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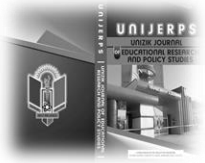
INVENTORY MANAGEMENT TECHNIQUES OF SMALL AND MEDIUM SCALE ENTERPRISES IN ANAMBRA STATE

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Abstract

This study sought to ascertain the extent at which inventory management techniques are utilized by Managers and Accountants of SMSEs in Anambra State. Two research questions guided the study and two null hypotheses were tested at 0.05 level of significance. A descriptive survey research design was adopted for the study. The population of the study consisted of 483 managers of small scale enterprises and 244 accountants of medium scale enterprise registered with the Anambra State Ministry of Commerce and Trade as at January 2020. No sample was taken, as the population size was manageable. A structured 20-items validated questionnaire was used for data collection. The questionnaire was validated by three experts, two experts in business education and one in measurement and evaluation form NnamdiAzikiwe University, Awka. The reliability of the instrument was ensured using pilot test, which was analysed using Cronbach Alpha and it yielded reliability co-efficient of 0.87.Data related to the research questions were analysed using mean and standard deviation while t-test was used to test the null hypotheses. The findings from the study revealed that Managers and Accountants of SMSEs in Anambra State utilize purchasing control inventory technique to a moderate extent, while economic order quantity technique was utilized to a lowly extent. The study also revealed that Managers and Accountants of SMSEs in Anambra significantly differ in their mean ratings on the extent of utilization of inventory management techniques. The study concluded that Managers and Accountants of SMSEs do not adequately utilized inventory


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management techniques and this resulted in stunted growth and sluggish development of SMSEs. It was recommended among others that Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) should conduct regular seminars and workshops for small and medium scale enterprises on inventory management techniques to ensure effective operation of the enterprise.

Keywords: Inventory; Management Techniques; Small and Medium Scale; Enterprises

Introduction

Small and medium scale enterprises (SMSEs) form a large part of the economy and are drivers of socio-economic development in any country. They account for a greater percentage of all businesses in virtually all economies and generate the majority of private sector employment and output. SMSEs contribute to improved standard of living, substantial local capital formation, and achieve high levels of productivity and capability for individuals and nations. SMSEs play very important roles in the process of employment creation, industrialization process, provision of personalized services and sustainable economic growth (Mandah, 2012; Tenungwa, 2012; Kehinde, Abiodun, Odegbuniyi&Olademeji 2016).

Despite the positive outlook and growth trends of the sector, SMSEs in Nigeria, as in most developing economies, are faced with a number of challenges. These challenges include inadequate capital (finance), poor record keeping, poor or wrong location, poor planning, inadequate infrastructural facilities, lack of skilled manpower, inadequate managerial and entrepreneurial skills, corruption and lack of transparency arising from government regulation and regulators among others (Mohammed, Balarabe&Salwa, 2016). Among these, finance is a core problem area for Nigeria's SMSEs (Adelaja, 2012). Another challenge lays in the utilization of inventory management techniques.Effective management of inventories can increase the profit of a business and as well add to its return on total asset.

An inventory management technique refers to the various systems and methods applied in tracking and controlling inventory orders. The

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management techniques applied in a particular business enterprise will guide managers on how much goods to re-order, when to re-order the goods, how frequent orders should be placed and the appropriate safety stock to be held (Ololuwaju, 2013). Inventory management has an impact on all business functions particularly operations and marketing.Thus, the three motives of holding inventories are transactionary, precautionary and speculative motive. Ogbo, Onekanna and Ukpere (2014) stated that whatever the purpose for which inventory is kept, a business organization must exercise caution to avoid loss. Therefore, suitable inventory management techniques that meet the economic reality of a particular business organization must be applied.

A number of systems and techniques have been developed in the field of operations management to deal with inventory problems. Such management– oriented techniques include just-in-time (JIT), materials requirements planning systems (MRP) and enterprise resource planning (ERP). Others are electronic data interchange (EDI), strategic supplier partnership (SSP) and vendor-managed inventory (VMI) (Timothy, Patrick, Nabet and Virginia, 2013).Similarly, Daniel and Assefa (2018) identified the following as techniques for managing inventory; economic order quantity (EOQ), vendor-managed inventory, just-in-time and ABC analysis. Fashaya and Thanasak (2017) also listed the following as inventory management techniques:- vendor-managed inventory (VMI), enterprise resource planning (ERP), lean procurement (LP), just-in-time (JIT), economic order quantity (EOQ), inventory classification, materials requirement planning (MRP), forecasting, stock counts, and inventory rationalization. In managing inventories the firm's objective should be in consonance with the wealth maximization principle.To achieve this, the management should be conversant with the following inventory management techniques:- inventory level technique (IL), purchasing control technique (PC) and economic order quantity (EOQ) (Onwuliri,2013).Thus, the inventory management techniques used in this study are:- purchasing control (PC) and economic order quantity technique (EOQ).

Statement of Problem

In spite of all the efforts and supports of governments and multilateral institutions, SMSEs have not been able

to make the desired impact on the Nigeria economy. It could be that these efforts and assistance from the governments and others are not properly channelled. Olowaloju (2013) opined that these assistance and efforts to encourage Small and Medium Scale Enterprises have been directed towards the provision of fund. However, in most cases the crucial problem of management has not been addressed. For any business to perform well there is need for wise demand management that is anchored in effective inventory management.

Available literature revealed that SMSEs often find it difficult to adequately manage their inventory and employ various inventory management techniques to deal with inefficiencies, eliminate inventory wastes and provide accurate inventory data. It is therefore necessary to carry out a study to identify the extent of inventory management practices utilized by SMSEs in Anambra State.

Research Questions

The following research questions guided the study: To what extent do Managers and Accountants of SMSEs in Anambra State utilise:

1. Purchasing control inventory technique?
2. Economic order quantity technique?

Hypotheses

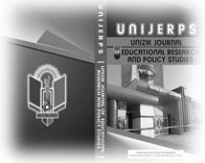
The following null hypotheses were tested at 0.05 level of significance:

1. Managers and Accountants of SMSEs in Anambra State do not differ significantly in their mean ratings on the extent of utilization of purchasing control inventory technique.
2. Managers and Accountants of SMSEs in Anambra State do not differ significantly in their mean ratings on the extent of utilization of economic order quantity technique.

Research Method

A descriptive survey research design was adopted for the study. The researchers considered this design appropriate for this study since it collected data from Managers and Accountants of SMSEs in Anambra State. The population of the study consisted of 483 Managers and 244 Accountants of SMSEs Anambra State. Instrument for data collection was a structured questionnaire. The instrument

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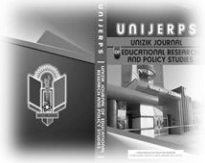
was validated by three experts, one from measurement and evaluation and two from business education in NnamdiAzikiwe University, Awka. Their comments enhanced the content validity of the instrument. To establish the internal consistency of the instrument, a pilot test was conducted and Cronbach Alpha was used to test data collected to determine the internal consistency using the application of Statistical Package for Social Sciences (SPSS) version 21. The analysis yielded a co-efficient score of 0.89. The questionnaire was structured on a five-point scale, with response categories as "Very Greatly Utilized (VGU), Greatly Utilized (GU), Moderately Utilized (MU), Lowly Utilized (LU) and Very Lowly Utilized (VLU)"

The administration of the instrument was carried by the researchers and research assistance. Data collected regarding the research questions were analysed using mean and standard deviation while the t-test was used to test the null hypotheses at 0.05 level of significance. In order to determine the extent to which Managers and Accountants of SMSEs utilize inventory management techniques a decision rule based on mean ratings between 4.50-5.00were regarded as very greatly utilized, items with mean ratings of 3.50-4.49 were considered as greatly utilized and items with 2.50-3.49 were regarded as moderate utilized. Furthermore, items with mean ratings of 1.50-2.49 and 0.50-1.49 were considered as lowly utilized and very lowly utilized respectively. In testing the null hypotheses, where the calculated p-value is less than the stipulated level of significance (0.05), it meant that there was a significant difference and the hypothesis was rejected. Conversely, where the calculated p-value is equal to or greater than the stipulated level of significance (0.05), it meant that there was no significant difference and the hypothesis was not rejected.

Presentation of Results

Research Question 1: To what extent do Managers and Accountants of SMSEs in Anambra State utilize purchasing control inventory technique?

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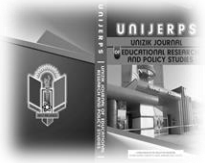
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Table 1: Managers and Accountants' mean ratings on the extent purchasing control inventory technique are utilized in SMSEs in Anambra State. N=712

	Mean	SD	Remark
1. Buying inventory for transitionary purpose	3.07	.84	MU
2. Placing order at the right time	2.35	.56	LU
3. Buying the right quality of stock	3.12	.79	MU
4. Buying the right quantity of stock	3.22	.77	MU
5. Buying inventory for future use	2.30	.56	LU
6. Identifying the need for fresh stock	3.30	.82	MU
7. Buying inventory in anticipation of demand	3.20	.77	MU
8. Buying inventory at the right price	3.47	.73	MU
9. Receiving inventory at the right time	3.37	.75	MU
10. Receiving inventory at the most convenient place	2.59	.71	MU
Mean of Means	2.99	.73	MU

Table 1 shows the mean of means score of 2.99 indicating that Managers and Accountants of SMSEs in Anambra State utilize purchasing control inventory technique to a moderate extent.The analysis of the items further indicates that Managers and Accountants rated 8 out of the 10 listed items as being utilized to a moderate extent. The mean rating for the 8 items ranged from 2.59 to 3.47. The remaining two 2 were rated by Managers and Accountant as being utilized to a low extent with mean ratings of the 2 items ranging from 2.30 to 2.35.

Research Question 2: To what extent do Managers and Accountants of SMSEs in Anambra State utilize inventory level technique?



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Table 2: Managers and Accountants' mean ratings on the extent economic order quantity technique are utilized in SMSEs in Anambra State N=712

	Mean	SD	Remark
11. Avoiding stock-out using economic order quantity	2.41	.84	LU
12. Deterring re-order quantity using EOQ	2.43	.75	LU
13. Minimizing inventory holding cost through economic order quantity approach	2.45	.83	LU
14. Minimizing ordering cost through economic order quantity approach.	2.43	.78	LU
15. Minimizing inventory deterioration using economic order quantity technique	2.35	.76	LU
16. Avoiding over stocking using economic order quantity model	2.42	.57	LU
17. Finding out order quantity that spreads acquisition cost over as many units as possible using EOQ	2.46	.87	LU
18. Determining optimal quantities that will minimize the total cost of inventory.	2.45	.54	LU
19. Assuming steady demand for a business product and immediate availability of items to be re-order	2.39	.79	LU
20. Not accounting for seasonal or economic fluctuations	2.20	.56	LU
Mean of Means	2.40	.73	LU

Table 3 shows the mean of means score of 2.99 indicating that Managers and Accountants of SMSEs in Anambra State utilize economic order quantity technique to a lowly extent. The analysis of the items further indicates that Managers and Accountants rated all the 10 listed items as being utilized to a lowly extent. The mean rating for the 10 items ranged from 2.20 to 2.46.

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Hypothesis 1: Managers and Accountants of SMSEs in Anambra State do not differ significantly in their mean ratings on the extent of utilization of purchasing control inventory technique.

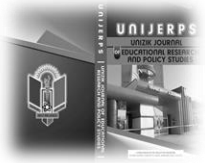
Table 3: Summary of t-test analysis on the Mean Ratings of Managers and Accountants of SMEs in Anambra State on the extent of utilization of purchasing control inventory technique. N=712

Source of variation	N	Mean	SD	Df	t-cal	*P*-value	Decision
Managers	447	2.87	.48	710	-11.07	.000	Sig
Accountants	235	3.24	.16				

As shown in Table 8, the mean score for managers (*M=2.87, SD=.48*) was significantly less than that of the accountants (*M=3.24, SD=.16*); *t (710) -11.07, p=.000*. The null hypothesis of no significant difference between the two groups on the extent of utilization of purchasing control inventory technique was therefore rejected.

Hypothesis 2: Managers and Accountants of SMSEs in Anambra State do not differ significantly in their mean ratings on the extent of utilization of economic order quantity technique.

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Table 4 : Summary of t-test analysis on the Mean Ratings of Managers and Accountants of SMEs in Anambra State on the extent of utilization of economic order quantity technique. N=712

Source of variation	N	Mean SD		Df	t-cal	*P*-value	Decision
Managers	447	2.47	.42	710	7.38	.000	Sig
Accountants	235	2.24	.29				

As shown in Table 9, the mean score for Managers (*M=2.47, SD=.42* was significantly higher than that of the Accountants (*M=2.24, SD=.29*); *t (710)7.38, p=.000*. The null hypothesis of no significant difference between the two groups on the extent of utilization of economic order quantity technique was therefore rejected.

Discussion of Findings

The results of the study on research question one show that Managers and Accountants of SMSEs in Anambra State utilize purchasing control inventory technique to a moderate extent. This signifies an average level of utilization which is neither impressive nor unremarkable. This indicate that Managers and Accountants of SMSEs in Anambra State do not give adequate attention to inventory purchases compared to what is required for a successful SMSE. This finding is in line with the finding of Anichebe and Agu (2013), Koin ,Cheruiyot and Mwangangi (2014) and Hamza, Mutala and Stephen (2015), which states that SMSEs imbibe purchasing control inventory technique to a moderate level and that most SMEs claim to be applying the tenets of good inventory management but yet ran into problem of inventory inadequacy.

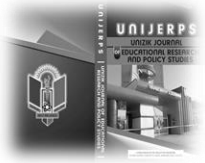
The results on Table 3 also revealed that Managers and Accountants of SMSEs in Anambra State differ significantly in their mean ratings on the extent of utilization of purchasing control inventory technique. This difference in mean ratings could be as a result of availability of resources to medium scale enterprises more than the small scale enterprises. This is line with findings of Edwin and Florence (2015)

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and Mwangi (2016) who found out that larger organization have more resources required to practice certain inventory techniques than small firms. Larger firms can due to their size benefit from lower costs; size brings bargaining power over the suppliers and when products are standardized and produced on a mass scale with longer production-runs, a large firm will be more efficient.

The result of the study on the research question two revealed that Managers and Accountants of SMSEs in Anambra State utilize economic order quantity technique to a lowly extent. This result indicates that the quantities of inventories that minimize cost are not always ordered and this may hinder the business from thriving. Inventories in the business may be over or under-stocked if the quantity ordered was arrived at by mere approximations or guess work. This finding is in line with the findings of Olowawolaju (2013) and Eduina and Orja (2014) which revealed that there is a wide gap between theory and practice of using EOQ in arriving at inventory decisions in SMSEs. These findings also agreed with the findings of Hamza, Mutala and Stephen (2015) which revealed that SMEs operators relied on manual methods of inventory and majority does not know anything about economic order quantity model (EOQ). In contradiction to the finding above Ashok andDharamvir (2017) asserted that EOQ has been a well-known and used formula for managing inventory. This variance could be as a result of differences in the area of study and population.

The results on table 4 also revealed that Managers and Accountants of SMSEs in Anambra State differ significantly in their mean ratings on the extent of utilization of economic order quantity technique based on the size of enterprise (small or medium scale), This difference in mean rating could be as a result of differences in educational background and training. This finding corroborate the findings of Mengel and Wouters (2015) who found that managerial experience and educational background determines use of inventory plans which impacts on the performance of business. In contradiction to this finding above Lee, Jeon, and Na (2016) revealed that planning in small businesses does not require sophistication; therefore managers and owners with little or no experience can develop and implement simple planning for small businesses to spur organizational performance.


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Conclusion

From the findings of the study it can be observed that purchasing control inventory technique is moderately utilized while economic order quantity technique is lowly utilized by Managers and Accountants of SMSEs. The result of this study shows that the extent of utilization of inventory management techniques by Managers and Accountants of SMSEs in Anambra State is below the level required for a vibrant and booming SMSE.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Owners of small and medium scale enterprises should organize regular training for their employees on various inventory management techniques..
2. Employees that are involved in the management of inventories in small and medium scale enterprises should ensure that organisation's policy on inventory management is strictly adhered to in the cause of day-to-day discharge of their duties.
3. Owners of small and medium scale enterprises should establish various inventory levels which will help in avoiding over or under-stockings in their business outfits.
4. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) should conduct regular seminars and workshops for small and medium scale enterprises on inventory management techniques to ensure effective operation of business by owners.
5. The Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) should offer short course on inventory management techniques to owners of small and medium scale enterprises. This will acquaint them with the rudiments and techniques for effective inventory management in their enterprises.

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