the study interview and conducted with selected personnel to get a better understanding and also the field observation made within the study area.

3.3. Source of Data and Technique of Collection

This study used primary and secondary data sources. The study used closed and open-ended questionnaires to gather primary data from selected respondents and also interviews and field observation to get a better understanding and quality data regards on the study topic. While, secondary data was collected from a review of prior research studies, conferences, international journal articles, and, books.

3.4. Targeted Population, Sampling Methods, and Sampling Size

The population for this study was manufacturing companies currently operating in Yirgalem agro-industrial park Ethiopia. There are three companies were formally started the production process in the study area. The targeted population, of the study, was workers who have a direct relationship with inventory control in each company, such as factory managers, quality officers, production officers, marketing officers, purchase and supply chain officers, warehouse (store) officers, sales officers, HRM personnel, technical assistance, and information communication technology officers. Those workers are selected purposively as the sample for the study because they are believed to have quality information regards to the study topic. Thus, six (6) questioners were distributed for each company total of eighteen (18) company employees who are working in line with an inventory of manufacturing companies operating in

Yirgalem agro-industrial park, Ethiopia.

4. Results and Discussion

Table 1. Response rate.

Category	Frequency	(%)	Remark
Distributed Questionnaires	18	100	
Returned To Back	15	83%	
Did Not Return Back	3	17%	
Total	18	100%	

Source: Field survey, (2022)

As presented in table 1 above the eighteen (18) questionnaires were distributed to select respondents. Of this 15 (83%) were filled and returned to back and 3 (17%) respondents were not returned. Thus, it can be generalized as the response rate was good, and collected data is enabled for conducting analysis.

Table 2. Summary of Respondent's Demographic Profile.

S/N	Valid	Category	Frequency	Valid %	Cumulative %
		Male	9	60.0	60.0
1	Sex	Female	6	40.0	100.0
		Total	15	100.0	
		20 To 29	11	73.3	73.3
2	Age	30 To 39	4	26.7	100.0
		Total	15	100.0	
		Diploma	3	20.0	20.0
3	Education Level	BA Degree	9	60.0	80.0
		Master Degree	3	20.0	100.0
		Total	15	100.0	
		1 To 5	11	73.3	73.3
4	Work Experience	6 To 10	3	20.0	93.3
		10 To 20	1	6.7	100.0
		Total	15	100.0	

Source: Field survey, (2022)

As indicated table 2 above summarized the demographic backgrounds of respondents. Accordingly, 60% and 40% of respondents were male and female respectively. Also regards to their age 73.3% and 26.7% of respondents were categorized as aged between 20 to 29 and 30 to 39

respectively. In addition, 20% of respondents' have education level diplomas, 60% of them are degrees, and 20 of them are master's degrees. Regarding work experience, 73.3%, 20%, and 6.7% of respondents had work experience of 1 to 5 years, 6 to 10 years, and 10 to 20 years respectively.

Table 3. Reliability statics.

Cronbach's Alpha	Cronbach's Alpha Based On Standardized Items	N Of Items
.560	.515	5

Source: SPSS output, (2022)

Reliability is very important in the measurement process, particularly in Likert scale questions. It refers to the confidence we can place on the measuring instrument to give us the same numeric value when the measurement is repeated

on the same object and is commonly measured by Cronbach's [3]. As shown in table 3 the result of SPSS has found the value of 0.560 so that Likert scales questionnaires were reliable to make an analysis.

Table 4. Effectiveness of Inventory ManagementPractice (EIMP).

Items	N	Mean	Std. Deviation
Continuously Supply Of Raw Material To the Company For Production	15	3.33	1.047
Stock Of Raw Material Are Sufficient For Production When Supply Shortage	15	2.33	.724
Any Time Stock Of Finished Goods Is Sufficient To Meet Sale Operation And Market Demand	15	3.13	1.125
Designed Inventory Management Procedures In Company Enable To Minimize Cost and Time	15	3.33	.900
Always Excessive Stock Of Raw Material Inventory Are Available In Company	15	2.60	1.056

Items	N	Mean	Std. Deviation
Not Adequate Stock Of Raw Material In Company	15	3.73	.799
Optimum Stock Of Raw Material Inventory In Company For Any Periods	15	3.67	.816
Over All Mean		3.16	0.92

Source: Field survey, (2022)

To measure the extent of effectiveness of inventory management practice in Yirgalem agro-industrial park companies, Ethiopia, to collect opinions from respondents the five-point Likert scale questions were used which ranges between strongly agree to strongly dis-agree which means 5 strongly agree, 4 agree, 3 moderate, 2, disagree and 1 strongly disagree. As indicated in table 4 above the seven items were used to measure the effectiveness of inventory management practice in the study company. The results of respondents' agreement revealed that the mean value of each scale item was found 3.33, 2.33, 3.13, 3.33, 2.60, 3.73 and 3.67 respectively. Also, the overall mean value founded 3.16. This implies the effectiveness of inventory management practice was moderate. However, raw material stock was not adequate.

Table 5. Economic Order Quantity (EOQ) approach.

Items	N	Mean	Std. Deviation
It's Possible To Know How Much The Company Have Inventory On Hand At Any Particularly Periods	15	4.13	.640
It's Possible To Know What Order Size The Company Should Use	15	4.27	.458
It's Possible To Know When a Company Is Restock Or Order Its Inventory	15	4.33	.488
It's Possible To Know How Much Of Raw Materials Is Needs For Given Production Periods	15	4.20	.414
Over All Mean		4.2	0.5

Source: Field survey, (2022)

Also, the study intended to identify the inventory management techniques used by manufacturing companies in Yirgalem agro-industrial park, Ethiopia. The five-point likerscale questionnaires which range from 5 (strongly agree) to 1 (strongly disagree) were distributed to collect the perception of respondents regards to economic ordering quantity (EOQ) inventory methods. As the result indicated in table 5 the respondent's opinion reflects that the mean value of each Likert scale item was founded 4.13, 4.27, 4.33, and 4.20 respectively, and the overall item scale mean value founded 4.2 with a standard deviation of 0.5.

Table 6. Just In Time (JIT) Approach.

Items	N	Mean	Std. Deviation
Company Order Raw Material When It's Needed Only	15	4.13	.352
It's Possible To Know When Raw Material Inventory Is Needs In Company	15	4.00	1.000
Raw Material Are Placed In Company Required For Production Process	15	4.00	.845
Only Desired Quantity Of Raw Materials Are Supplied To Company	15	3.87	1.060
Over All Mean		4	0.81

Source: Field survey, (2022)

In addition, the study attempted to know whether the manufacturing companies operating in Yirgalem agro-industrial park, Ethiopia used just-in-time inventory techniques', four liker scale items were employed and supported by a five-point likertscale that lies between strongly agree (5) to strongly disagree (1) were utilized and distributed for respondents. Accordingly, the mean value of the respondent's opinion showed 4.13, 4.00, 4.00, and 3.87 respectively, and the overall items' mean value indicated 4 with a standard deviation of 0.81 (see table 6).

Table 7. ABC approach.

Items	N	Mean	Std. Deviation
Inventory Items In Company Classified As A, B And C Groups Based On Cost Volume	15	2.27	.704
High Value OfInventory Items Given High Control Than Lower Value Items In Company	15	4.00	.756
Over All Mean		3.13	0.73

Source: Field survey, (2022)

Besides, the study tried to examine whether the manufacturing companies currently operating in Yirgalem agro-industrial park, Ethiopia are focused on ABC inventory techniques. The two questionnaires items are developed and distributed for targeted respondents in targeted manufacturing companies. The result of respondent's opinion regards to ABC approach showed that the mean scale value of items founds 2.27 and 4.00 respectively and the over all mean value was 3.14 with 0.73 standard deviations (refer table 7).

Table 8. MRP approach.

Items	N	Mean	Std. Deviation
The Level Of Finished God Inventory Is Sited In Advance To Production	15	4.27	.594
It's Possible To Determine The Level Of Work In Process Inventory To Meet Need ForFinished Good	15	4.33	.488
Over All Mean		4.3	0.541

Source: Field survey, (2022)

Finally, the study was attempted to find out that manufacturing companies currently operating in Yirgalem agro industry park are wether used material requirement planning (MRP) inventory management techniques' or not. The identify the respondents' agreement level or perception on implementation of MRP inventory methods two items were utilized and forwarded to respondents. As it result indicated in table 8 the mean response agreement value of scale items revealed 4.27 and 4.33 respectively and also over all item mean value showed 4.3 with means standard deviation of 0.54.

Table 9. Available of computerized or manual inventory system in company.

S/N	Statements	Reponses Of Respondents				
		YES	%	NO	%	%
1	Does Your Company Use Computerized Inventory System?	14	93%	1	7%	100
2	Does Your Company Use Manually Inventory System?	15	100.0	-	-	100

Source: Field survey, (2022)

Respondents asked for either the manufacturing company founds in Yirgalem agro industrial park has used computerized or manual inventory system. As it depicted above the table 9, the 93% (14) of respondent responses yes and 7% (1) no. In addition to this, 100% (15) respondents said yes for manually inventory system used by manufacturing company. Also the interview forwarded for manufacturing HRM director regards to stock record keeping system and informing that the companies had used both computerized and paper based stock record system because to control evidence safe due to may the system failed operation. This result indicated that, almost all manufacturing companies in Yirgalem agro-industrial Park has used computerized as well as manual stock recording system.

Table 10. Provider of training on inventory system.

S/n	Statements	Reponses Of Respondents				
		YES	%	NO	%	%
1	Do You Have Training On Inventory Management?	14	93%	1	7%	100

Source: Field survey, (2022)

The respondents asked to say yes or no for weather they had got training on inventory management. As the response showed in table 10 above that, 93% (14) said yes and 7% (1) no. In addition to this, the interview forwarded to each manufacturing company HRM director and said that, the training gave staff how to record keeping, how to report inventory stock and how to control it. To view this, it can be generalized that manufacturing companies found in Yirgalem agro-industrial Park provide training related to inventory.

Table 11. Questionnaires related to Supply chain.

S/n	Statements	Reponses of respondents				
		YES	%	NO	%	Cumulative %
1	Do You Believe That The Raw Materials Supply In Company Is Sufficiently Enough For Any Production Periods?	3	20	12	80	100
2	DoYou Believe That There Is Good Communication Between Suppliers and Companies?	14	93%	1	7%	100
3	Doe Raw Material Supplied To Company On Time?	14	93%	1	7%	100
4	DoeRaw Material Supplied To Company Fitted The Quality Standard?	11	73%	4	27%	100
5	DoYou Believe That There Is Excess Raw Material Supply Access?	1	7%	14	93%	100

Source: Field survey, (2022)

Raw materials inventory is obtained from the supplier. Thus, it's necessary to have a good supply chain for any manufacturing company including a manufacturing company found in Yirgalem industrial park to get sufficient raw material for production. Despite that, if there is no good supply chain for the manufacturing company the results of no or sufficient raw material, under quality supplied, leads to production shortage, and overall results the firm faces sustainability problems. As the result is shown in table 11 above questions were forwarded to selected respondents to

respond yes or no. Accordingly, the first question asked whether the raw material supply is sufficiently enough for any production period and 20% (3) of respondents said yes and 80% (12) said no. Also, they asked whether good communication between suppliers and the company, for questions 93% (14) said yes and 7%(1) no, another question forwarded regards supplied raw material quality standard and 73% (11) yes and 27% (4) of them said no and finally, question forwarded to identify the availability of excess raw material supply to manufacturing company currently operating in Yirgalem agro-industry park and 93% (14) of respondents said no and the rests of them said yes response is 7% (1). Besides questionnaires, interviews were forwarded to the supply chain manager and said that, the raw material supply is not sufficient enough for the production for targeted output when compared with the production capacity of the machine. Due to price and seasonality, the raw material supply access is not exceeded and the company was provided awareness training for suppliers.

5. Conclusion

The main objective of this study was to evaluate the effectiveness of inventory management practice and its challenges in manufacturing companies operating in Yirgalem agro-industrial park, Ethiopia. AS the result indicated in the preceding section, 60%, and 40% of respondents were male and female respectively. This implies that the majority of the study participants were male followed by a female so, it can be concluded that there was no gender bias. Also, 73.3% and 26.7% of respondents were categorized between 20 to 29 and 30 to 39 age respectively. This indicated that the workers in the study manufacturing companies were young aged. Regarding the regards of the educational level of workers 20% had diplomas, 60% degrees, and 20% had had master's degrees. Thus, it can be concluded that the majority of manufacturing company's workers currently served in Yirgalem agro-industrial Park had a bachelor's degrees. In addition, about 73.3% of workers had work experience categorized as 1 to 5 years followed by workers who had categorized work experience 6 to 10 years. This showed that, the majority of workers found in manufacturing companies in Yirgalem agro-industrial Park are experienced regards to production, supply, procurement, inventory handling, quality, and sales.

This study attempted to examine the extent of effectiveness of inventory management practice in manufacturing companies operating in Yirgalem agro-industrial park, Ethiopia through developing five-point Likert scale items which range from strongly agree (5), to agree (4), disagree (2) and strongly disagree (1). In each item Likert scale point got the average mean score value of respondents' agreement revealed showed 3.33, 2.33, 3.13, 3.33, 2.60, 3.73 and 3.67 respectively and the overall mean score value founds 3.16 with a standard deviation 0.92. This indicates that the response of respondents' regarding the effectiveness of inventory management practice fails on a moderate agreement level. Therefore, the researcher concluded as the

effectiveness of inventory management practice of manufacturing companies found in the Yirgalem agro-industrial park was moderate. However, the stock of raw materials should be sufficient for a period of shortage. In addition, the mean value of economic order quantity (EOQ) practice of the company showed 4.13, 4.27, 4.33, and 4.20 respectively and the overall item scale mean value founds 4.2 with its standard deviation of 0.5. This implies that the overall item response of respondents regards to the implementation of EOQ in manufacturing companies operating in the Yirgalem agro-industrial park was fail on agree on the level. Thus the study generalized as companies found in the study park used EOQ inventory management techniques. Besides, the mean score value of them just in time (JIT) inventory techniques revealed that 4.13, 4.00, 4.00, and 3.87 respectively, and the overall items' mean value founds 4 with a standard deviation of 0.81. This result indicated that, respondents' response to the JIT approach was agreed, so it's possible to conclude as manufacturing companies in the Yirgalem agro-industrial park used JIT inventory techniques. Also, the mean score value of respondents' opinion for ABC inventory management approach of companies founds 2.27 and 4.00 respectively and overall items mean values was found 3.14 with 0.73 standard deviations. It indicated that respondent' opinions for the usage of ABC inventory techniques in the study companies fall on moderated agreement level. Therefore, the researcher concluded that implementation of the ABC approach in manufacturing companies in Yirgalem industrial park was moderate but classifying inventory items as A, B, and C trends should be improved. Besides, the perception of respondents' regards to materials requirements planning (MRP) inventory practice used by manufacturing companies found in Yirgalem agro-industrial Park revealed that the mean response value of respondents' agreement was 4.27 and 4.33 respectively and overall mean score value showed 4.3 with means standard deviation of 0.54. This opinion fall on agree the level of agreement. Hence, the study concluded that the manufacturing companies currently operating in Yirgalem agro-industrial Park are used MRP inventory techniques. Regards to computer inventory systems used by manufacturing companies 93% (14) of respondents responded yes and 7% (1) no, also 100% (15) of respondents said yes to manually inventory systems. In addition, the interview showed that to control evidence safe may the computerized system fail its operation right the companies also used paper based stock record system. Therefore it's possible to conclude that manufacturing companies in Yirgalem agro industrial park had used both computerized as well as manual system. In addition, the respondents asked to say yes or no for weather they had get training on inventory management for this question, 93% (14) said yes and 7% (1) no. Besides, the HRM interviewed and responses indicated that, once in a year the training is given for staff member how to keeping inventory, how to report inventory stock and how to control as well as awareness raising training given for supplier to create good relationship. To view of this it can be

generalized that manufacturing companies found in Yirgalem agro-industrial Park provide training to its stack holder related to inventory. Also the result showed that, 20% (3) of respondents said, raw material supply is sufficiently enough for any production period and 80% (12) said not sufficiently enough for any periods. Regards to supply chain relationship 93% (14) said that there was a good communication between supplier and company and 7% (1) said no. Regards to, quality of raw material supplied to companies 73% (11) said yes and 27% (4) of them said no. Finally, 93% (14) response said not excess raw material (supply) available and 7% (1) said yes available. Besides, interview result indicated that raw material supply is not sufficiently enough for production of targeted output when compared with production capacity of plant due to price and seasonality of raw material supply access. This showed that the raw material supply production was not excessive (over) stated for current plant capacity found in the study companies. Thus, it can be concluded that supply of raw material was not sufficient enough for intended production; good communication between companies and supplies, supplied raw materials to companies was fitted quality standard and no excessive supply available.

Yirgalem agro industrial park had potential to include the numbers of manufacturing industries in it. However, our field observation indicated that, currently only three (3) manufacturing companies are formal started operation in Yirgalem agro industrial park, Ethiopia. This implies that, very few of company have been entered in to Yirgalem agro industrial park, Ethiopia. Thus, we conclude that, the most of investors are not entered and being production process until today may this is bottleneck of the industrial park to contribution the targeted economy for country Ethiopia.

6. Recommendation

As discussed in the preceding section, the effective inventory management practices always give a competitive advantage to business, regardless of its' nature and significance to generate revenue for any business companies' particularly, manufacturing industry. Hence, based on the conclusion drawn in the section above, the following recommendation forwarded:

Over all mean score value of effectiveness of inventory management practice of manufacturing companies operating in Yirgalem agro industrial park got the moderate level of agreement, thus, the manufacturing companies should improve the effectiveness of inventory management practice for better competitive advantageous for future. From findings and conclusion the researcher identified that Companies had practices inventory management techniques like OQ and MRP approaches, but classifying the inventory items as A, B and C trends should be improved. Companies were used both manual and computerized inventory system to keep file track may the system fall operation right, so this trends should continue for future. Companies have provided training for staff members about inventory management issue once year. So it should be continue and improve to enhance effectiveness of managing inventory by companies. The supply of raw material to existing factories was not sufficient enough for intended production purpose. So it needs more linkage with suppliers and price should be adjusted to get more raw materials for production. Companies had good communication with its suppliers. Thus, this should be continue and needs some rewarding scheme to supplier get sufficient supply when shortage in raw materials. Companies had get quality raw materials for production but it needs some improvement. Raw material was no excessive for the capacity of factor plant currently on operation. Thus, the new investors should invest on another product which was not have been invested by the former industries like "enset" production, potato, sugar potato and false banana, tomato, and another supply to create the new types of inventory and opportunities. During our field observation we have seen that, processed with very few workers. Thus, it should increase the number of worker to achieve the project goal and to improve its production level. Also during our field observation we have seen that except three companies the most of manufacturing companies found in Yirgalem agro industrial park was not being the production process functionally. Thus the concerned body should increase bring additional investors through create linkage with investors, particularly local investors and make sufficient promotion about Yirgalem industrial park, implementing appropriate tax strategy and may facilitate long term loan for local investors to generate sufficient economic benefit for country Ethiopia.

7. Direction for Future Studies

This study undertaken on manufacturing companies operating in Yirgalem agro industrial Park, Ethiopia, the similar studies should try to carried on Bulbula, Bure, and Baeker agro industrial parks in Ethiopia if a need to conducting the same research. The study was evaluating inventory management practice and its 'challenges, the another studies should focuses to evaluating the factor that affecting the effectiveness of inventory management practice in the similar manufacturing industries in Ethiopia. The sample respondents for this study were small; the future studies should try to include more sample respondents to draw better conclusion on the study topic.

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Biography

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