

Capacity Management and Survival of Selected Small and Medium Enterprises (SMES) in South-Eastern Nigeria

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ABSTRACT

The contribution of small and medium enterprises (SMEs) is very critical to the growth and development of a developing region like South-Eastern Nigeria. The objective of this study is to access the relationship that exists between capacity management and survival of small and medium enterprises (SMEs) in South-Eastern Nigeria. Survey method was used for this study while random sampling technique was adopted. Paired T-test and Cronbach Alpha via Statistical Package for Social Science (SPSS) version 22 were used to analyse the data. Primary data were collected using the questionnaire as the primary research instrument. Findings showed that inventory level, level of employee skills and number of employees were significantly related with SMEs' survival at 5% significantly level. In view of the above findings, this study concluded that effective capacity management is the fulcrum on which survival of SMEs revolves. The study therefore recommends among others that SMEs should give more serious attention to capacity management strategies in a bid to enhancing the survival of SMEs in South-Eastern Nigeria.

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INTRODUCTION

Small and medium enterprises (SMEs) are increasingly seen as playing an important role in the economies of many countries. SMEs are considered the engines of economic growth in developing countries. Along the same lines as this assertion, Muritala, Awolaja and Bako (2012) concluded there is the greater likelihood that SMEs will utilize labour intensive technologies, thereby reducing unemployment particularly in developing countries. In developed countries, SMEs have traditionally championed job creation, stimulating innovations and creating new products and services. This realization of the enormous contribution of SMEs to economic growth has propelled governments throughout the world to put priority on the development of the SME sector to promote economic growth of their respective countries.

The capacity of a firm to satisfy demand in a timely manner and at a reasonable cost is one of the main

objectives in an organisation. Capacity management is concerned with matching the capacity of the operating system and the demand placed on that system and involves decision making on matters relating to planning, analyzing and optimizing capacity to satisfy demand in a timely manner and at a reasonable cost (Maluti, 2012). In service operations, capacity management is concerned with balancing the capacity of the service delivery system and the demand from customers to minimize customer waiting time and to avoid idle capacity. The objectives to achieve are minimal operating costs and service quality. Participation of the customers in the service delivery process and the nature of services limit the standard options that are available for matching supply with demand (Adenso-Diaz, Gonzalez-Torre & Garcia, 2012). Since capacity is part of the product, decisions on how much capacity to make available are made at the same time as the

decision on how to utilize the capacity. The effect of this is that capacity decisions significantly influence the survival of SMEs.

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Statement of the Problem

The firm's ability to meet demand forecast can influence its survival and customer satisfaction which in turn is influenced by service delivery. Many companies have to face different types of uncertainties, which can be modeled as stochastic influences on their production systems. These uncertainties are often inter-dependent which makes analyses and accurate reactions more complicated (Ong'ondo, 2013). Actually, in the presence of demand uncertainty, flexible capacity management can be of high value to hedge against the under-utilization of deployed capacity. As a result, flexible management policies such as flexible staffing, under/over working hours, outsourcing are commonly used in the manufacturing as well as service industries.

SMEs in Nigeria have various capacities to manage such as the systems employed, the expertise employed as well as the financial resources as compared to the investments they intent to make. The level of inventory and the number of employees as well as the level of their skills are also important capacities in a firm's competitiveness.

SME survival is typically defined and measured using absolute or relative changes in sales, assets, employment, productivity, profits and profit margins. Delmar, Davidson and Gartner (2003) posited that various scholars use growth indicators such as assets, market share, physical output and profits to measure business survival. Yet, they argued these indicators are usually not used as sales and employment, because their applicability is limited; thus, market share and physical output vary within different industries and are therefore difficult to compare, total assets value depends on industrial capital intensity and is sensitive to change over time; and, lastly, profits are simply appropriate in measuring size over a long period of time.

From the foregoing, there is therefore urgent need for research on how capital management may be responsible for influence SME survival in Nigeria with a focus in south-Eastern Nigeria

Objective of the Study

The main objective of this study is to ascertain the relationship that exists between capital management and survival of SMEs. The specific objectives are:

1. To ascertain the relationship between inventory level and sales volume of selected SMEs in South-Eastern Nigeria.
2. Determine the relationship between level of employee skills and profit margin of selected SMEs in South-Eastern Nigeria.

Research Questions

In line with the objectives of this study, the following research questions are formulated:

1. To what extent does inventory level relates with sales volume in SMEs of selected South-Eastern Nigeria?
2. What is the relationship between level of employee skills and profit margin of selected SMEs in South-Eastern Nigeria?

Hypotheses of the Study

In line with the research questions above the following alternative hypotheses are formulated:

Hi: Inventory level has significant relationship with sales volume of selected SMEs in South Eastern Nigeria.

Hi: Level of employee skills significantly relates with profit margin of selected SMEs in South-Eastern Nigeria.

Conceptual Review

Small and Medium Scale Enterprise (SMEs)

The Federal Ministry of Industries define a medium sale enterprise as any company with operating assets less than ₦200 million and employing less than 300 persons. A small-scale enterprise, on the other hand, is one that has total assets of less than N50 million, with less than 100 employees. Annual turnover will not be given consideration in the definition of the SME. The National Economic Reconstruction Fund (NERFUND) defines small scale enterprise as one whose total assets are less than ₦10 million, but makes no reference either to its annual turnover or the number of employees. These and other definitions of the National Association of Small Scale Industries (NASSI), the National Association of Small and Medium Enterprises (NASME), the Central Bank of Nigeria (CBN). The small and medium industry equity investment scheme (SMIEIS), defined an SME as any enterprises with a maximum asset base of ₦500 million, excluding land and working capital and with the number of employees not less than 10 or more than 300. This definition did not distinct between small and medium scale enterprises (Sanusi, 2003).

Capacity Management

The capacity management is the management of the limits of an organisation's resources, such as the labour force, manufacturing and office space, technology and equipment, raw materials and inventory (Adenso-Diaz, Gonzalez-Torre & Garcia, 2012). Capacity management also deals with the capacity of an organisation's processes, for example, new product development or marketing as well as with capacity constraints that arise when various resources are combined (Bula, 2012). Since capacity constraints in any process or resource can be a major bottleneck for a company, capacity management is of critical importance in ensuring that an organisation operate smoothly (Cagliano, Blackmon, & Voss, 2001).

Small and Medium Enterprises Survival

Sandberg (2003) defined small business survival as ability of small business to contribute for jobs and wealth creation through business start-up and growth. Scholars also try to describe business survival in terms of how organisational objectives are well achieved (Jarvis et al, 2000; Wood, 2006).

Small and medium enterprise (SME) is assessed by measuring the success or failure of an organisation in achieving its goals and can therefore be defined in a number of ways. Thus, Wood (2006) and Chittithawom et al (2011) argued that survival of SME can be described as the firm's ability to create acceptable outcomes and actions. Similarly, Komppula (2004), described survival of firms from the dimension of how the firm is successful and use performance and success interchangeably. Moreover, it is also evident that small firm survival termed to be the firm's success in the market, which may have different outcomes (Alasadi, 2007; Chittithawom et al, 2011 & Emmanuel, 2013).

THEORETICAL REVIEW

Knowledge-Based Theory

The knowledge-based theory of the firm considers knowledge as the most strategically significant resource of a firm. Its proponents argue that because knowledge-based resources are usually difficult to imitate and socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance.

This study is anchored on knowledge-based theory because in a knowledge-based economy, intellectual capital is the major important and incisive resources for an establishment to thrive in a competitive climate. Intellectual capital is imperceptibly evolving the physical resources in contemporary enterprises. It is imperative for SMEs to pay full attention not only on

product development, marketing mix, marketed and services, likewise, they demand to argument advancement in the research and development competence to market the product, and be mindful of the management of the organisation's human capital.

METHODS

Research Design

This study is concerned with the relationship between capacity management and survival of SMEs in South-Eastern Nigeria. The research design adopted for this work is the field survey method. This design is appropriate because it will not be practicable to study the entire population. In this design, a group of items are studied by collecting and analyzing data from a few members considered being a representative of the entire group (Asuka, 2006).

Population of the Study

The population of this study consists of the sole proprietors from the ninety-three (93) SMEs that are registered with Bank of industry and are listed in the SME customer Portal as at 31st December 2016 (See Appendix II). The population is categorized into four sectors namely: agricultural, manufacturing, service and trade sectors. The choice of these sectors is based on a fair representative of the entire SMEs.

Sample Size and Sampling Method

The sampling methods employed to this study were cluster sampling and random sampling techniques. In cluster sampling, the total population is divided into a number of relatively small sub-divisions which are themselves clusters of still smaller units and then some of these clusters are randomly selected for inclusion in the overall sample (Kothari & Garg, 2014).

In an attempt to obtain a fair representation of the population, the selection of small and medium enterprises was done using random sampling. Fifteen (15) SMEs were randomly selected to be sixty (60). Out of which forty-three (43) copies were retrieved and seventeen were not. The sample size of this study therefore consists of 43 sole proprietors/business owners. Copies of the administered questionnaire were rated on a 5-point scale ranging from 5 (strongly) agree to 1 (disagree).

Sources of Data

The study employed both primary and secondary data. The primary data were obtained from respondents through the administration of questionnaire. The questionnaire was divided into two parts. Part A focused on the respondents profile while part B was designed into 5-point likert scale related to the objectives of the study. the secondary data were

primarily government publications, articles, journals, daily newspapers, etc

Method of Data Analysis

The analyses of data for this study was done based on the data collected from the questionnaire administered to 43 respondents, the data were coded on the Microsoft excel computer program after which the coded data were exported to the statistical package for social science (SPSS) version 22 and minitab version 16 computer program for statistical analysis. The data were then sorted out based on interval and nominal scales and the analysed based on the hypotheses of this study.

Descriptive analyses using frequency counts, percentages, means and standard deviations were carried out and inferential statistics of the stated hypotheses were carried out using the Cronbach's Alpha, Weighted Mean and Paired T-test.

Test of Reliability

Reliability Test of Research Instrument

This was done using Cronbach Alpha at 5% level of significant. Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is most commonly used when you have multiple Likert questions in a survey/questionnaire that form a scale and one wish to determine if the scale is reliable.

Cronbach's basic equation for alpha.

$$\frac{n_1}{V_1 - V}$$

n = number of questions

V₁ = Variance of scores on each question

V-test = total variance of overall scores (not %'s) on the entire test.

High alpha is good, high alpha is caused by high variance.

High variance means you have a wide spread of scores, which means respondents are easier to differentiate.

Paired T-test

Paired T-test is appropriate for testing the mean difference between paired observations. The mean of the respondents are to be considered and the most appropriate statistical tool is paired t-test.

Test Statistic

$$t = \frac{\bar{d} - \mu_0}{S_d / \sqrt{n}}$$

where

μ_0 = the hypothesized population mean of the differences

d = the mean of the paired sample differences

S_d = is the sample standard deviation of the paired sample difference.

n = the sample size

Weighted Mean

The mean is ordinarily known as the arithmetic mean. It is usually defined as their sum divided by their total number.

$$M = \frac{E(x_1 + x_2 + x_3 \dots \dots + x_n)}{n}$$

Where

M = Mean

X = a number of a value

n = the number of values for which the mean is being computed.

Decision Rule

Accept the null hypothesis if the mean response is less than the mean of the weight of the codes otherwise, reject.

DATA PRESENTATION AND ANALYSIS

Presentation of Data

The questionnaire presented in Appendix 1 was administered to sixty (60) respondents during the field survey by the researcher. However 43(72%) were returned and 17(28%) were not returned.

Table 1: Analysis of Questionnaire

S/N	Description	Total
1	No. of questions answered	10
2	No. of questionnaire administered	60
3	No. of questionnaire retrieved	43
4	No. of questionnaire not retrieved	17

Source; Field Survey, 2023

Response Rate =

$$\frac{\text{Number of research tools retrieved}}{\text{Number of research tool distributed}} \times \frac{100}{1}$$

$$= \frac{43}{60} \times \frac{100}{1} = 72\%$$

Analysis of Data

Reliability Test of Research Instrument

This was used to determine the consistency of the responses of the respondents, thereby investigating how reliable the responses are for decision making. Inconsistent responses cannot be used for decision making as may lead to wrong conclusion. Using Cronbach Alpha at 5% level of significance, Alpha value less than 0.60 is said to be weak and value greater than 0.60 is said to be strong.

Reliability Test of Research Tool using Cronbach's Alpha**Table 2: Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.953	.966	10

Source: Researchers' computation using SPSS version 22, 2023

Cronbach's Alpha is 0.953, which indicates a high level of internal consistency for the scale.

Table 3: Reliability Test

S/N	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	72.7648	698.065	.562	.902
Q2	73.1223	711.564	.793	.926
Q3	73.0211	877.888	.330	.844
Q4	72.5729	772.344	.938	.810
Q5	73.8368	701.684	.754	.946
Q6	73.1094	831.573	.561	.992
Q7	72.6921	775.016	.787	.848
Q8	71.0520	886.092	.892	.830
Q9	73.3013	714.870	.645	.927
Q10	71.2893	704.991	.572	.959

Source: Researchers' computation using SPSS version 22, 2023

Table 3 presents the value that Cronbach's alpha would be if a particular item was deleted from the scale. We can see that removal of any question would result in a lower Cronbach's alpha or almost the same Cronbach's alpha. Therefore, we would not want to remove any of these questions.

Table 4: Item-by-item Analysis

S/N	Mean	S.D	Remark
1	3.783	0.038	Agree
2	3.590	0.388	Agree
3	4.012	0.974	Agree
4	4.281	0.671	Agree
5	3.902	0.086	Agree
6	4.284	0.077	Agree
7	3.988	0.155	Agree
8	4.129	0.414	Agree
9	3.940	0.903	Agree
10	4.581	0.087	Agree

Source: Researchers' computation using SPSS Version 22, 2017

From table 4, it can be observed that the mean response of respondents for all the contents of the research instrument is greater than the mean of the coding value (3), which is an implication of positive response to each of the questions. The last column shows the decision based on the responses. Thus, the respondents agreed to statement of the researcher on the relationship between capacity management and survival of SMEs in South-Eastern Nigeria.

Test of Hypotheses**Hypothesis I**

H₀: Inventory level has no significant relationship with sales volume of selected SMEs in South-Eastern Nigeria.
H₁: Inventory level has significant relationship with sales volume of selected SMEs in South-Eastern Nigeria.

Table 5: Mean Response on the relationship between inventory sales volume

S/N	Agree	Disagree	Mean Response
1	4.611	2.027	4.322
2	4.455	1.833	3.537
3	4.823	2.002	3.944
4	4.891	1.703	3.891
5	4.902	1.010	4.803

Source: Researchers' computation using SPSS version 22, 2023

Table 5 shows the man response from the analysed data on the relationship that exist between inventory level and sales volume of SMEs IN South-Eastern Nigeria.

Statistical Tool: since the response are coded and the mean of the responses are considered the most appropriate statistical tool is paired t-tea. Paired t-test is appropriate for testing the mans difference between paired observations.

Level of significance: 5% (0.05).

Paired T-test and CI: Agree, Disagree

Paired T for Agree – Disagree

	N	Mean	StDev	SE	Mean
Agree	5	4.903	0.276	0.109	
Disagree	5	1.284	0.453	0.370	
Difference	5	3.619	0.729	0.479	

95% lower bound for mean difference: 1.298

T-test of mean difference = 0 (vs>0): T-value = 12.41
P-value = 0.022

Decision Rule: Accept the null hypothesis if the p-value is greater than 0.05, otherwise, reject.

Decision: The P-value is 0.022 which is less than 0.05. this implies the existence of enough evidence to reject the null hypothesis and conclude that level of employee skills has a statistically significant relationship with profit margin of SMEs in South-Eastern at 5% significant level.

FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

1. It was found that inventory level has significant relationship with sales volume of selected SMEs in South-Eastern Nigeria at 5% level of significance.
2. The study showed that the level of employee skills has a statistically significant relationship with profit margin of SMEs in South-Eastern Nigeria at 5% significance level.

Recommendations

On the basis of the findings of the study, the following recommendations are proffered:

1. Capacity management strategies should be implemented and therefore needs to be strengthened to help fortify their effects on enhancing the survival of SMEs in South Eastern Nigeria.
2. Small and Medium Enterprises (SMEs) in South-Eastern Nigeria should invest in human capital since it has a positive effect on the survival of SMEs and development of South-Eastern Nigeria.

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