Effectiveness for the Value of Money on Capital Expenditure in Nigerian Public Sector

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Abstract
Effectiveness relates the input or the output for the final objectives to be achieved, i.e. the outcome. The outcome is often linked to welfare or growth objectives and therefore may be influenced by multiple factors (including outputs but also exogenous 'environment' factors).The study examined the effect of value for money effectiveness and capital expenditure in the Nigerian public sector. Specifically, it investigated the extent to which value for money affects effectiveness in capital expenditure of the Nigerian Public sector. 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 effectiveness reduces economy of capital expenditure. Therefore, it is recommended that government auditors should recognize that the primary responsibility for securing value for money lies with the management of the spending agency or establishment.
Keywords: value for money, effectiveness, capital expenditure, public sector
DOI: 10.7176/RJFA/10-10-11
Publication date:May 31st 2019

Introduction

Effectiveness refers to success in achieving end results or success in achieving objectives. Whereas efficiency is concerned with getting more outputs from available resources, effectiveness is concerned with achieving outputs that meet the required aims and objectives. For example, the effectiveness of treatment of a particular medical condition will be improved if the proportion of patients who are treated successfully rises from 80% to 90% (The Institute of Chartered Accountant of Nigeria, 2015). By being effective, an organization should be able to provide outputs that customers and the publics in the external environment will desire value and accept and afford. Effectiveness includes being able to meet budgeted targets. The type of interrelationship between among these three elements is that all of them should be in place before the assessment of value for money can be said to be complete.

However, the application of value for money concept to auditing leads to the concept of value for money (VFM) audit. It is applicable to both the private and public sector, but more emphasis has been placed on its application to the public sector. Value for money audit recognizes that the primary responsibility for securing value for money lies with the management of the spending agency or establishment. Developed countries have given legislative backing to value for money audit while such backing is found to be lacking in developing countries. For instance, in Nigeria, Johnson (1999) stated that: "value for money audit is currently the subject of much discussion in the public sector, some taking the view that it represents a new concept". It is the responsibility of the government of every Nation to provide for her citizens with functioning infrastructures at economic value. From Nigeria point of view, several interesting programme have been embarked on but the outcome fails to justify the cost expended on them; because they could not provide the expected service before parking up. In view of this, it becomes important to evaluate value for money effectiveness with capital expenditure with a view to assessing the effect of its implementation on government capital expenditure in Nigeria.

1.2 Statement of the Problem

Effectiveness relates the input or the output for the final objectives to be achieved, i.e. the outcome. The outcome is often linked to welfare or growth objectives and therefore may be influenced by multiple factors (including outputs but also exogenous 'environment' factors).The effectiveness is more difficult to assess, since the outcome influenced political choice. The distinction between output and outcome is often blurred and output and outcome are used in an interchangeable manner, even if the importance of the distinction between both concepts is recognized. For example, the outputs of an education system are often measured in terms of performance or attainment rates of pupils of a certain age. The final outcome, however, could be the educational qualifications of the working-age population as a whole. The effectiveness shows the success of the resources used in achieving the objectives set (Ulrike, Adriaan and Fabienne, 2008)

1.3 Objectives of the Study

The specific objectives is:
To ascertain the extent to which value for money affects effectiveness in capital expenditure of the Nigerian Public

sector.

1.4. Research Questions

To what extent does application of value for money affect effectiveness of capital expenditure in the Nigerian Public sector organisation?

1.5 Research Hypothesis

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

REVIEW OF RELATED LITERATURE

2.1 CONCEPTUAL REVIEW

Value for Money Review Teams

According to Afemikhe (2004) value for money review teams can be used can be used to conduct performance review in government offices and parastatals. These teams are either on full-time or part-time basis. Though the large organization may have adequate resources to justify a full-time value for money review team, there are arguments against having such a team. For instance, one major disadvantage of having a full-time value for money review unit is that the staffs are often reluctant to submit recommendations that could affect the career of their colleagues negatively, that is, fellow officers or on sensitive issues.

An example of an organization that has an in house value for money committee structure is the Nigerian National Petroleum Corporation (NNPC). This corporation has three tier values for money committee structure in the review of its upstream joint venture companies. As reported by Afemikhe (2004), these committees are:

i. An operational value for money committee within National Petroleum Investment Management Services (NAPIMS)-an NNPC strategic business unit that works on a day to day basis with the joint venture companies. This committee reports directly to NAPIMS chief executive.

ii. A technical value for money committee at the corporate level which liaises with the NAPIMS value for money auditors on technical value for money matters and reports to the corporate value for money audit committee.

iii. A corporate value for money audit committee which is headed by a group executive director and reports directly to the groups managing director and the group executive committee.

Value for Money Effectiveness

Effectiveness refers to success in achieving end results or success in achieving objectives. Whereas efficiency is concerned with getting more outputs from available resources, effectiveness is concerned with achieving outputs that meet the required aims and objectives. For example, the effectiveness of treatment of a particular medical condition will be improved if the proportion of patients who are treated successfully rises from 80% to 90% (The Institute of Chartered Accountant of Nigeria, 2015). Norbert (1999) refers effectiveness as the degree to which the resulting outputs satisfied predetermined organizational objectives. Effectiveness is also the end results of the total management process for an organization are being effective. By being effective, an organization should be able to provide outputs that customers and the publics in the external environment will desire value and accept and afford. Effectiveness includes being able to meet budgeted targets. The type of interrelationship between among these three elements is that all of them should be in place before the assessment of value for money can be said to be complete. Right things should be done using the right method at the minimum cast. For instance, as much as effectiveness is linked with the achievement of set objectives, it is also important to expect that the objectives are achieved by the application of the right methods, that is, efficiency. The use of a sledge hammer to kill a housefly, though effective is not efficient.

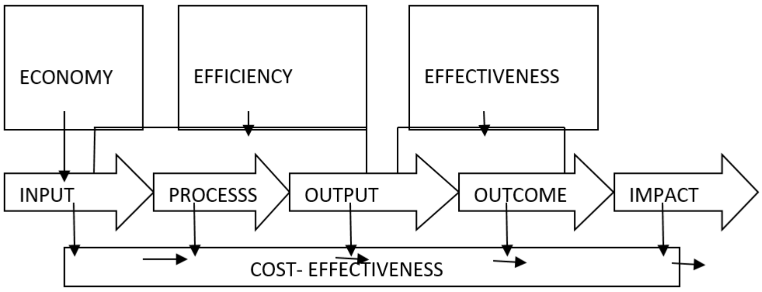
Also, the application of value for money concept to auditing leads to the concept of value for money (VFM) audit. It is applicable to both the private and public sector, but more emphasis has been placed on its application to the public sector. Value for money audit recognizes that the primary responsibility for securing value for money lies with the management of the spending agency or establishment. Developed countries have given legislative backing to value for money audit while such backing is found to be lacking in developing countries. For instance, in Nigeria, Johnson (1999) stated that: "value for money audit is currently the subject of much discussion in the public sector, some taking the view that it represents a new concept".

In seeking if the 1999 constitution has made any legislative commitment to the concept of value for money audit, Afemike (2004) concludes that: in spite of the poor state of legislative commitment to the value for money audit, it has been observed that the auditor- general of the federation has included it in his scope of responsibilities. Value for money audit (VFMA) is carried out with a view to ascertaining whether the establishment pursues optimal values with adequate consideration for economy, efficiency and effectiveness in its quest for request management. It is related to the extent to which funds are spent economically, efficiently and effectively.

Johnson (1999) opines that value for money auditing is a blend of both conventional auditing, that is, as far as economy and efficiency are concerned and management consulting (in the area of effectiveness audit). In countries where there are specific statutory provisions, on the functions of the government auditor, the responsibilities of the auditor general are well stated to include value for money, whereas in the absence of such provisions, the auditor general will at best be doing what he understands to be his responsibilities. Consequently, the audit queries issues to the accounting officers may be misconstrued and not treated in the most appropriate manner.

Zinyama, (2013) describe that effectiveness involves ensuring that the output from any given activity (or the impact that services have no a community) is achieving the desired results. To evaluate effectiveness, one needs to establish that approved or desired goals are being achieved. A goal is defined as a concrete expression of policy objectives (Jones & Prowle, 2008). According to the Chartered Institute of Public Finance and Accountancy (CIPFA), in the UK, no assessment of "Value for Money is complete without effectiveness". Furthermore, Brown and Jackson (2007) argue that in order to assess effectiveness, it is first to determine and specify the objectives and second to assess performance against these objectives so that appropriate adjustment or remedial action can be taken. Therefore, the key to successful effectiveness audit is to first identify the legislative intent of the audited programme. The legislative intent can be ascertained from a number of sources including the legislation itself. The study takes the term effectiveness to earn the determination of whether the objectives established by the legislative or other authorizing body are being met. Therefore, effectiveness provides a measure of public sector organisation's true bottom line of whether the organization or programme is achieving its objectives.

Fig 1: Relationship among VFM components



Source: Department for International Development: DFID's Approach to Value for Money (VFM) (2011)

The thinking behind the framework is that VFM is likely to be most easily communicated, most straightforward to understand, and a strong basis for a VFM offer, when indicators are preponderantly towards the upper left corner of the matrix; i.e. when they are 'harder'. The extent to which this applies to the 3Es varies – Economy offers in which indicators are mainly qualitative, would be insufficient. Strong sets of Economy indicators ought to be primarily monetary. However, sets of Effectiveness indicators may well rely more heavily on quantitative and qualitative indicators, such as qualitative improvements in governance, or numbers of beneficiaries gaining from the programme. The strength of indicators sets can be shown in the framework by shading the cells using a 'traffic light' to suggest strong and weak indicators for the 3Es

This framework can be used by managers and funders diagnostically, to assess the strength of VFM offers. It can be used to assess:
1. the typology of indicators in use
2. the measurement approaches being adopted
3. the coverage of the 3Es

2.2 Theoretical Framework

Agency theory

Agency theory and the internal audit as propounded by Adams (1994) is one of the theoretical frameworks that guided this study. Agency theory is extensively employed in the accounting literature to explain and predict the appointment and performance of external auditors and financial consultants. He argued that, agency theory also provides a useful theoretical framework for the study of internal auditing function. He concludes that agency theory provides a basis for rich research, which can benefit both the academic community and internal auditing profession. This theory no doubt relates to this study as it helps to explain the role and responsibilities of internal auditors which if methodically applied would help to improve financial performance in tertiary institutions in Nigeria.

According to Anderson, Francis & Stokes (1993), Agency theory describes firms as necessary structures to maintain contracts, and through firms, it is possible to exercise control which minimizes opportunistic behaviour of agents. In order to harmonize the interest of the agent and the principal, a comprehensive contract is written to address the interest of both the agent and the principal; they further explain that the relationship is further strengthened by the principal employing an expert to monitor the agent.

Other related reviews include the Sarbanes-Oxley act of 2002 (SOX) which requires companies to report on the effectiveness as part of an overall effort to reduce fraud and restore integrity to the financial reporting process.

Morris, (2011) asserted that software vendors that market Enterprise Resource Planning (ERP) system have taken advantage of this new focus on internal controls by emphasizing that a key feature of ERP system is the in-built controls that mirror a firm's infrastructure. They emphasized these feature in their marketing literature, asserting that these systems will help firms improve the effectiveness of their controls as required by Sarbanes-Oxley Act.

This study adopted the agency theory owing to the fact that value for money signifies the stewardship role of those entrusted with public resources (an agent to his principal) to ensure effective and efficiency use of these resources in order to achieve optimum economic goals.

2.3. 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 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.

Alwardat and Benamraoui (2014) reviewed the existing body of literature on the Value for Money (VfM) audit focusing primarily on the direct impact of the organizational reform on public sector auditing practice, the issue of accountability, and the factors affecting auditors and clients perceptions of VfM audit implementation. The study examined the issue of VfM audit from various scholars' points of view, reviewing papers on a topic by topic basis. The authors synthesized the views of these scholars to produce a coherent overall picture of the VfM audit practice. The analyses revealed that VfM audit is becoming a corner stone for overseeing the services offered by the public sector and there is more emphasis on accountability. Auditors are given more powers to implement VfM audit effectively and have an impact on the management styles used in the public sector organizations.

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 consisted 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.

3.4 Method of Data Collection

The major instrument used for this study was the questionnaire. The questionnaire instrument is structure in two sections. Section one comprises the relevant personal data other information from the respondent; identity of the respondents was not disclosed. Section two had a total of twenty-nine questions which set out to measure the perception of respondents on the application of value for money principle, economy of capital expenditure, efficiency of capital expenditure and effectiveness of capital expenditure. The questions were stated in a manner that responses arising here would provide answers that would enable the researcher to analyze the data either to accept or reject the hypothesis.

3.5 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.

3.6 Method of Data Analysis

In this study, both descriptive and inferential statistics were used. First, the responses to the questionnaire were presented on statistical tables and analyzed by making use of descriptive statistics- simple percentage and frequencies. This is because it clearly shows the respondents that agree or disagree with the questions asked. However, in order to measure the variables in this study, the interval scale, which is a quantitative scale, is used. It allows the respondent to place himself in the category he feels is most appropriate.

The dependent variables are the concepts that relate to capital expenditure while the independent variable is the application of the Value for Money Principle. The questionnaire contains questions that elicit responses to be used in testing the hypotheses.

The binary logistic regression was used to test the hypotheses which were performed using SPSS 23. A model was formulated to establish a relationship among the variables. The binary logistic model was used because the responses of the dependent variables were coded into binary valued outcomes-0-disagreement/undecided and 1-agreement. The probability of the responses was then linked to the linear predictor_ Value for money.

The binary logistic regression model for each hypothesis is specified below:

$$logit(p_i) = \ln\left({}^{p_i}/_{1-p_i}\right) = \beta_0 + \beta_1 x_{1,i}$$

The full specification of the regression models are:

$\ln(ECO) = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1 VFM_j + \alpha$

$\ln(EFF) = \boldsymbol{\beta}_2 + \boldsymbol{\beta}_3 VFM_j + \alpha$

$\ln(EFC) = \boldsymbol{\beta}_4 + \boldsymbol{\beta}_5 VFM_j + \alpha$

where:

$\ln\left({}^{p_i}/_{1-p_i}\right)$= Odds of model

VFM= Value for Money

ECO= Economy of capital expenditure

EFF= Efficiency of capital expenditure

EFC= Effectiveness of capital expenditure

$\boldsymbol{\beta}_0$ $\boldsymbol{\beta}_2$ $\boldsymbol{\beta}_4$= constant

$\boldsymbol{\beta}_1$, $\boldsymbol{\beta}_3$, $\boldsymbol{\beta}_5$ = coefficient of independent variables

α = error term

Test of Hypotheses

Hypothesis one

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

Table 1

Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	2.251	7	.945

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 probability of the goodness-of-fit test (0.506) In these results, the goodness-of-fit test is greater than the significance level of 0.05, which indicates that there is not enough evidence to conclude that the model does not fit the data. Thus, the model is of good fit.

Table 2 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	389.239[a]	.005	.007

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Source: SPSS Version 23

Table 3 Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	VFM	-.257	.212	1.477	1	.224	.773
	Constant	.296	.636	.217	1	.642	1.345

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

Source: SPSS Version 23

The application of value for money principle has an insignificant negative effect on the economy of capital expenditure (VFM coefficient is -0.2574 at p=0.224>.05). The -2 Log Likelihood statistics is 389.24. The Cox & Snell R square can be interpreted like the R squared in a ordinary least squares regression. Thus, value for money is responsible for 0.5% variation in effectiveness in capital expenditure. The Exp(B) defines the odds ratio of the model.

Odds ratio= e0.257= 0.773.

(ln ODDS) = 0.296- 0.257VFM

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

The result shows p=0.22<.05. Hence we accept the null hypothesis that the application of value for money principle significantly does not affect effectiveness in capital expenditure of the Nigerian public sector.

Discussion of findings

The hypothesis showed that there is an insignificant effect of value for money on effectiveness of capital expenditure. The implication of this is that the application of value for money did not curb wasteful use of financial resources, human resources, time and others. Though the value for money principle is applied, it does not guarantee better results achieved and projects implemented. It was also found to agree the findings of Omodero, and Okafor (2016) who found a significant relationship between efficiency of public sector expenditure, recurrent expenditure and capital expenditure in Nigeria.

Further findings show that the application of value for money principle is not a predictor for effectiveness of capital expenditure in Nigerian public sector organisation which has the implication of getting the expected results by doing the right things. The value for money principle being applied in the public sector is not particularly influential in achieving predetermined goals and objectives of policies and action plans.

Conclusion

Effectiveness is also the end results of the total management process for an organization are being effective. By being effective, an organization should be able to provide outputs that customers and the publics in the external environment will desire value and accept and afford. Effectiveness includes being able to meet budgeted targets. The type of interrelationship between among these three elements is that all of them should be in place before the assessment of value for money can be said to be complete. Right things should be done using the right method at the minimum cost.

Recommendation

The study recommends in line with the findings of the study that;

Government auditors should recognize that the primary responsibility for securing value for money lies with the management of the spending agency or establishment.

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