

## **Determinants of Internal Audit Effectiveness in Federal Public Sector Organizations in Nigeria**

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### **Abstract**

The study investigates the determinants of internal audit effectiveness in Nigeria's federal public service with reference to 28 self accounting public sector organizations operating in the North East geo-political zone, one of six such zones recognized for political expediency. Primary data was obtained from 139 valid responses out of 148 questionnaires administered on internal auditors of such organizations. Partial least square SEM technique of multiple regressions was employed for data analysis. The finding of this study revealed that the quality of internal audit work; competence; and management support were most dominant with positive significant contribution on internal audit's ability to meet its objectives while independence and information and communication technology (ICT) conversely showed negative insignificant influence. The study recommends an improvement of operational standards; compliance with Internal Audit's minimum entry requirement; its recognition as an independent organizational function; and provision of required resources by relevant government offices (OAGF; OHSF; NITDA).

**Keywords:** internal audit effectiveness, independence, competence, Information and Communication Technology (ICT), Nigeria's federal public sector

### **1. Introduction**

The Nigerian Constitution (1999) requires the government to harness the resources of the nation in such a way as to promote national prosperity and develop an efficient, self reliant economy. Various organs of government are entrusted with public resources and charged with the task of its management in the provision of public goods and services. Demand for information in the use of such resources has increased with attention shifting over the years towards public sector governance. Government auditing, considered as the cornerstone of public sector governance, provides an unbiased, objective assessment of how public resources are effectively managed to achieve intended results. With the rapid growth of the public sector coupled with concerns over organizational control and supervision (Abu-Azza, 2012); the importance of internal audit had correspondingly increased as a factor in enhancing the quality of public sector management (Unegbu& Kida, 2011) but which can only be relied upon as a governance mechanism if it is adjudged effective (Barac, Cootzee & Van Staden, 2016).

Though the importance of internal audit effectiveness cannot be over emphasized, sufficient attention has generally not been given to this area of study. Studies conducted in developing nations including Libya (Abu-Azza, 2012), Ghana (Tackie, Marfo-Yiadom&Achina, 2016) and Indonesia (Baheri&Nurkholis, 2017) among others have documented mixed findings due to

environmental dissimilarities and methodological differences arising from the application of a variety of factors. In the Nigerian public sector, only a few empirical studies have been conducted (Badara, 2015) mostly in sub-national jurisdictions with mixed results reported and without proper attention given to the rising role of information technology despite its increasing use in public sector operations (Babatunde, 2013).

The public sector refers to governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programmes, goods, or services (Institute of Internal Auditors - IIA, 2011). The Nigerian public sector includes the federal government, the thirty-six (36) state governments, the seven hundred and seventy four (774) local governments, all government corporations, commissions and institutions (Omolehinwa&Naiyeju, 2011). The structure of the federal government, which superintends over half of the revenues accruing to the federation, is generally made up of organizations which either belong to the civil service type or the public enterprise which, as self accounting units, are empowered through the delegated authority of the Accountant General of the Federation (OAGF) to keep detailed records of receipts and payments; maintain full set of accounts (Federal Treasury Accounting Manual, 2006); and have a fully constituted internal audit unit (Financial Regulations, 2009).

Despite its existence in the public sector setup, the internal audit function has been unable to check the increasing rate at which frauds and financial improprieties occur (Amaechi & Chinedu, 2017). Irregularities, including loss of assets from theft, fraud and negligence; revenue understatement and non-disclosures; misapplication of funds; and extra-budgetary expenditure have continuously been highlighted against various ministries, departments and agencies of government in the Annual Reports of the Auditor General of the Federation (2013-2016).

This study seeks to investigate the determinants of internal audit effectiveness in Nigeria's federal public service with specific reference to its organizations operating in the North East geopolitical zone; one of six such zones recognized for political expediency and will answer questions related to and test the following null hypotheses:

**H1:** Quality of internal audit work does not have a significant effect on internal audit effectiveness in federal public sector organizations in North East, Nigeria;

**H2:** Internal audit's independence does not have a significant influence on internal audit effectiveness in federal public sector organizations in North East, Nigeria;

**H3:** Internal auditor's competence plays no significant role on internal audit effectiveness in federal public sector organizations in North East, Nigeria;

**H4:** Management support does not have a significant effect on internal audit effectiveness in federal public sector organizations in North East, Nigeria;

**H5:** Information and communication technology has no significant effect on the level of internal audit effectiveness in federal public sector organizations in North East, Nigeria.

The study is motivated by the implementation of the federal government's public financial management reforms aimed at checking wasteful spending; inefficiencies in recurrent and capital budgets; neglect of financial regulations; and other vices that have been the hallmark in public financial management. These include the improvement of fiscal management and procurement practices; and the application of technology in public sector operations which the internal audit seeks to ensure compliance with.

## **2.0. Literature Review**

### *2.1 Internal Audit Effectiveness*

The Institute of Internal auditors (2011) defined internal audit as an “independent, objective assurance and consulting activity designed to add value and improve on an organization's operations. It helps an organization to accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance process”. The Federal Treasury Accounting Manual (2006), elaborates that the objective of internal audit in the public organization is to ensure that a sound and adequate system of internal control is established; an efficient and effective system of operations is maintained; organizational assets are protected; fraud, misappropriation and irregular expenditure are prevented and detected; and the accuracy and integrity of accounting and management information generated is assured.

The institute of Internal Audit (IIA, 2010) defined internal audit effectiveness as the “degree (including quality) to which established objectives are achieved”. Cohen and Sayag (2010) had in discussing the concept supported the arguments of Albrecht, Howe, Schueler and Stocks (1988) that the effectiveness of internal auditing is not a computable reality, but is rather determined by subjective evaluation assigned by management and can only be measured against the expectations of relevant stakeholders requiring the development of systematic and generally valid measures.

### *2.2 Determinants of Internal Audit effectiveness in Nigeria's Federal Public Sector*

Different approaches using different set of factors had been used in discussing internal audit effectiveness. This study leverages on the requirements provided by the International Standards for the Professional Practice of Internal Audit (Attribute Standards 1100, 1200 and 1300 on Independence & Objectivity; Proficiency & Due Professional Care; and Quality Assurance & Improvement Programme respectively; and Performance Standard 2060 on Reporting to Senior Management); the Financial Regulations (2009) which guides the conduct of government's financial operations; and the Federal Treasury Accounting Manual (2006), an accounting policy and procedure guideline aimed at raising performance standards which are improved upon periodically through the issuance of treasury circulars.

#### *2.2.1 Quality of Internal Audit Work*

Cohen and Sayag (2010) and Abu-Azza (2012) had associated quality to the performance of the internal audit function in terms of its application of international standards for the professional practice of internal audit (ISPPIA, IIA, 2008). Mihret, James and Mula (2010) categorized

performance operationally into quality of internal audit planning and execution and quality of internal audit reporting and follow up. Quality of audit work is, thus, the degree of excellence achieved when the audit work is performed according to standards (Tackie et al, 2016). The Financial Regulations (2009) requires that the internal auditor prepares a detailed audit programme covering all the records of the organization while the Federal Treasury Accounting Manual (2006) provides for the preparation of an audit plan, a statement of objectives to be attained; an outline of the steps necessary to reach them as well as communicating the results through a good internal audit report. Badara (2015) had reported the positive influence of internal audit quality in public sector operations though the IIA standards had not been officially adopted within the official regulatory framework.

### *2.2.2. Organizational Independence*

Attribute Standard 1100(IPPF-IIA, 2016) describes independence as the freedom from conditions that threaten the ability of internal audit to carry out its responsibilities in an unbiased manner. Baheri and Nurkholis (2017) advocated the recognition of three dimensions of independence which include freedom in the selection of audit techniques and procedure and in the extent of their application; freedom to have access to records and assets and in the selection of areas to be examined; and freedom in the expression of opinion about the findings revealed by the examination. The degree of internal audit independence required in an organization can only be achieved if its chief executive has direct and unrestricted access to senior management (IIA, 2016). The Federal Treasury Accounting Manual (2006) requires that the internal audit head should have direct access and the right of reporting to the accounting officer while the staff should have unfettered access to stores and records (Financial Regulations, 2009). Though significant impact of independence on internal audit effectiveness had been reported (Badara, 2015); the existence of internal audit as a department under the control of the Accountant General's office and dependent for resources and its staff development, limits its degree of freedom.

### *2.2.3. Internal Audit Competence*

The competency principle(IPPF- IIA, 2016) requires that internal auditors shall engage only in services for which they have the necessary knowledge, skill and experience; performed in accordance with standards and must, continually, improve their proficiency as well as the effectiveness and quality of their services. Rezaee (2008) summarized that the general competence of auditors could be derived from their qualification and registration with professional bodies; their knowledge of professional standards, roles and regulations; the ability to choose appropriate procedures, collect evidences and undertake the audit procedure; and the auditors ability to find and report material misstatement. The Financial Regulations (2009) requires that a suitably competent accountant is placed directly in charge of the internal audit unit of self accounting organs of government. The Federal Schemes of Service (2000) provide that the entry requirement into the accountant cadre is by the possession of a degree or higher diploma in accountancy from a recognized university or polytechnic; or the possession of a professional qualification from a recognized accounting body. Arena and Azzone (2009) had concluded that skilled auditors are more able to provide advice to improve internal control

system, complete audit tasks, and find consistent solutions based on previous experiences. It may be noted however that the internal auditors commonly address fraud risks, compliance issues, and other operational issues that may be unrelated to accounting but requiring analytical and critical thinking ability and other set of skills.

#### *2.2.4. Management Support*

Management support, according to Abu-Azza (2012), refers to the motivation, encouragement, and backing provided by the management to the internal audit function in the form of training and development, provision of financial and material resources and incentives such as bonuses and compensations, and implementation of audit reports and recommendations. Previous studies in Israel (Cohen & Sayag, 2010); Libya (Abu-Azza, 2012); and Nigeria (Badara, 2015) have all reported positive and significant levels of relationship between management support and internal audit effectiveness. A study by Unegbu and Kida (2011) carried out in the public sector in Kano State Nigeria had averred that the persistence of frauds is mainly a reflection of inadequate level of management support through the non-consideration of audit reports, lack of career progression and inadequate remuneration. Similarly, Onatuyeh and Aniefor (2013) had concluded that neglect from government support in Edo State Nigeria had resulted in the lack of qualified manpower and inadequate remunerations for the internal audit function.

#### *2.2.5. Information and Communication Technology*

Organizations have increasingly become dependent on information technology in view of its ability to increase the speed with which transactions are processed, accuracy, cost savings and reduction of human errors but has opened new frontiers for risks including errors in record keeping, increased risk of fraud, loss of data, privacy violations and disruption of operations (Abu-Musa, 2008). The functions of key stakeholders in internal control have been acknowledged to improve with the usage of ICT tools and techniques. Attribute Standard 1200 (2016) requires that internal auditors must have sufficient knowledge of key information technology risks and controls and available technology-based audit techniques to perform their work. Lotto (2014) opined that organizations whose systems are computerized can mainly improve the internal audit function by directing efforts at the intensive training of staff in information technology. Efforts by the National Information Technology Development Agency (NITDA) had resulted in the development of a draft information system (IS) audit guideline which seeks to ensure the establishment of an internal IS audit in the public sector; set the technical qualifications required; and define the frequency and procedure for IS audit.

### **2.3 Theoretical Framework**

#### *2.3.1. Institutional Theory*

DiMaggio and Powell (1983) suggest that as a result of institutional pressures and a desire to compare with other organizations in a similar environment, organizations tend to adopt similar characteristics through three mechanisms of isomorphism (Barac et al, 2016). There is some evidence of institutional theory and explanations relating to such pressures being applied in internal audit research. Mihret et al (2010) had noted that the influence of government through imposition had been substantial on organizations in the establishment of internal audit function

as a result of coercive pressures; exemplary practices had also been noted to contribute towards its development through mimetic pressures; while professionalization as a normative pressure had exerted different levels of impact on internal audit advancement across institutions with resultant increased effect on proficiency and enhanced conformity to standards and regulations (Abu-Azza, 2012). Mihret et al (2010) argued that there is a positive relationship between compliance with standards and regulations and organizational goal achievement.

### **3. Research Methodology**

#### *3.1. Research Design*

The study employed a cross-sectional survey research design to assess the effectiveness of internal audit in federal public sector organizations operating in North East Nigeria.

#### *3.2. Population and Sample Size of the Study*

The target population of this study comprises of the 235 internal auditors of the 28 self accounting federal public sector organizations operating in North Eastern Nigeria which are required by law to have an internal audit unit. The sample size of 148 internal auditors was determined using the Taro Yamane's statistical formula (1967) with the samples chosen using the simple random sampling technique. A rule of thumb suggests that a minimum sample size of 70 is required in a model with a maximum of 5 arrows pointing at a latent variable or having 5 structural paths (Wong, 2013).

#### *3.3. Method of Data Collection*

The data for this study was collected through the administration of a structured questionnaire on a five-point scale (Likert, 1932). A pilot study was conducted to test for reliability using Cronbach's alpha while the questionnaire was validated through a review by a panel of 5 experts from the Office of the Accountant General of the Federation. The Content Validity Ratio (CVR) as proposed by Law she (1975), was computed and items whose value fall below the acceptable range were removed. Harman's Single Factor Score (HSFS) test was also carried out and a single factor accounting for 39.219% of the covariance among the measures was reported which at less than 50% suggests the absence of common method bias (Podsakoff, Mackenzie, Lee & Podsakoff, 2003).

#### *3.4. Measurement of Variables*

Measures of the variables were adapted from the studies of Cohen and Sayag (2010); Badara (2015) and Tackie et al (2016). Internal audit effectiveness was measured by the existence of a clear objective for internal audit; a suitable plan to achieve such objective; regular review of procedures; completion of approved tasks; accuracy and justification of findings; significance of findings; timeliness of reports; follow-up process for corrective action; and the positive effect of findings on decision process. Quality of audit work was measured by audit plan quality; compliance with standards and procedure; quality of reports; regular follow-up actions; and performance of other activities outside the plan. Independence was measured by the freedom to determine scope and procedure; reliance on evidence; freedom to express findings; accessibility to records; and direct working relationship with management. Management support was



measured by staff adequacy; provision of resources; timely responses to reports; and staff development. Information and communication technology was measured by availability of modern technologies; its impact on audit work; ability to use it; and ability to audit computer-based systems.

### *3.5. Technique of Data Analysis*

The technique used in the analysis of the data is the partial least squares of regression (PLS). It is, particularly, useful where the need of the study is to predict a large set of dependent variables from a large set of independent variables and is preferred for the analysis because it has the advantage of simultaneously estimating the relationships between the constructs through the structural model and the relationship between the indicators and the constructs through the measurement model (Samani, 2016). Further justifications advanced for the use of PLS include its ability to work with non-normal data; utilization with smaller sample sizes; consideration of predictive accuracy; and focus on theory development (Wong, 2013; Hair, Sarstedt, Hopkins & Kuppelweiser, 2014). SmartPLS 2.0 M3 software was used to analyze the data and test the hypotheses.

## **4. Findings and Discussions**

### *4.1 Response Rate*

To make a reasonable conclusion that supports a valid statistical generalization, it is essential to ascertain whether non-response bias is present in the survey data. Non response bias could be categorized as unusable answers which occur when respondents refuse to participate or when they refuse to answer particular questions but continue with others (Samani, 2016). One of the best ways to guard against non-response bias is to reduce and keep the rate of non-response below 30% (Armstrong & Overton, 1977). A response rate of 93.92% obtained thus implies there are no issues of non-response bias.

### *4.2 Demographic Profile of the Respondents*

From Table 1, the sex proportion of respondents is highly disproportionate in favour of the male gender. In terms of skill, the higher rates of respondents indicate that the internal audit departments of the organizations comprise mainly of staff that possess professional and academic qualifications which both influence and improve on their effectiveness in carrying out their roles. The age composition and varied work experience implies that in addition to maturity attained with age; majority of the respondents had long been in the system to appreciate the operational dynamics and authoritatively comment on audit activities. The responses gathered internal auditors serving in different organizations indicate exposure to audit in various fields and organizational settings.

Table 1: Respondent's Profile

		Frequency	Percentage
Gender	Male	109	78.4%
	Female	30	21.6%
Age	20-29	6	4.3%
	30-39	56	40.3%
	40-49	63	45.3%
	50-59	14	10.1%
	Above 60	0	0
Academic Qualification	SSCE	1	0.7%
	Diploma	15	10.8%
	Bsc/HND	100	71.9%
	Masters	23	16.6%
Field of Study	Accounting	129	92.8%
	Management	4	2.8%
	Economics	3	2.2%
	Others	3	2.2%
Professional Certification	ICAN	2	1.4%
	ANAN	61	43.9%
	Others	7	5.0%
	None	69	49.7%
Internal Audit Experience	Less than 5 years	32	23.0%
	5-10 years	84	60.4%
	11-15 years	10	7.2%
	16-20years	9	6.5%
	Above 20 years	4	2.9%
Organization Type	Agricultural Colleges	9	6.5%
	River Basin Authorities	6	4.3%
	Polytechnics	18	12.9%
	Colleges of Education	11	7.9%
	Universities	36	25.9%
	Teaching/Tertiary Hospitals	56	40.3%
	Others	3	2.2%

Source: SPSS Version 23 Output, 2019

#### 4.3 Correlation Analysis

Correlation matrix reveals the strength and direction of the relationship between all pairs of variables used in the regression model. Pair-wise correlation between two regressors in excess of 0.8 suggest smulticollinearity (Gujarati, 2004). None is reported in Table 2.



Table 2: Correlation Matrix of Dependant and Independent Variables

Variables	IAE	QUA	IND	COMP	MSUP	ICT
<b>IAE</b>	<b>1.0000</b>					
<b>QUA</b>	0.759	<b>1.0000</b>				
<b>IND</b>	0.512	0.738	<b>1.0000</b>			
<b>COMP</b>	0.657	0.566	0.379	<b>1.0000</b>		
<b>MSUP</b>	0.607	0.496	0.445	0.622	<b>1.0000</b>	
<b>ICT</b>	0.491	0.501	0.411	0.536	0.671	<b>1.0000</b>

Source: Smart PLS 2.0 output, 2019

## 5. Assessment of the Measurement Model

### 5.1 Internal consistency/Composite Reliability

The internal consistency/composite reliability refers to the extent to which all items on a particular scale measure the same concept. The values for the latent variables examined in this study, presented in Table 3 all fall above the suggested threshold of 0.70 (Wong, 2013; Ringle, Silva & Bido, 2014) thus indicating higher levels of reliability.

Table 3: Composite Reliability for Latent Variables

Variable	Number of Items	Composite Reliability Values
Internal Audit Effectiveness	9	0.912
Quality of Internal Audit Work	5	0.877
Organizational Independence	5	0.828
Internal Audit Competence	4	0.890
Management Support	4	0.918
ICT	4	0.913

Source: Smart PLS 2.0 output, 2019

### 5.2 Convergent Validity

Convergent validity was assessed by examining the Average Variance Extracted (AVE), a measure of how much the variables correlate positively with their respective constructs (Ringle et al, 2014). Values for the study variables were in excess of the acceptable minimal threshold of 0.5 (Hair et al, 2014) except for independence (IND), which at 0.496, was accepted based on its high composite reliability (Fornel&Larcker, 1981).

### 5.3 Discriminant validity

Discriminant validity measures the extent to which a particular latent construct is different from other constructs. The results of the Fornell and Larcker's (1981) criteria in table 4 revealed that the square roots of the AVE of the constructs (bold diagonal elements) were in excess of the correlation values with other construct values except that between QUA and IAE which is slightly higher but accepted (Ringle et al, 2014).

Table 4: Latent Variable Correlations and Square Roots of AVE

Variables	IAE	QUA	IND	COMP	MSUP	ICT
<b>IAE</b>	<b>0.735</b>					
<b>QUA</b>	0.759	<b>0.766</b>				
<b>IND</b>	0.512	0.738	<b>0.704</b>			
<b>COMP</b>	0.657	0.566	0.379	<b>0.819</b>		
<b>MSUP</b>	0.607	0.496	0.445	0.622	<b>0.858</b>	
<b>ICT</b>	0.491	0.501	0.411	0.536	0.671	<b>0.851</b>

## 6. Assessment of the Structural Model

### 6.1 Estimation of Path Coefficients and Analysis of the Structural Model

The path coefficients were estimated through bootstrapping procedure, a technique that draws a large number of subsamples from the original data; estimates models for each subsample to determine the impact of each indicator weight; computes a standard error of each model parameter; and determines its significance (Hair et al, 2014).

Table 5: Path Coefficient Estimates and Analysis of the Structural Model

Hypotheses	Hypotheses Path	Path Coefficient	t-statistics	p-value	Hypotheses Result	(Q <sup>2</sup> )	(R <sup>2</sup> )
HO1	QUA ->IAE	0.632	7.367	0.000	Rejected	0.367	0.685
HO2	IND ->IAE	-0.126	1.479	0.141	Fail to Reject		
HO3	COMP -IAE	0.224	2.685	0.008	Rejected		
HO4	MSUP -IAE	0.253	2.689	0.008	Rejected		
HO5	ICT -> IAE	-0.063	0.663	0.508	Fail to Reject		

Source: SmartPLS 2.0 output, 2019

From the assessment in table 5; three of the null hypotheses were rejected while the study failed to reject the remaining two. The model's predictive power was confirmed by the coefficient of determination (R<sup>2</sup>) which explained 68.5% of IAE variance in the model. Stone-Geisser's cross-validated redundancy Q<sup>2</sup> with a value greater than zero indicates the path model's predictive relevance (Hair et al, 2014).

## 7. Conclusion and Recommendations

The study had sought to empirically determine factors which promote the effectiveness of the internal audit function in Nigeria's federal public service. The results of the study had confirmed the findings of prior researches about the positive significance of the quality of internal audit work (Badara, 2015; Tackie et al, 2016); competence (Abu-Azza, 2012; Badara, 2015) and management support (Cohen & Sayag, 2010; Badara, 2015) and can be improved upon by a continuous review of operating regulations; adoption of IIA standards; and compliance with internal auditor's minimum entry requirement by the OAGF. Related to independence and information and communication technology, however, the results revealed negative and

insignificant influence against a priori expectations and contradicts the findings of Tackie et al (2016) and Lotto (2015) respectively. This could be attributed to internal audit's status as a dependent department within the Accountant General's office and its inadequate response to technological development in public service operations which could be addressed through its upgrade into a separate independent office by the Office of the Head of Service of the Federation (OHSF) and the provision of required resources and appropriate ICT audit tools and training by the OAGF and NITDA. The study opens up opportunities for further studies based on the perceptions of other key stakeholders other than internal auditors as well as in other federal government agencies in other geographical locations.

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