



**EFFECT OF INVENTORY CONTROL METHODS ON THE PERFORMANCE OF
PROCUREMENT FUNCTION IN SUGAR MANUFACTURING FIRMS IN WESTERN
KENYA**

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Abstract

Efforts have been made by organizations to try and manage and control inventories in an effective way and reduce the costs involved in the process but still there are challenges that cannot make inventory effectively be controlled. The various sugar manufacturing firms in western Kenya have been grappling with the challenge of inventory control evidenced by increased volumes of obsolete stock due to poor inventory control practices hence affecting the performance of the procurement function as a whole. The study is important because it intends to fill gaps to eradicate the impact of poor inventory control management in the sugar manufacturing firms in western Kenya. The study established that the economic order quantity, safety stock levels, just in time and ABC classification all affected the performance of the procurement function in the sugar manufacturing sector. A conclusion was made that adoption of the inventory control methods in the sugar companies have a positive impact on the productive and a recommendation made that the modern technology be adopted in the inventory management in the sugar manufacturing sector in Kenya.

Keywords: inventory control, procurement function, stock level management

I. INTRODUCTION

Inventory management is a system concerned with integration of information, transportation, acquisition, inspection, material handling, warehousing, packaging, and control of supplies and ensuring security of inventory. Inventory management aims at discovering and maintaining optimal levels of investment in all types of inventories and maximizing the flow of goods, information and other related resources like people and energy from the point of origin to the point of final consumption. According to Lambert (2008), the most important aim of inventory management is to provide information to managers the quantity of materials to re-order, time to re-order the goods, how often orders are to be placed and what levels of inventory should be retained as safety to ensure continuous production process.

The scope of inventory management also involves managing the replenishment lead time, replenishment of goods, returns and defective goods and demand forecasting, carrying costs of inventory, asset management, physical inventory, available physical space, demand forecasting, inventory valuation, inventory visibility, future inventory price forecasting and quality management. With a balanced of these requirements, it is possible to reach an optimal inventory level, which is an on-going process as the business needs shift and react to the wider environment (Githendu, 2008).

Performance of the Procurement Function

Procurement function encompasses the whole process of acquiring goods, services and works. It begins when an entity has identified a need and decided on its procurement requirement. Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of the goods, services and or works, storage, payment of the delivery and where relevant, the ongoing management of a contract and consideration of options related to the contract. Procurement also extends to the ultimate disposal of property at the end of its useful life (Baily, 2005)

The performance of the procurement function encompasses the financial performance and market performance. The procurement process should be executed in a transparent and open manner so as to ensure the value for the money expended is achieved. The costs involved should be reduced as much as possible by conducting adequate market search, identification of the right suppliers and also the right sources of materials (Christopher, 2005). In the manufacturing industry the companies should reduce the lead time in both in bound and out bound logistics as this ensures that raw materials are availed in the production zone easily, the production process is done efficiently and hence the final products are availed on time to the customers. The procurement should also target to establish long term relationship with different suppliers such strategic or collaborative relationship as this will ensure long term benefits to the organisations involved.

Inventory Management as an aspect of the procurement function is very vital in the performance of the procurement function in a company. In manufacturing industry like the sugar sector, the

profits realized by the companies entirely relies on how well the acquisition of the raw materials by the procurement function are obtained, its quality and the total cost involved in the acquisition. This also is tied to the extent to which the raw materials are well maintained and used in the production process, storage of the finished products and the distribution channels used by the companies. If inventory management is not adequately maintained, production cannot meet the aspirations of customers leading to a loss of revenue to the organization. Right from procurement to the time of processing, quality of raw material is the chief determinant of the productive efficiency of any manufacturing concern (Koumanakos, 2008).

Mandal (2012) views that the most effective measurement systems assess performance in the entire length of the Organization's procurement function, from suppliers through internal processes to customers. The measures are divided in five major categories which include cost measures, quality measures, time measures, supplier performance measures and customer satisfaction measures. The metrics that are used in performance measurement should be those that truly capture the essence of the procurement function performance. A measurement system should facilitate the assignment of metrics to where they would be most appropriate. For effective performance measurement, measurement goals must represent the goals of the function and metrics selected should reflect a balance between financial and non-financial measures that can aid in decision making. The metrics in the procurement function included but not limited to cost involved in acquisition of materials, adherence to the legal and regulatory framework, accuracy information and the types of buyer-supplier relationships adopted by the organization.

II. STATEMENT OF THE PROBLEM

Over the past years, sugar firms in Western Kenya have been faced with the problem and challenge of inventory control as they have employed different control methods to an extent sometimes that they have not been able to exactly establish the best methods to effectively monitor inventory in stock. This has been as a result of the procurement function not fully creating inventory control procedures to ensure effective inventory monitoring in the firms. The firms have experienced poor inventory purchase planning, storage, control and even issuance procedures leading to production itches and in adverse cases stocks out. In addition, despite the efforts being made by the sugar firms to make stock available for use and reduce the costs of inventory, these items have been always mismanaged leading to deterioration, obsolescence or even pilferages (Cynthia & Amuhaya 2015). The firms do not effectively control the inventory that they avail for use hence incurring continuous costs in inventory acquisition (Mogere, 2013). This as a result leads to under stocking thereby leading to stock outs and production stoppage a failure attributed to the procurement function.

Several studies have been done in the area of inventory management but there is a knowledge gap existing in the manufacturing companies in western Kenya between inventory control and performance of the procurement function the study will seek to fill by examining inventory

control methods which can improve the performance of the function in the sugar manufacturing firms in Kenya.

III. STUDY OBJECTIVES

The general objective of the study was to examine the effect of inventory control methods on the performance of procurement function in sugar manufacturing firms in western Kenya. The **specific objectives** of the study were to;

- i. find out the effect of economic order quantity on the performance of procurement function in sugar manufacturing firms in Kenya
- ii. find out the effect of safety stock levels on performance of procurement function in sugar manufacturing firms in Kenya
- iii. find out the effect of just in time on performance of procurement function in sugar manufacturing firms in Kenya
- iv. examine the effect of ABC analysis on the performance of procurement function in sugar manufacturing firms in Kenya

IV. LITERATURE REVIEW

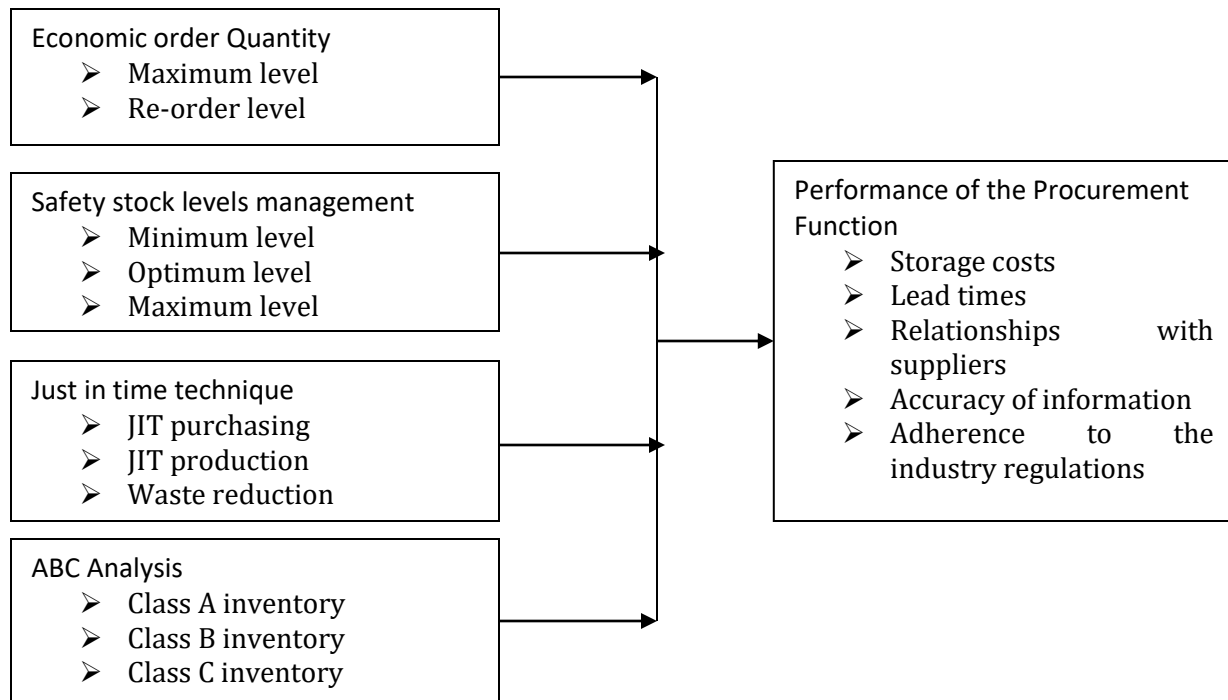
The study was guided by **inventory optimization theory** that seeks to keep inventory levels in an optimum level so as to increase production efficiency through the identification of those aspects that are constraining the inventory levels (Ketchen, 2007) and **lean theory** designed to align the production schedule in the manufacturing industry and the procurement function so as to ensure raw materials are available as at when needed in the production zone. This theory facilitates efficient synchronization of the supply chain enabling sound inventory management, and establishing accuracy re-order levels (Mazanai, 2012) Green and Inman (2005) assessed the impact of lean theory on financial performance.

Conceptual Framework

In this study, the variables economic order quantity, the safety stock levels, just in time technique and the ABC analysis will be presented as the independent variables while performance of the Procurement function will be presented as the dependent variable as illustrated in figure 1 below.

Independent Variables

Dependent Variable



V. RESEARCH DESIGN

The study adopted a descriptive research design in which the opinions of employees in the stores, and procurement departments in the sugar manufacturing companies in western Kenya were sought as the target population. The study used a sample size of 46 employees from the total population of 230. From the sample population, primary data in form of questionnaires was obtained by the researcher. Descriptive and regression analysis methods were used to analyze the data obtained by the researcher.

VI. DISCUSSION

Effect of Economic Order Quantity on the Performance of Procurement Function

The study sought to establish the perception of the company staff on effect of economic order quantity on the performance of procurement function. The response options ranged from 1-5 Where 1=strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree. The study computed percentages, means and standard deviation to help evaluate their perception. The findings are illustrated in table 1 below;

Table 1; Effect of Economic Order Quantity on the Performance of Procurement Function

Study Question	S. Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	S. Agree (%)	Mean	Standard deviation
Adoption of economic order quantity helps in reducing storage costs	0.0	13.5	5.4	24.3	56.8	4.24	1.065
There is increased inventory turnover in the company due to adoption of EOQ	0.0	5.4	10.8	56.8	27.0	4.05	0.780
This technique facilitates accurate information on the inventory in stock	10.8	37.8	45.9	5.4	0.0	2.46	0.767
EOQ helps the company to periodically review its inventory and establish priorities in purchasing process	0.0	8.1	0.0	48.6	43.2	4.27	0.838

The findings in the table 1 above indicate that 24.3% and 56.8% of the respondents agreed and strongly agreed respectively that adoption of economic order quantity had helped in reducing storage costs. However, 13.5% of the respondents disagreed with the statement and 5.4 were neutral. The mean response was 4.24 with a 1.065 standard deviation from the mean, indicating low variability and thus high level of consistency.

In an attempt to explore the frequency of perception of the respondents on whether there was increased inventory turnover in the company due to adoption of EOQ, 56.8% and 27.0% of the respondents strongly agreed and agreed with the statement. The other 5.4% disagreed with the statement while the remaining 10.8% were in a neutral position. The mean response was 4.05 with a standard deviation of 0.780 from the mean, indicating a low variability and thus high level of consistency.

Meanwhile, in regard to the economic order quantity facilitating accurate information on the inventory in stock, the respondents were of the opinion that the method did not result into accurate information about the inventory as supported by a mean of 2.46 with a 0.767 standard deviation from the mean, indicating a low variability and thus high level of consistency. 10.8% of the respondents strongly disagreed with the statement while 37.8% disagreed. However 45.9%

of the respondents were neutral. This finding indicates that it the use of economic order quantity was not a useful method in ascertaining the inventory information.

On whether the economic order helped the company to periodically review its inventory and establish priorities in purchasing process, 8.1% of the respondents disagreed with the statement while 48.6% and 43.2% agreed and strongly agreed with the statement respectively. The mean response was 4.27 with a standard deviation of 0.838 from the mean, indicating a low variability and thus high level of consistency.

Effect of Safety Stock Levels Management on the Performance of Procurement Function

The study sought to establish the perception of employees on effect of safety stock levels management on the performance of procurement function.

Table 2 Effect of Safety Stock Levels Management on the Performance of Procurement Function

Study Question	V. S. E (%)	Small E (%)	Moderate E (%)	Great E (%)	V.G. E (%)	Mean	Standard deviation
There are clear procedures on inventory optimization in the company	0.0	0.0	29.7	37.8	32.4	4.24	1.065
Adoption of inventory optimization enables the company to maintain an updated inventory records	10.8	29.7	51.4	8.1	0.0	4.05	0.780
Optimization enables quick response in inventory issuance and receipt	0.0	16.2	35.1	24.3	24.3	2.46	0.767
Inventory orders with suppliers are placed on time	0.0	10.8	16.2	21.6	51.4	4.27	0.838
There is increased productivity in the stores department by using the optimum inventory levels of inventory	2.7	18.9	43.2	35.1	0.0	4.24	1.065

From the above findings in table 2, 37.8% and 32.4% of the respondents felt that to a great extent and very great that the company they worked for had procedures in place on inventory optimization, while 53.3% agreed to a moderate extent. The mean response was 4.24 with a 1.065 standard deviation from the mean. The researcher opined that, these findings indicated that most of the companies had inventory procedures already in place.

On whether the inventory optimization led to updated records on the inventory levels, 16.7% of the respondents agreed to some extent, 8.1% to a great extent while 51.4% and 29.7% to

moderate and small extent respectively. Moreover, 10.8% accepted to a very small extent with the study question. The mean response was 4.05 with a 0.780 standard deviation from the mean, indicating a low variability and thus high level of consistency.

Subsequently, 48.6% of the respondents agreed to a great extent that inventory optimization enabled quick response in inventory issuance and receipt while 35.1 agreed to a moderate extent with the study question. However, 16.2% agreed to a little extent. The mean response was 2.460 with a standard deviation of 0.767 from the mean indicating a low variability and thus high level of consistency. From the finding, it was true that the to a great extent need for inventory was responded to faster as a result of inventory optimization.

In an attempt to establish the inventory orders with suppliers are placed on time most of the respondents agreed with the statement as supported by a mean of 4.27 and standard deviation of 0.838 from the mean. 10.8% of the respondents agreed with the statement to small extent, 16.2% to a moderate extent and 21.6% to a great extent while the remaining 51.4% to a very great extent. This implied that inventory orders were timely placed with the suppliers.

On whether there was increased productivity in the stores department by using the optimum inventory levels of inventory, 2.7% of the respondents agreed to a very small extent with the study question, 18.9% to a small extent while 43.2% and 35.1% to moderate extent and great extent respectively agreed with the statement. The mean response was 4.24 with a 1.065 standard deviation from the mean, indicating a low variability and thus high level of consistency.

Effect of Just in Time Technique on the Performance of Procurement Function

The study sought to establish the perception of employees on effect of just in time technique on the performance of procurement function. The findings are illustrated in table 3;

Table 3 Effect of Just in Time Technique on the Performance of Procurement Function

Study Question	V. S. E (%)	Small E (%)	Moderate E (%)	Great E (%)	V.G. E (%)	Mean	Standard deviation
The adoption of JIT has led to reduced waste of materials in transit and in the warehouse	0.0	0.0	10.8	59.5	29.7	4.19	0.616
There is clear, consistent and open communication between the procurement department and the suppliers	0.0	0.0	24.3	40.5	35.1	4.11	0.774
There has been reduction in the	0.0	21.6	59.5	16.2	2.7	3.00	0.707

transportation cost for the company materials

The company has established strategic partnership with suppliers to ensure quality materials are supplied 0.0 10.8 16.2 43.2 29.7 3.92 0.954

The needs of production and other support departments are met efficiently and on time due to adoption of JIT systems in the Company 0.0 21.6 62.2 16.2 0.0 2.95 0.621

From the above findings in table 3 above, 59.5% and 29.7% of the respondents felt that to a great extent and very great that the adoption of JIT has led to reduced waste of materials in transit and in the warehouse, while 10.8% agreed to a moderate extent. The mean response was 4.19 with a 0.616 standard deviation from the mean. The researcher opined that, these findings indicated that most of the companies had realised reduces waste of materials and other components due to the adoption of JIT technique.

Meanwhile, there was clear, consistent and open communication between the procurement department and the suppliers as result of JIT technique, 24.3% of the respondents agreed to a moderate extent, 40.5% to a great extent while 35.1% to a very great extent. The mean response was 4.11 with a 0.774 standard deviation from the mean, indicating a low variability and thus high level of consistency.

In an attempt to establish whether there has been reduction in the transportation cost for the company materials most of the respondents moderately agreed with the statement as supported by a mean of 3.00 and standard deviation of 0.707 from the mean. 21.6% of the respondents agreed with the statement to small extent, 59.5% to a moderate extent and 16.2% to a great extent while the remaining 2.7% to a very great extent. This implied that transportation cost incurred in transporting inventories had reduced over time.

On whether the companies have established strategic partnership with suppliers to ensure quality materials are supplied, 10.8% of the respondents agreed to small extent with the study question, 16.2% and 43.2% to moderate extent and great extent respectively agreed with the statement. However, the remaining 29.7% agreed to a very great extent with the study question. The mean response was 3.92 with a 0.954 standard deviation from the mean, indicating a low variability and thus high level of consistency.

In an attempt to explore the frequency of perception of the respondents on whether the needs of production and other support departments are met efficiently and on time due to adoption of JIT systems in the Company, 21.6% of the respondents agreed to a small extent, 62.2% to a moderate extent while 16.2% to a great extent. The mean response was 2.95 with a 0.621 standard deviation from the mean, indicating a low variability and thus high level of consistency.

Effect of ABC Analysis on the Performance of Procurement Function

Study Question	S. Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	S. Agree (%)	Mean	Deviation	Standard
Adoption of ABC analysis has led to improved customer service in the stores and procurement department	0.0	0.0	16.2	54.1	29.7	4.14	0.673	
The ABC analysis method allows proper investment on the inventories held by the company	0.0	0.0	10.8	48.6	40.5	4.30	0.661	
There is quick inventory retrieval of inventory from the storehouse	0.0	0.0	16.2	37.8	45.9	4.30	0.740	
Through ABC analysis, receipt of inventories is made easier	0.0	0.0	5.4	64.9	29.7	4.24	0.548	

From the table 4 above, the study established that adoption of ABC analysis has led to improved customer service in the stores and procurement department as supported by most of the respondents. 54.1% agreed with the study question, 29.7% strongly agreed while the remaining 16.2% were neutral. The mean response was 4.14 with a standard deviation of 0.673 from the mean, indicating a low variability and thus high level of consistency.

In addition, the ABC analysis allowed proper investment on the inventories held by the sugar companies as supported by a mean response of 4.300 and a standard deviation of 0.661 from the mean indicating a low variability and thus high level of consistency. 10.8% of the respondents were neutral to the statement while 48.6% agreed. However 40.5% of the respondents strongly agreed with the statement.

On whether there was quick inventory retrieval from the stores when using the ABC analysis, 16.2% of the respondents were neutral to the study question, 37.8 agreed while 45.9 strongly

agreed with the statement. The mean response was 4.30 with a standard deviation of 0.740 from the mean, indicating a low variability and thus high level of consistency. This finding indicated that ABC analysis is a useful method in inventory issuance.

Meanwhile, in regard to whether the use of ABC analysis ensured easier receipt of inventory, the respondents were of the opinion that it was true as supported by a mean of 4.24 with a 0.548 standard deviation from the mean, indicating a low variability and thus high level of consistency. 5.4% of the respondents were neutral to the statement while 64.9% agreed. However 29.7% of the respondents strongly agreed. This finding indicates that the suppliers who deliver inventories into the sugar companies are received fast and stored in the required areas within the store house.

Correlation Analysis

A partial correlation analysis using Karl Pearson correlation coefficient was performed. A negative coefficient indicated a negative relationship between the variables correlated; in which case an increase in one variable would result into a decrease in the other variable and vice versa. A positive coefficient on the other hand indicates a positive relationship in the variables; meaning that changes in the variables move together. An increase in one variable would therefore result into an increase in the other variable and vice versa.

The results of correlation analysis were judged based on the strength of relationship between the correlated variables and whether or not the correlation coefficient was negative or positive. Interpretations were made based on the following scale.

Correlation Coefficient	Relationship
<0.2	Very weak relationship
0.2 – <0.4	weak relationship
0.4 - <0.6	Moderate relationship
0.6 - 0.8	Strong relationship
>0.8 <1	Very strong relationship
1	Perfect relationship

Table 4 Correlations

Correlations		Economic order quantity	Safety stock	Just in Time	ABC analysis	Performance of the procurement function
Economic order quantity	Pearson Correlation	1				
	Sig. (2-tailed)	.000				
	N	37				
Safety stock	Pearson Correlation	.878**	1			
	Sig. (2-tailed)	.000				
	N	37	37			
Just in Time	Pearson Correlation	.420**	.470**	1		
	Sig. (2-tailed)	.010	.003			
	N	37	37	37		
ABC analysis	Pearson Correlation	.265	.327*	.783**	1	
	Sig. (2-tailed)	.112	.048	.000		
	N	37	37	37	37	
Performance of the procurement function	Pearson Correlation	.453**	.545**	.852**	.897**	1
	Sig. (2-tailed)	.005	.000	.000	.000	
	N	37	37	37	37	37

** . Correlation is significant at the 0.01 level (2-tailed).
 * . Correlation is significant at the 0.05 level (2-tailed).

From the table 5 above, a positive very strong relationship exists between safety stock levels and the use of Economic Order quantity($r=-0.878$). This correlation is significant, inferred from the p value $0.000 < 0.01$.

Similarly, safety stock levels have a moderate strong positive relationship with just in time technique ($r = 0.420$). The correlation was significant at 99% confidence level, inferred from the p value $0.010 < 0.05$.

Further, ABC classification had weak positive correlation with safety stock levels. The correlation coefficient was 0.327 significant at p value $0.000 < 0.01$.

Moreover, the safety stock levels had a moderate strong and positive relationship with the procurement function performance ($r=-0.453$). The correlation was significant at 99% confidence level, inferred from the p value $0.005 < 0.01$.

Additionally a moderately strong positive relationship exists between just in time technique and the procurement function ($r=-0.852$). The correlation was significant at 99% confidence level, inferred from the *p value* $0.000<0.01$.

There is also a moderate positive relationship between the economic order quantity and the performance of the procurement function as shown by ($r=-0.453$). The correlation was significant at 99% confidence level, inferred from the *p value* $0.005<0.01$

Finally, a very strong positive relationship exists between the ABC classification and the procurement function performance ($r=-0.897$). The correlation was significant at 99% confidence level, inferred from the *p value* $0.000<0.01$

Therefore, three independent variables which are safety stock, just in time and ABC classification have a correlation with procurement function performance. The other variable, economic order quantity did not present any correlation with the procurement function performance.

Regression Analysis

Regression analysis in this chapter was sought to determine the effects of inventory control methods on the procurement function performance based on the analytic model adopted for the study. The inventory control methods were economic order quantity, safety stock, just in time and ABC analysis which were the independent variables against the procurement function performance as the dependent variable.

Table 5 Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.949 ^a	.900	.888	.16109

a. Predictors: (Constant), economic order quantity, Safety Stock, Just in Time, ABC Analysis

Adjusted R squared is coefficient of determination which indicates the variation in the dependent variable due to changes in the independent variable. From table 6 the value of adjusted R squared was 0.9 and indication that there was variation of 90.0% on the procurement function performance in sugar manufacturing companies in western Kenya due to changes in the use of economic order quantity, safety stock levels, just in time and the ABC analysis at 95% confidence level. Thus, only 10.0% of the procurement function performance is not accounted for by the model. R is the correlation coefficient which shows the relationship between the study variables. From the findings shown in the table 7 above, there was a strong positive relationship between the study variables shown by 0.949. The standard error of the estimate which explains

how representative the sample is likely to be of the procurement function performance for future years was 16.1%.

Table 8 Summary of Anova

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.491	4	1.873	72.165	.001 ^a
	Residual	.830	32	.026		
	Total	8.321	36			

a. Predictors: (Constant), economic order quantity, Safety Stock, Just in Time, ABC Analysis

b. Dependent Variable: performance of the procurement function

From the Anova analysis results table 7; economic order quantity, safety stock levels, just in time and the ABC analysis combined significant influence on procurement function performance given that the overall *p value is equal to 0.001* which is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the procurement function performance in sugar manufacturing companies significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes the procurement function performance.

Table 9 Summary of Coefficients of Regression Model

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.452	.129		3.504	.007
	economic order quantity	-.054	.106	-.060	-.512	.612
	Safety Stock	.227	.101	.270	2.250	.031
	Just in Time	.280	.100	.271	2.805	.008
	ABC Analysis	.456	.067	.613	6.783	.001

a. Dependent Variable: performance of the procurement function

The coefficient of regression in this study indicate that the model had a constant of 0.452 which is statistically significant at $p\text{ value } 0.007 < 0.05$. Therefore, the constant significantly explains the relationship the independent variables have on the dependent variable.

A further review of p value reveled that safety stock indicated that the control method has a coefficient of 0.227 significant at p value $0.031 < 0.05$. Thus, safety stock significantly explains variations in the procurement function performance.

Just in time on the other hand had a coefficient of 0.280 and a p value $0.008 < 0.05$, and which is significant at 95% confidence level. Thus, Just in time has an insignificant effect on procurement function performance, hence it can significantly explain the changes in the procurement function.

ABC analysis had a coefficient of 0.456 and a p value $0.001 > 0.05$, which is insignificant at 95% confidence level. Therefore, ABC has insignificant effect on the procurement function performance and was therefore dropped from the model.

Economic order quantity revealed a coefficient of -0.054 with p value $0.612 > 0.05$ denoting an insignificant contribution to procurement function performance and was therefore dropped from the model.

Therefore, based on significant variables, the fitted regression model becomes;

$$Y = 0.452 + 0.227X_2 + 0.28X_3 + 0.456X_4 + \varepsilon$$

Where Y = performance of the procurement function

β_0 = Constant

X₂ = safety stock

X₃ = just in time

X₄ = ABC Analysis

$\beta_1, \beta_2, \beta_3$ and β_4 = Regression Coefficients

ε = Error term

Interpretation of the Results

The regression results indicated that safety stock has a significant positive effect on the procurement function performance as revealed by $r = 0.227$ p value $0.031 < 0.05$. Similarly, as revealed by $r = 0.280$ p value $0.002 < 0.05$ just in time technique in the sugar manufacturing companies has a significant positive effect on the procurement function performance. Moreover, a p value $0.001 < 0.05$ and $r = 0.456$ indicates that the ABC analysis has a positive effect on the procurement function performance.

VII. SUMMARY OF THE FINDINGS

The study used a combination of descriptive, correlation and multivariate analysis to determine the effect of inventory control methods on the performance of procurement function in sugar manufacturing firms in western Kenya

Effect of Economic Order Quantity on the Performance of Procurement Function

Most of the respondents agreed with the study question that the economic order quantity method adopted in the sugar manufacturing companies. This was supported by a general mean of 3.8. Moreover, the correlation analysis established a positive moderate strong relationship between the procurement function and the application of the economic order quantity method in inventory control. Economic order quantity revealed a coefficient of 0.227 with p value $0.031 < 0.05$ denoting a significant contribution to procurement function performance.

Effect of Safety Stock Levels Management on the Performance of Procurement Function

The findings on the application of the safety stock method revealed that a great effect on the performance of the procurement function with a mean of 4.0 from the descriptive study. However, the safety stock levels did not affect the speed in issuance of the inventories in stock. In addition, the correlation analysis shows a moderate strong positive relationship between the safety stock and the performance of the procurement function as supported by a correlation coefficient of 0.545. The regression model also depicts a coefficient of 0.280 with p value $0.008 < 0.05$ denoting a significant contribution to procurement function performance.

Effect of Just in Time Technique on the Performance of Procurement Function

As revealed by the descriptive statistics, just in time technique contributes significantly to the performance of the procurement function as shown by a general mean of 3.8 from the response. As supported by correlation coefficient of 0.852, the correlation analysis shows a very strong positive and significant relationship between the application of JIT and the performance of the procurement function. The regression model also depicts a coefficient of 0.456 with p value $0.000 < 0.05$ denoting a significant contribution to procurement function performance.

Effect of ABC Analysis on the Performance of Procurement Function

Form the findings, the study established that there is appositive correlation between the ABC analysis and performance of procurement function as supported by r value of 0.897 at 99% significance level. Additionally, the regression model shows that the ABC classification affects the performance of the procurement function as shown by coefficient of 0.456. However, this variable did not fit into the model since it shows a negative regression coefficient.

VIII. CONCLUSION

The study established that economic order quantity, safety stock levels, just in time technique and ABC analysis have an effect on the performance procurement function. Among the four

independent variables, the ABC analysis was found to be weak relation with the performance of the dependent variable and therefore was not considered in the model. However, this inventory control method was found to facilitate easy and fast receipt and retrieval of inventory in the warehouse hence playing an essential role in ensuring smooth production scheduling in the sugar manufacturing companies.

The economic order quantity helps the manufacturing companies both in the long and short run periods to periodically evaluate their inventory levels and hence reduce on the storage costs since demand is established before the stock in the storage is exhausted. The technique also helps the purchasing entity in the planning the purchase by prioritizing the urgency of the needed inventories. This and the safety stock levels accounts for the best tools to reduce on the cost of storage

Just in time techniques facilitates efficient and effective replenishment of inventory by facilitating fast and reliable communication to the suppliers who then responds within a short period of time hence reducing the lead time, the storage cost and improve on the production scheduling.

Recommendations

Having established that the economic order quantity, the safety stock levels and Just in time have a positive impact on the performance of the procurement function, the study recommends that the sugar manufacturing companies in Western Kenya should consider making full application of the three techniques in managing their inventory as one of the best ways to evaluate the procurement function and subsequently the entire organizations. Once adopted, production scheduling will be made easy and the wastes in the inventories in storage will be significantly be reduced.

Moreover, the modern management school of thought advocates for the use of modern technology to supplement the manual techniques in the manufacturing industry. Therefore the sugar manufacturing companies in Western Kenya should adopt the technology that will help in inventory identification, storage, retrieval and efficient communication with suppliers through shared plat foams such as the e-procurement that will ensure fast replenishment.

Suggestions for Further Studies

From the recommendations of the study, further study can be done to establish the effect of technology on the inventory management in other manufacturing sector in Kenya. Also a different study can be undertaken to find out the effect of strategic supplier relationships on the performance of the procurement function.

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