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VALUE FOR MONEY EFFICIENCY ON CAPITAL EXPENDITURE OF THE NIGERIAN PUBLIC SECTOR: A STUDY OF PUBLIC SECTOR ORGANISATIONS

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Abstract: *The efficiency concept of value of money incorporates the idea of the production possibility frontier, which indicates feasible output levels given the scale of operations. The greater the output for a given input or the lower the input for a given output, the more efficient the activity is. Productivity, by comparison, is simply the ratio of outputs produced to input used. The study examines the degree which value for money promotes efficiency in capital expenditure of the Nigerian Public sector. Specifically, it investigated the extent to which the value for money influences efficiency of capital expenditure. Primary data were elicited from structured questionnaires retrieved from two hundred and ninety-three respondents across different Anambra state ministries. The binary logistic regression was used to analyze the data and take decisions on the formulated hypotheses. The findings of this study revealed that value for money application reduces economy of capital expenditure. It was not found to affect efficiency and effectiveness however. Therefore, it is recommended the executive arm of the government should mandate Office of the Auditor-General to ensure that value for money audit is specially carried out on all project embarked on by the Ministries, Departments, Parastatals and Agencies.*

Keywords: *value for money, efficiency, capital expenditure*

Introduction

Efficiency means getting more output from available resources. Alugbuo (2004) states that efficiency is all about minimizing waste in the process of transforming inputs into outputs and in delivering them to customers. Efficiency is important because it helps keep down the cast of producing outputs. The guidelines of efficiency are usually spelt out through various policy instruments such as budgets. Efficiency involves the following questions: Have the school's resources been used efficiently? Could more output have been obtained from the available resources? Could the same results have been achieved with fewer resources? A study of efficiency might focus on matters such as teaching time per teacher per week, and the utilization of resources such as science equipment and computer-based training materials (Institute of Chartered Accountant of Nigeria 2015).

The 1981 Canadian Guide discussed the importance of efficiency measurement in the following terms: Standards and performance data are used for different purposes in various information and control systems. These are to demonstrate achievement of results by comparing performance data to standards, targets and goals; plan operations and budget resources requirements by providing data for comparing present and proposed methods and procedures; provide a rational basis for pricing goods and services and indicate to employers and superiors what results are expected (Zinyama, 2013). Furthermore, the study stated the key elements arising from management adopting efficiency measures as an awareness of desired goals; a need to plan operations; the need for a structured organization whose administration should prescribe work measures and procedures, in order to avoid duplication of effort, unnecessary tasks, idle; and the provision of work instruction (Rutherford, 1983). The study also uses the output per

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unit of input definition and Rutherford's approach of measuring efficiency.

Applied to employees, efficiency is often called 'productivity'. Suppose that an employee in the government's tax department processes 20 tax returns each day. Efficiency would be improved if the same individual increases the rate of output, and processes 25 tax returns each day, without any loss of effectiveness. The objective of efficiency focuses on the need to make full use of available resources. The objective of effectiveness focuses on the need to use resources for their intended purpose and achieve the objectives of the organization. Unfortunately, in practice, government is often accused of wasteful spending, inefficient operations and failure to get anything done – these are all the 'traditional' faults of an over-sized bureaucracy.

VFM (value for money) relates the quantity of resources to the quantity of output. This can be measured in a variety of ways: (a.) Actual output/Maximum output for a given resource × 100%, (b.)Minimum input to achieve required level of output/actual input × 100%, and(c.)Actual output/actual input X100% compared to a standard or target (Institute of Chartered Accountant of Nigeria, 2015). From the foregoing, efficiency is undoubtedly a major component of Value for money principle as it pushes for reduced wastefulness in the use of public funds. Value for money as a principle ensure the direct use of resources in such a manner that the owners of resources such as the tax payers in the public sector or shareholders in companies get full value for every naira spent on their behalf. Where efficiency is lacking, there are leakages and loopholes for siphoning resources away from the rightful owners through illegal and illegitimate channels as well as through organizational, systemic and structural lapses and defects to ends other than the rightful ones either for other uses, abuse or disuse. In that case, the value for money is efficiency, inefficient use of value for money is defeated and the value to be derived by the rightful owners is lost or impaired.

1.2 Statement of the Problem

In 1957, Farrell already investigated the question how to measure efficiency and highlighted its relevance for economic policy makers. "It is important to know how far a given industry can be expected to increase its output by simply increasing its efficiency, without absorbing further resources". Since that time techniques to measure efficiency have improved and investigations of efficiency have become more frequent, particularly in industry. Nevertheless, the measurement of value of money efficiency of public spending remains a conceptual challenge. Problems arise because value of money on public spending has multiple objectives and because public sector outputs are often not sold on the market which implies that price data is not available and that the output cannot be quantified. The monetary and non-monetary resources deployed (i.e. the input) produce an output. For example, education spending (input) affects educational attainment rates (output). The input-output ratio is the most basic measure of efficiency.

However, efficiency is undoubtedly a major component of Value for money principle as it pushes for reduced wastefulness in the use of public funds. Value for money as a principle ensure the direct use of resources in such a manner that the owners of resources such as the tax payers in the public sector or shareholders in companies get full value for every naira spent on their behalf. Where efficiency is lacking, there are leakages and loopholes for siphoning resources away from the rightful owners through illegal and illegitimate channels as well as through organizational, systemic and structural lapses and defects to ends other than the rightful ones either for other uses, abuse or disuse.

1.3 Objectives of the Study

To examine the degree to which value for money promotes efficiency in capital expenditure of the Nigerian Public sector.

1.4. Research Questions

To what degree does the application of value for money promote efficiency of capital expenditure in the Nigerian Public sector organisation?

1.5 Research Hypothesis

Ho$_{1:}$ Application of value for money principle does not significantly affect efficiency of capital expenditure in Nigerian public sector organisation.

REVIEW OF RELATED LITERATURE

2.0 CONCEPTUAL REVIEW

2.1 Categorizing VFM Indicators

VFM is usually reported against a range of metrics, but grouping the reporting of VFM around the 3Es does not automatically provide meaningful information. This is particularly so if the focus is, as is frequently the case, reporting cost savings under the

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heading of Economy. Such practices have led to a widely held view that VFM is essentially a process for cutting costs or saving money and encourages a 'race to the bottom' irrespective of the effect on programme performance.

VFM Indicator Framework categorizes results (value), against which costs can then be allocated. It employs two categories: VFM indicators, and VFM measurement. These categories can be applied to each of the 3Es of Economy, Efficiency and Effectiveness. The fourth E equity is addressed through the introduction of equity-focused indicators into any of the other three categories, or by disaggregating any indicator in any category as a means by which fairness can be explored (Julian & Angela 2014).

i. VFM Indicator

Julian and Angela (2014) proposed that there are three types of VFM indicator as follows:

a. Monetary indicators – which report the monetary value of a point on a programmer's results chain for example, an output or an outcome in relation to the associated cost

b. Quantitative indicators – which report how much (in numbers) a programme has achieved in relation to the associated cost

c. Qualitative indicators – which report the kind of change a programme has achieved (in descriptive terms – for example, an improvement in quality, in relation to the associated cost (Julian & Angela, 2014).

ii. VFM Measurement

There are three types of VFM measurement indicator:

a. Benchmarked measurement - compares programme achievements with similar achievements outside the programme (within country or outside country). They are thus external, relative indicators, and can provide strong evidence of best value or best cost or both.

b. **Comparative measurement** - shows progress over time for example, years or space. Districts - demonstrating cumulative effect or showing comparative improvement between "cases". They are internal, relative indicators.

c. **Stand-alone measurement** - shows what has been achieved within a reporting period. These are stand- alone and absolute indicators, and may be thought of as 'one-off' realizations of value. They can be compared against the planned target for that period, in which case, the value in VFM terms depends on the credibility of the original plan as both realistic and stretching.

2.1.1 Efficiency

Butt and Palmer (1985:10) argue that efficiency means "making sure that the maximum useful output is produced with the resources devoted to each activity". Jones and Prowle put it slightly different by insisting that "only minimum level of resources is devoted to achieving a given level of output" (2008:13). The foregoing definitions enabled the study to conclude that efficiency deals with input-output relationships. However, the concept of efficiency is "harder to verify" (Rutherford, 1983:179) because it implies measuring output per unit of input, for example, cost per planning application processed. The 1981 Canadian Guide discussed the importance of efficiency measurement in the following terms: Standards and performance data are used for different purposes in various information and control systems. These are to:

1. Demonstrate achievement of results by comparing performance data to standards, targets and goals; 2. Plan operations and budget resources requirements by providing data for comparing present and proposed methods and procedures; 3. Provide a rational basis for pricing goods and services; and 4. Indicate to employers and superiors what results are expected.

Therefore, the key elements arising from management adopting efficiency measures are: 1. an awareness of desired goals; 2. a need to plan operations; 3. the need for a structured organization whose administration should prescribe work measures and procedures, in order to avoid duplication of effort, unnecessary tasks, idle; and 4. the provision of work instruction (Rutherford, 1983:148). This study notes that the measurement of effectiveness should be an end in itself. Improving effectiveness should be the objective. The study uses the output per unit of input definition and Rutherford's approach of measuring efficiency.

2.2 Empirical Review

Omodero and Okafor (2016) examined the efficiency and accountability of public sector revenue and expenditure in Nigeria (1970-2014). Data on total federal government revenue and expenditure, state governments' revenue and expenditure were collected from Statistical bulletin from the Central Bank of Nigeria from 1970-2014. The results were analyzed using relevant statistical tools. The findings revealed that the level of

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accountability is very poor in Nigeria because the attributes of accessibility, comprehensiveness, relevance, quality, reliability and timely disclosure of financial information, social and political information about government activities are completely non-available or partially available for the citizens to assess the performance of public officers mostly the political office holders. Conclusively and evidently the study has revealed that there is significant relationship between efficiency of public sector expenditure, recurrent expenditure and capital expenditure in Nigeria from 1970-2014. On the basis of these, the paper recommended among others that for accountability to be successful in the management of public funds in Nigeria there must be a reduction in the level of corruption, improving public sector accounting and auditing standards, legislators as champions of accountability and restructure the public accounts committees and the value of money must be applied in the conduct of government business.

Olurankinse (2012) investigated whether or not there is a significant difference between the mean of budgeted capital and expended capital using some infrastructures in some selected local government. The paper adopted a basic research approach where data were obtained from secondary sources, mainly from published materials which include annual financial statements and publication of approved budget estimates covering the period of study. A stratified random sampling was adopted in selecting the sample. A method of descriptive analysis was used in analyzing the data. The method included measures of central tendencies and test of equality among the means of budgeted capital and expended expenditure on each project per local government. This test used the student t-test of differences of means. The outcome of the paper showed that there was a positive and significant relationship between budgeted capital and actual expenditure. The implication of this is that an increase in budgeted capital will lead to an increase in capital expenditure on that infrastructure.

METHODOLOGY

3.1 Research Design

The descriptive survey research design was used for this research. A survey research is a type of research design in which a group of people or items are studies collecting and analyzing data from a few people or items considered to be representative of the entire group (Nworugu, 2006). This research design was employed because it entails inferring conclusions from a set of data that constitutes premises.

3.2 Population of the Study

The population of the study consists of all staff from level 8 upwards in the nineteen ministries in Anambra State. This criterion was reached to ensure all participants are at least graduates and would understand the value for money principle in simple terms. They are: Ministry of Agriculture, Ministry of Basic Education, Ministry of Economic Planning, Budget & Development Partners, Ministry of Environment, Ministry of Finance, Ministry of Health, Ministry of Housing, Ministry of Information & Public Enlightenment, Ministry of Justice, Ministry of Lands, Ministry of Local Artwork, Culture & Tourism, Ministry of Local Government, Chieftaincy & Community Affairs, Ministry of Public Utilities, Ministry of Tertiary & Science Education, Ministry of Trade & Commerce, Ministry of Transport, Ministry of Women & Children Affairs, Ministry of Works and Ministry of Youth Empowerment & Creative Economy.

3.3 Sampling Procedure/Sample Size Determination

It should be noted that it was not feasible to deal with the entire target population. Saunders, Lewis and Thornhill (2009) argue that the aim of sampling is to obtain a representative that looks like the population within an acceptable margin of error. The survey was conducted in Awka, the offices in the state capital.

Due to the inability to get a precise number of staff that fall within the study population, the study adopted the sample size determination formula for an infinite population in Onyeizugbe (2013) which is:

$$n = \frac{Z^2 pq}{e^2}$$ where:

n= sample size

Z= standard error at a given confidence level

e = proportion of sampling error

p = estimate of population

q = 1- p

In this study, 95% confidence level was adopted which is equal to 1.96 Z critical value. 0.5 was used as the estimate of population

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(p), as used by Onyeziugbe (2013) when p cannot be outrightly determined. Sampling error for this study was taken at 5%.

$$n = \frac{(1.96)^2 X\ 0.5\ X\ 0.5}{(O.05)^2} = \frac{0.9604}{0.0025} = 384.16 \simeq 384$$

After determining the sample size for this study statistically, 384 respondents were to be selected for the study. However, the study used 380 respondents as 20 respondents were selected randomly from the 19 ministries. The random sampling technique was used to give everyone in the population an equal chance of being picked.

Table 1 Sample Distribution

Source: Field survey 2018

3.4 Validity and Reliability of the Instrument

The validity of the questionnaire was checked by the supervisor who reviewed each statement to assess its content as to the extent to which it relates to the variable in question.

The questionnaires which were answered by the respondents were checked for consistency in the responses. To test the reliability of the instrument chosen (questionnaire), the researcher adopted the Cronbach's Alpha method.

Test of Hypothesis

Hypothesis one

Ho$_1$: Application of value for money principle does not significantly affect efficiency of capital expenditure in Nigerian public sector organisation.

Table 1

Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	40.148	8	.000

Source: SPSS Version 23

The Hosmer and Lemeshow tests the goodness of fit for logistic regression. It is used to show if the poor predictions i.e. the lack of fit are significant, indicating that there are problems with the model.

In these results, the goodness-of-fit test is greater than the significance level of 0.00, which indicates that there is enough evidence to conclude that the model does not fit the data. Thus the model is not of good fit.

Table 1 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	337.600[a]	.007	.010

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Source: SPSS Version 23

Table 2 Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	VAR00026	.324	.232	1.951	1	.163	1.382
	Constant	-1.983	.712	7.755	1	.005	.138

a. Variable(s) entered on step 1: VFM

Source: SPSS Version 23

The application of value for money principle has a significant negative effect on the economy of capital expenditure (VFM coefficient is 0.324 at p=0.163>.05). The -2 Log Likelihood statistics is 337.6. The Cox & Snell R square can be interpreted like the R squared in a multiple regression. Thus, value for money is responsible for 0.7% variation in efficiency in capital expenditure. The Exp(B) defines the odds ratio of the model.

Odds ratio= $e^{0.324}$= 1.382.

(ln ODDS) = -1.983- 0.324VFM

Decision Rule for hypotheses: Accept null hypothesis if p value of predictor variable is greater than 0.05, otherwise, reject.

The result shows p=0.16<.05. Hence, we accept the null hypothesis that the application of value for money principle significantly does not affect efficiency in capital expenditure of the Nigerian public sector.

Discussion of findings

Results also revealed insignificant effect of value for money on efficiency. The application of value for money did not curb wasteful use of financial resources, human resources, time and others. This finding is consistent with the findings of Omodero, and Okafor (2016) who examined the efficiency and accountability of public sector revenue and expenditure in Nigeria however, found that there is significant relationship between efficiency of public sector expenditure, recurrent expenditure and capital expenditure in Nigeria.

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Conclusion

Result from the findings revealed that the application of value for money principle significantly does not affect the efficiency of capital expenditure in Nigerian public sector organisation. This implies that the value for money principle is not applied to get the most output from inputs. The public sector is characterised with bureaucracy and time consumed on projects more than necessary or initial plan. This is also evidenced by lower

Recommendation

The study recommends in line with the findings of the study that; The executive arm of the government should mandate Office of the Auditor-General to ensure that value for money audit is specially carried out on all project embarked on by the Ministries, Departments, Parastatals and Agencies. This will enable government to check waste and corrupt practices on time thereby promoting effectiveness in public sector fund management.

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Appendix

Sample Distribution

S/No	Ministries	Number of respondents	Level 17 and above	Level 14-16	Level 11-13	Level 8-10
1	Ministry of Agriculture	**18**	**1**	**3**	**5**	**9**
2	Ministry of Basic Education	**21**	**1**	**4**	**7**	**9**
3	Ministry of Economic Planning, Budget & Development Partners	**17**	**1**	**2**	**6**	**8**
4	Ministry of Environment	**23**	**1**	**6**	**6**	**9**
5	Ministry of Finance	**19**	**1**	**4**	**5**	**10**
6	Ministry of Health	**20**	**0**	**3**	**9**	**8**
7	Ministry of Housing	**21**	**1**	**4**	**6**	**10**
8	Ministry of Information & Public Enlightenment	**20**	**2**	**5**	**5**	**8**

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9	Ministry of Justice	**18**	**1**	**3**	**5**	**9**
10	Ministry of Lands	**23**	**1**	**4**	**8**	**10**
11	Ministry of Local Artwork, Culture & Tourism	**20**	**1**	**3**	**7**	**9**
12	Ministry of Local Government, Chieftaincy & Community Affairs	**22**	**1**	**3**	**6**	**12**
13	Ministry of Public Utilities	**19**	**1**	**4**	**6**	**8**
14	Ministry of Tertiary & Science Education	**21**	**0**	**5**	**8**	**8**
15	Ministry of Trade & Commerce	**18**	**1**	**2**	**5**	**10**
16	Ministry of Transport	**16**	**1**	**3**	**5**	**7**
17	Ministry of Women & Children Affairs	**21**	**0**	**4**	**7**	**10**
18	Ministry of Works	**23**	**1**	**7**	**8**	**7**
19	Ministry of Youth Empowerment & Creative Economy	**24**	**1**	**2**	**9**	**12**
Total		**384**	**17**	**71**	**123**	**173**