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The Certified National Accountant

Volume 30 Number 4, January - March, 2022

Content Page

Editorial:
Editor-in-Chief 3

Articles

Environmental Appraisal Costs and Profitability of Oil and Gas Companies in Niger Delta Region of Nigeria 5
Nelly Raphael Imong, Udemeobong Bahakongfe Umagu, Timothy Oluwatominiyi Oni, Mary Eyong Nkang, Ph.D *

Tax Incentives and the foreign direct investment inflows in Sub-saharan African Countries 17
Elias Igwebuike Agbo, Sergius Nwannebuike Udeh, And John Onyemaechi Odo

Effect of integrated personnel payroll and information system (IPPIS) on payroll fraud in Nigerian public sector 31
Osevwe-okoroyibo Elizabeth Eloho, Ofor, N. (PhD)

Editorial

The editorial board welcomes you once again into the fourth quarter of Volume 29 No.4. edition of the Certified National Accountant. We urge our readers to make good use of the articles applicable to their areas of interest or sectors they are involved in to improve their practice as well as the general improvement of enterprise, be it government or private.

This journal in particular is an indispensable resource for accountants and other researchers, along with the exploratory and innovative works in the tracks. It offers valuable insights into the development of Accounting Profession, Financial institutions and related fields, such insights can be found in the following articles:

* Evaluation of firms' financial statement figures under Nigerian GAAP and IFRS reporting regimes across economic sectors in Nigeria
* Ownership Structure and Directors' Tunneling of Listed Non-Finance Firms in Nigeria
* Effect of employee cost on the financial performance of commercial Banks in Nigeria
* Innovation and sustainability of small and medium scale enterprises in Enugu metropolis
* Impact of economic governance on socio economic development in Nigeria
* The relationship between internet and entrepreneurship: Information system perspective in Nigeria

Once again, we, the board members, welcome you to this volume as you navigate through the educative articles presented to further broaden your knowledge and improve professional competencies.

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All manuscripts should be submitted electronically as attachment to our e-mail: ananpubcommittee2021@gmail.com. The journal is quarterly: submission of manuscript shall be acknowledged within two days. Authors should note that publication in CNAJ is free of charge as contribution of ANAN to the development of accounting research in Nigeria.

Environmental Appraisal Costs and Profitability of Oil and Gas Companies in Niger Delta Region of Nigeria

Nelly Raphael Imong, Udemeobong Bahakongfe Umagu,
*Timothy Oluwatominiyi Oni, Mary Eyong Nkang, Ph.D **

Abstract

This study examined the effect of environmental costs on profitability of oil and gas companies in the Niger Delta region of Nigeria. To achieve the above objectives, the researcher used primary data to collect information from the respondents through the use of questionnaire. A survey research design was adopted for this study. A well-structured questionnaire was issued to 398 staff of oil and gas firms whose operations involve the exploration and exploitation of oil and gas and two hundred and seventy (270) were retrieved from the respondents. A Confirmatory factor analysis was conducted to ascertain the validity and reliability of the research instrument. The study model estimated with the aid of qualitative regression models (ordered regression). The results showed that environmental pollution appraisal costs has significant effect on the probability of oil and gas firms in Niger Delta Region of Nigeria. The study concluded that environmental pollution appraisal costs affect profitability of oil and gas firms in Niger Delta Region of Nigeria. The study therefore recommended amongst others that oil and gas firms should monitor their operations effectively to prevent environmental internal failure and reduce the cost of rework and pollution.

Keywords: *Environmental costs, profitability and stakeholder's theory*

I. INTRODUCTION

The purpose of every business is to achieve successful performance such as customer satisfaction, increased returns on investment as well as improved profitability amongst others. A business that tends to achieve these objectives must make available goods and services for the target market through the transformation of inputs into output. During the transformation process and in the costs of operations, the society and the business stakeholders such as employees and customers may adversely be affected as a result of pollution, oil spillage, gas flaring and other externalities, thereby reducing the quality of life of the people. In order to compensate the people for reducing their quality of life, businesses are becoming socially and environmentally responsible thus incurring social costs (Okoye & Ngwakwe 2013).

As a result of the very reckless operations of oil and gas companies like Shell, Chevron, Agip, Total etc., all stages of oil activity including exploration, drilling, transportation result in the destruction of the natural environment and the livelihood of local people who depend on the land for survival. Forests and mangroves are cleared, community farmlands are destroyed, and wet-lands, creeks and community fishponds are polluted, while the air and rainwater is contaminated with dangerous gasses flared indiscriminately by oil and gas producing companies. In 2000 the Niger Delta Development Commission (NDDC) was established to replace the OMPADEC (Oil Mineral Producing Areas Development Community) to offer a lasting solution to the socio-economic difficulties of the Niger Delta region by offering rapid, even and sustainable development of the Niger Delta into a region that is economically prosperous, socially stable, ecologically regenerative and politically peaceful (Oti, Effiong & Tapang, 2012).

The impact of company's activities on the environment and the findings of environmental practitioners as well as accounting practitioners have necessitated the need to link environmental data to the accounting system. This has generated environmental accounting as a part of accounting. There is growing

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demand by stakeholders on company's environmental effect. Stakeholders not limited to consumers but includes industrial customers, financial institution and the government. This has resulted to companies reporting environmental information, but which is of low data content. This reduced financial statement credibility (Mamman 2004).

Environmental issues for purpose of economic and cost accounting have also been controversial even though the topic has been identified for discussions for the past four decades. This is because common criteria for value measurement of non-marketed, resources and impact on externalities have not been agreed (Okafor, 2018).Recent studies have shown that, corporate organizations have ranked business considerations based on profitability. Companies have also recognized all indirect expenditures as overheads without paying attention to the environment. Conventional accounting practice has not recognized environmental accounting for materials, water, energy and other natural resource usage. Besides, conventional accounting has not provided for such practice and particularly for accounting for impact on externalities. (Feenstra, 2002) observed that little has been recognized of the environmental depletion and degradation to the environment until a few well -meaning people in the developed countries realized that it was not good having great corporate profits and material well-being if they come at the cost of large scale of the ecosystem by which we are nourished. It became clear that degradation, pollution and accelerated destruction of the ecosystem and the depletion of non-renewable environment biodiversity would soon become very dangerous to human existence. The authors conclude that what once were localized environmental impacts, easily rectified, have now become widespread effects that may very well turn out to be irreversible.

Globally, it is needful to evaluate and investigate accounting reporting for raw materials, energy consumption and use of natural resources which have systematically depleted the environment. Besides, the adverse effect on the biodiversity through human and industrial activities and the nations need to protect the environment, have made for global regulations. These regulatory environmental laws however require only voluntary disclosure in financial statements of environmental information on industrial emissions, degradations, industrial wastages and all activities which impact negatively on the environment. As a result of the great impact on the ecology of oil and gas producing environment of the Niger Delta in Nigeria, which has caused political unrest in the area, Owolabi (2007) submitted that the political unrest in the Niger Delta cannot be wished away until there is a policy to incorporate environmental concerns into the nation's oil and gas industry planning, management and decision making. On environmental costs, he concludes that Costs and benefits need to be properly attributed, a clear distinction made between the generation of income and the drawing down of capital assets through resource depletion or degradation (Eradiri 2019)

Based on the fact that there is increasing environmental attention, and the fact that the oil and gas sector, the mineral extractive and indeed the manufacturing sectors have profound production impact on the environment, this study will focus on assessing the impact of environmental cost on the profitability of oil and gas companies.

Over the past decades, the effect of industrial activities on natural environment has become uncontrollable and has created ecological concerns among stakeholders. It is observed that, companies only report corporate social responsibility like donations and other contributions excluding environmental cost on prevention, appraisal. As a result, insufficient environmental accounting information disclosed made users not to make meaningful investment decision and assess the true profitability of the company. In other words, where the information that is provided is less than user's requirements, an expectation gap arises creating low organizational performance.

The refusal of oil and gas companies to take into cognizance environmental costs disclosure make organizations to operate below expectation, though they reported higher profit but the real financial position has not been disclosed. There has been a reduction in barrels' production per day of crude oil in

Nigeria and a fall in reported profit by oil and gas companies as a result of oil pipeline vandalization and theft.

The failure to include environmental costs in financial statements have the effect of sending wrong signals to shareholders, other stakeholders are making process improvement, product mix, pricing, capital budgeting, and other routine decisions complicated.

In summary, some oil and gas companies do not have an environmental policy document that will be used as a guide in their operations. There is also no department to handle the overall issues relating to environmental costs. Information on actions taken, including details of the nature and amount of expenditure incurred in pursuit of the identified environmental objective not disclosed. It is based on the backdrop, that the study is undertaken to examine the effect of environmental cost on the profitability of oil and gas companies in the Niger Delta region of the country using empirical analysis.

The main objective of the study is to examine the impact of environmental pollution appraisal cost and profitability of oil and gas companies in Nigeria.

With respect to the above objective, the researcher formulated the following research question.

Does environmental pollution appraisal cost affect the profitability of oil and gas firms?

From the research questions, the following null hypothesis was formulated:

Ho Environmental pollution appraisal cost has no significant effect on profitability of oil and gas

To enhance understanding, the following theory underpin this study.

II. LITERATURE REVIEW

In this section, a review of literature on the subject matter is carried out covering theoretical review, conceptual issues, and empirical studies.

The prevention, appraisal failure model (PAF)

The PAF (Prevention, Appraisal, Failure) model the oldest of cost of quality models was developed by Feigenbaum (1956) and Masser (1957). It is one of the most well-known quality cost model among quality practitioners and has found applications in both manufacturing and service industries and it is based on classifying quality cost into three main categories: prevention, appraisal and failure cost. In addition to these three categories, Abed and Dale (1987) proposed that failure cost can be divided into two sub-classes as internal and external failure cost.

According Schiffauerova and Thomson (2006) prevention cost are associated with actions taken to ensure that a process provide quality product or service and prevention of future losses. Appraisal cost are associated with measuring the level of quality attained by the process failure cost are incurred to correct quality products and service before (internal) or after (external) delivery to the customer. The PAF approach help to examine company or service industry operating procedures, accounting system and monthly departmental reports to identify various cost element associated with four cost categories.

Basic on the supposition of the P-A-F model, investment in prevention and appraisal activities will reduce failure costs and further investment in prevention activities that minimizes total cost of quality management. To further facilitate the understanding of cost of quality relationship. The cost of quality models (P-A-F model) are analyzed and presented by Scheiffauerova and Thomason, (2006).

Environmental pollution appraisal cost

An appraisal cost is the expenditures made by a company to monitor its activities as it relates to the environment where it operates. Careful investigations have shown that the activities of companies' especially manufacturing industries have an effect on the ecological system.Due to regulatory pressures to reduce air, land and water emission appraisal has become critical. Appraisal costs include:

i. Charges for the depreciation of test equipment
ii. Costs of supplies used in test and inspections
iii. Costs of obtaining outside laboratory endorsements

Much of the appraisal effort focuses on inspecting the inputs and production processes. For environmental effects, efforts focus on monitoring the production processes and by-products. By engaging in monitoring activities companies will be able to discover problems early and corrective actions can be taken quickly and economically. The oil and gas industries are not left out of these industrial effects as its activities affect the environment negatively if not properly regulated (Falope, Offor & Ofurum 2019).

Major oil spills and industrial waste disposal heavily contaminates marine shorelines, causing severe localized ecological damage to the near-shore communities. The harmful effects of these on the environment are numerous. These spillages and disposals destroy plants and animals in the estuarine zone. It settles on beaches and kills organisms and marine animals like fishes, crabs, and other crustaceans. It endangers fish hatcheries in coastal waters and as well contaminates the flesh of commercially valuable fish. Oil spillages poison algae, disrupts major food chains and decreases the yield of edible crustaceans. Oil on water surface also interferes with gaseous interchange at the sea surface and the oxygen levels will thereby be lowered. This no doubt reduces the life span of marine animals (Worgu, 2000). Environmental Detection Costs i.e. Environmental Pollution Detection Expenditure/ Costs Responsiveness (PODET) which include costs for:

i. auditing environmental activities
ii. inspecting products and processes
iii. developing environmental performance measures
iv. testing contamination and measuring contamination level

ECAPEX = Other Environmental Capital Expenditure/Costs Responsiveness

COTEC = Environmental Technology Content for production Responsiveness

Empirical review

This section will review previous and relevant studies on the effect of environmental cost accounting and profitability (performance).

Deegan (1994) conducted a study on the incentives of Australian firms to provide environmental information within their annual reports voluntarily in Australia. Using a political cost framework, hypotheses were developed which link the extent of environmental disclosures with a measure of the firm's perceived effects on the environment. A sample of 197 firms was obtained from Australian Graduate School of Management annual reports file for the year 1991. The results using linear regression statistical tool indicate that firms which operate in industries which are perceived as environmental damaging are significantly more likely to provide positive environmental information within their annual reports than are other firms.

Bennett and James (1998) also viewed environmental accounting as the generation, analysis and use of financial and non financial information in order to optimize corporate environmental and economic performance and to achieve sustainable business.

Adediran and Alade (2013) carried out a research on the impact of environmental and social Accounting on corporate performance in Nigeria used fourteen (14) randomly selected quoted companies in Nigeria. Data were collected from annual report analyzed using Regression Analysis. The authors discovered that there is negative relationship between Environmental Accounting and Return on Capital Employed and Earning per Share and a significant relationship between Environmental Accounting and Net Profit Margin cum Dividend per Share.

Jash (2003) viewed environmental management accounting as a combined approach which provides for the transition of data from financial accounting, cost accounting and material flow balances to increase material efficiency, reduce environmental impact risk and reduce cost of environmental protection and this has a financial as well as physical component.

Asuquo (2012) carried out an empirical study in Nigeria on the topic:" Environmental friendly policies and their financial effect on corporate performance". Data were received from both primary and secondary sources and afterwards, the data were analyzed using simple ordinary least square regression method. It was then revealed that the cost of the ensuring environment friendly policies as well as firm competitiveness have significant relationship with the firm's corporate performance. The study then recommended that firms should formulate and implement environmental friendly policies to enhance their competitiveness, acceptability and stability, which would eventually result in high performance.

Bessong & Kankpang(2012) carried out a study in Nigeria on Social Responsibility cost and it influence on the profitability of Nigerian Banks, the study made use of explanatory design and data were sourced secondarily from five Nigerian Banks and analyzed using the ordinary least square (OLS) method. The study revealed that there is a negative influence of social cost and pollution cost on profitability. The study therefore recommended that the Financial Reporting Council (FRC) of Nigeria should collaborate with other professional bodies to produce a standard on social responsibility accounting and ensure transparency and good compliance in the process.

Agbigwu, Ihendinihu and Okafor (2016) carried out a study in Federal College of Education Imo State, Nigeria on the topic: "Impact of Environmental and Social costs on performance of Nigerian manufacturing companies". The study made use of secondary data obtained from ten (10) randomly selected firms (Flour mill plc, Unilever plc, Cadbury plc, Nestle plc, Dangote Plc, UAC foods, Honey well plc, national salt Nigeria plc, Presco Nigeria plc and Union Dicon Plc) annual reports and financial statement for the year2014. The obtained data were analyzed using t-test of SPSS version 20. Findings of the study revealed that the companies environmental and social cost significantly affect Net Profit Margin, Earning per share and return on capital employed of manufacturing companies. The researchers then suggested that government should ensure complete adherence of environmental laws by manufacturing companies in Nigeria.

Blessing (2015) studied the role of environmental cost accounting in environmental sustainability in Nigeria. Data for study were sourced primarily with aid of questionnaire; Administered to 200 randomly selected respondents from the agricultural/Allied, Breweries, Chemical and Paints, Health care, Pharmaceutical and oil marketing companies in Nigeria. Tested the hypotheses using Frequency distribution, Mean rank and Kruskal-Wallis test and Chi-square statistical tool, findings revealed that majority of the respondents agreed that business organization in Nigeria have not been aware of environmental policies. It was found that there exists no significant difference on business organization in Nigeria not being aware of environmental policies. The result also revealed that majority of the respondents believes that environmental sustainability practice is an important concept for organization. The findings further revealed that majority of the respondents have not agreed that business organization in Nigeria have not adopted the use of environmental cost accounting techniques cost management. It was revealed that significant difference on the adoption of environmental cost accounting techniques cost management in the light of the findings of the study, the researcher recommended that a detailed and well spelt out environmental disclosure themes and evidence must be established to provide foundation for improving corporate social environmental disclosure among companies. Also environmental regulatory agencies should mandate organizations to adopt environmental practices in its operations so as to enhance environmental sustainability consciousness within Nigeria organization.

Homan(2016) researched on the topic "environmental accounting roles in improving the environmental performance and financial performance of the company" in Indonesia; using secondary data obtained from the Ministry Environment of Indonesia, and statistically analyzing the data obtained, using Linear regression, the findings revealed that disclosure of the environment has been done by most of the public companies in Indonesia less is implementing reporting environmental costs in the annual report 2015, especially in sub-sectors of tourism, hotels and restaurants.

Obara and Onangih (2017) examine the extent to which Accounting practice affect the profitability of Oil and Gas companies in Nigeria, particularly those in the upstream sector using descriptive statistical tool. The result of the study showed that accounting practices had a significant tool. The result of the study showed that accounting practices has a significant relationship with performance of Oil and Gas Companies, particularly, the Return on Assets and Return on Capital Employed.

Akhaiyea (2009) researched on the topic Design and Bases of Environmental Accounting in oil and gas and manufacturing sectors in Nigeria. For this study, primary data survey and secondary data elucidation were the instruments utilized; sampling 199 companies comprising of 93 oil and gas companies and 106 manufacturing companies in Nigeria. Data was sourced through annual report of companies as sourced from the Nigerian stock exchange, manufacturing association of Nigeria and corporate annual reports starting from Kyoto protocol 1997 to 2006.The t-test statistic Pearson product-moment correlation tests, ANOVA, and multivariate linear regression analysis were statistics applied. Findings are that environmental operating standards which should focus on minimizing impact on environment. Also suggested was that standard cost accounting definition should be agreed for environmental spending, expenditure and management accounting in the oil and gas and manufacturing sectors operating in Nigeria.

Pandey and Kumar (2016) carried out a research on the topic exploring the Association between environmental cost and corporate financial performance: a study of selected NIFTY companies. The research which was carried out in India. Relying on secondary data collected from different well source and companies annual reports covering a five year period, that is from 2010-2011 and to 2012-2015.The data had been collected the dependent variables that is environmental cost (EC)and independent variables that is EPS, ROCE and P/E ratio environmental cost(EC) was sourced from annual reports of the selected companies whereas the independent variables and control variables were obtained from the companies and data base websites. Sampling the data obtained using regression analysis, the findings were that there is no significant relationship between environment expenditure of the company and its financial performance. It was found that companies with higher market capitalization are spending more 0n environmental issues.
Ammad Osazuwa and Mgbame (2015) carried out a study in Nigeria on environmental accounting and firm profitability in Nigeria. Do firm-specific effects matter? Utilizing a cross sectional research design and sampling 50 companies from Nigerian Stock exchange. The regression analysis was conducted using E-views 7.0 econometric software and adopting the ordinary least square (OLS) technique for the data estimation, data obtained from only audited financial statement and foot notes of the sampled companies. Findings of the study revealed that there exists a significant relationship between environmental accounting disclosure and firm's profitability when environmental accounting is moderated by firms. Specific variables like size, industry type and big four auditors. Though the result appears mixed with industry type and big four auditors, positive correlation shows between big four auditors while size exhibit negative relationship. The study recommends companies where the only concern was striving to be profitable to ensuring that they consider the impact of their activities on the society, as the study has shown that environmental accounting disclosure could have a positive take on the profitability of the firm.

Rakiv, Islam and Rahman (2016) carried out a study on environmental accounting reporting disclosure and company profitability: a study of listed manufacturing companies in Bangladesh. The study developed an environmental accounting reporting disclosure index (EARDI) consisting of 21 major environmental accounting disclosure. Return on asset was used as variable for profitability. To obtain the EARDI score, content analysis is being used and statistical technique such as frequency, mean, standard deviation, ANOVA, Bi-variant regression model analysis as conducted to acquire research findings. Sampling 166 companies from Dhaka stock exchange and analyzing their annual financial reports from 2014 to 2015, the study discloses that only 41 companies out of 166 companies are proving some sort of environmental disclosures in their annual reports and there is a significant relationship between company's profitability and EARDI.
Okafor (2018) examined environmental costs accounting and reporting on firm financial performance: A survey of quoted Nigerian oil companies. The findings indicate that better environmental performance positively impact business value of an organization. Moreover, environmental accounting provides the organization an opportunity to reduce environmental and social costs and improve their performance.

Falope, Offor, and Ofurum (2019) environmental cost disclosure and corporate performance of quoted construction firms in Nigeria. Ex-post was adopted for the study. The findings showed that environmental pollution prevention cost, environmental protection cost and environmental recycling disclosure have effects on return on assets of quoted construction firms in Nigeria. The study recommended among others that regular and continuous environmental evaluation will improve organizations sales, income and ensure that environmental situational needs are met.

Ikpor, Enuma, and Okezie (2019) studied environmental accounting and sustainable financial performance: evidence from the Nigerian petroleum industry. The study used expost-facto research design. The finding suggested that environmental operating costs and environmental prevention costs have significant and negative effect on the performance of petroleum firms in Nigeria. However, we found important differences in the correlates of firm's capital expenditure on sustainable financial performance. The finding of this study therefore have important implications for policy.

Victor, Adiga, Shaki and Bassey (2020) study focused on environmental reporting and corporate performance with particular reference to listed oil and gas companies in Nigeria. The study adopted the ex-post facto design and data was sourced from the published financial reports of 6 listed oil and gas companies out of the 12 quoted oil and gas companies. Ordinary least square was used in analyzing the data using Minitab 17. The findings revealed that environmental protection, development and safety cost has a negative but significant relationship with ROA. More also, environmental protection, development and safety cost showed a negative and insignificant relation with EPS. The study recommends that oil firms should provide comprehensive reports of their environmental involvement and also government and stakeholders should be concern and mandate compliance to standards regulating and mandating firms to report environmental accounting satisfactorily.

III. METHODOLOGY

For the purpose of the study, the survey design was adopted by using primary data to test effectiveness of the independent variable on the dependent variable. Survey design best suits a study that adopts the questionnaire instrument in data gathering. This choice was made because the survey method is effective when it comes to getting opinions, attitudes and descriptions as well as getting cause and effect relationship. The study was carried out in Nigeria, Niger Delta to be precise. This is because oil and gas exploration and exploitation is carried out in this locations which comprises of Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers states. The companies selected for this study included all the upstream oil and gas companies with Nigerian Stock Exchange (NSE). The choice of the companies is informed by the fact that they are involved in upstream activities which include exploration, drilling, and extraction in Nigeria with a significant financial reporting quality. The population for the study comprised of all 27 upstream oil and gas companies that are quoted in the Nigerian stock exchange (NSE). The population also covered the total number of staff in the 27 upstream companies which is 82,310.The study was conducted using the oil and gas in the Niger Delta region of Nigeria Questionnaires were distributed to the total number of staff of the selected companies. A total number of 398 questionnaires were served and only 270 were retrieved. Using the Tara Yamane formula below the sample size for the study was determined.

$$n = \frac{N}{1+N(e)2}$$

$$n = \frac{82,310}{1+82,310(0.05)2}$$

$$n = \frac{82,310}{1+82,310(0.0025)}$$

$$n = \frac{82,310}{1+205.775}$$

$$\underline{n = 398}$$

Where: n = Sample size
N = Population Size
e = Tolerable error (5%)

Primary source: The primary data was sourced using the questionnaire instrument. The questionnaire was well structured to capture five point Likert scale; strongly agree (SA), Agree (A), Disagree (D), Strongly disagree (SD) and Undecided (U).

The questionnaire instrument was used in gathering data from the selected oil and gas companies. A well-structured open ended and close ended questionnaire was issued to the 398 staff of the firms.

Validation and reliability of instrument and test of instrument

The research instrument was subjected to content validity by the researcher and other experts. In order to establish the validity and reliability of the research instrument, a confirmatory factor analysis was conducted. Generally, factor loadings and communality of 0.500 and above is adequate for establishing the validity of test items measuring a construct (Hair, Black, Babin &Anderson, 2014; Avwokeni, 2016).The Cronbach's Alpha coefficient stipulates a theoretical standard score 0.40 and above for test of reliability.

Qualitative response regression models (Ordered regression) were employed for the data analysis. This is because the dependent variable in this study is a multiple-category response variable (the responses are qualitative in nature).One of the three approaches to developing a probability model for a discreet response variable are the logit model and the probit model. The ordered regression model is applicable to a response variable that has more than two outcomes like study whose responses are on the Likert-type scale of "strongly agree", "agree", "undecided", "disagree" and "strongly disagree". Residual diagnostic tests such as normality test, multicollinearity test, and heteroscadasticity test were carried out to clean up the study data.

Normality Test

Normality describes a condition in which a variable follow the standard normal distribution. The Jargue-Bera test shall be used to test whether the series is normally distributed by measuring the difference of skewness and kurtosis of the series with those from the normal distribution. If the residuals are normally distributed, histogram should be bell-shaped and the Jargue-Bera (JB) statistics insignificant. It therefore, implies that a series with probability of the JB statistics greater than 0.05 is deemed to be normally distributed.

Multi-collinearity Test

Multicollinearity among the independent variables implies that they are perfectly correlated. In a multivariate regression analysis of this nature, there is the possibility that one or more explanatory variables could correlate among themselves thus undermining the regression result.

The variance inflation factor (VIF) statistics shall be used to ascertain the presence or absence of multicollinearity among the independent variables.

The rule is that if each of the explanatory variables has a VIF of less than ten (10), they do not correlate with other independent variables. Any variable with VIF greater than 10 shall be dropped as it correlate with other independent variable.

Heteroscedasticity Test

The problem of heteroscedasticity exists when the residuals of a regression fail to follow regular pattern and are not normally distributed. Linear regression analysis assumes that there is homoscedasticity or constant variance. Heteroscedasticity describes a situation where the variance of the error terms is not equal, and in which the error terms may be larger for some observations or periods of the data than for others. Breusch-Pagan/Godfrey test was employed to test for the problem of heteroscedasticity. When the probability value of the observed R-squared (R2) is greater than 5% or if the F-statistic is greater than the critical value at 5% in the Breusch-Pagan/Godfrey test, the assumption of the presence of homoscedasticity is upheld.

The study model is specified as follows:

$P = f(EPAC)$ ……………………………………………………………………1

Where,

EPAC = environmental pollution appraisal cost

P = profitability

The econometric form of the model is specified as:

$P = \beta 0 + \beta 1EPAC + \varepsilon$……………………………………………….2

EPAC = environmental pollution appraisal cost
P = profitability
ε = stochastic error term
The 'a priori' expectations are:
B1> 0; implying that the higher the EPAC, the higher the P.

IV. RESULT AND DISCUSSION

TABLE 4.1: *Descriptive Statistics and Normality tests*

	PFTB	EPAC
Mean	4.37	4.03
Median	4	4
Maximum	5	5
Minimum	3	2.5
SD	0.57	0.52
Skewness	-0.23	-0.15
Kurtosis	2.26	2.41
JB	*8.54*	***4.91***
p-value	*0.01*	***0.08***
N	270	270

Source: Researchers' compilation (2021

TABLE 4.2: Multicollinearity test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.174	187.9	NA
EPAC	0.004	62.7	1.03

Source: Researchers' computation (2021)

The result of the multicollinearity test, {the centered variance inflation factors (VIF)}for the variables are low, indeed, the value for the variable is less than 10, which shows that there is no form of multicollinearity in the study variable. Thus, the estimates from the regression results are deemed good for drawing valid conclusions

The Glejser and the Breusch-Pagan-Godfrey tests were used to check for the presence of heteroscadascticity. The results are reported in Table 4.9 below shows the chi-square statistics for both Glejser and Breusch-Pagan-Godfrey tests were highly not significant at the 5 per cent level, indicating the presence of homoscedasticity in data set. Therefore, the null hypothesis of homoscedasticity is not rejected. These results imply that the ordinary least square technique can be used to estimation the study's model. However, because the dependent variable in the model is a multi-ranked variable, ordered regression was adopted for the estimation of the model (Green & Hensher, 2010).

In order to provide a robust analysis to show the direction of movements among the explanatory variable, the researcher examined the unconditional correlation of the variable. Table 4.10 below shows that firms' profitability has positive and significant correlation with environmental pollution appraisal cost at less than 1 per cent but no significant correlation with the other explanatory variable. In fact, the result of the regression analysis confirms this relationship.

To enable the researcher test the hypotheses of the study, the specified model is estimated and analysed. The main statistics of interest for the ordered regression used in this study are the coefficient of the estimates and their respective probabilities. The Lagrangian ratio (LR) statistic provides valuable information on the efficiency of the estimates. The probit, logit and extreme value approaches are used for the estimation of the ordered model. The one with the least LR probability value or higher LR coefficient performs better and is preferred for interpretation purposes.

TABLE 4.3: Heteroscadasticity test

Heteroskedasticity Test: Glejser

F-statistic	1.40	Pro. F (4,265)	0.24
Obs*R-squared	5.60	Prob. Chi-Square (4)	0.23

Heteroskedasticity Test: Breuschi-Pagan-Godfrey

F-statistic	1.38	Prob. F (4,265)	0.24
Obs*R-squared	5.52	Prob. Chi-Square (4)	0.24
Scaled explained SS	4.59	Prob. Chi-Square (4)	0.33
Scaled explained SS	4.61	Prob. Chi-Square (4)	0.33

Source: Researchers' computation (2021)

TABLE 4.4: Estimation Results

	Probit			Logit			Extreme value		
Variable	Coef	z-Stat	Prob.	Coef	z-Stat.	Prob.	Coef	z-Stat.	Prob.
EPAC	0.29	1.98	0.04	0.53	2.05	0.04	0.25	1.47	0.14
Psuedo R2	0.17			0.17			0.16		
LR statistic	77.11	0.000		77.70	0.000		74.08	0.000	

Source: Researchers' computation (2021)

Table 4.4 above, reveals that the LR values are high at over 74 for each of the estimates implying that the estimated model has impressive explanatory power. The LR value for the logit model has the highest value at 77.70; the researcher therefore focused on the logit result for inference and interpretation. Table 4.4, shows that the coefficients of Environmental appraisal cost (EPAC) is significant at the 5 percent level as the z-values have probabilities that are less than 0.05.

The model estimation result shows that EPAC has a significant positive impact on the profitability of oil and gas firms. This implies that appraisal of the environment to trouble shoot spillages can reduce the incidence of pollution and the consequences thereof.

The hypotheses of the study are tested using the coefficients of the variable and the significance of the z-values. Table 4.4 exhibits the results of the association between environmental pollution appraisal cost and profitability of oil and gas firms. The LR value for the logit model has the highest value at 77.70; therefore, the study adopts this result for interpretation and conclusions

Hypothesis 1

Environmental pollution appraisal cost has no significant effect on profitability of oil and gas firms.

This hypothesis is tested based on the coefficient of the environmental pollution appraisal cost (EPAC) in Table 4.4. The coefficient of EPAC is 0.53 and the z-statistic is 2.05 with probability of 0.04. This is less than the probability of 0.05, implying that the coefficient passed the significance test at the 5 percent level. Consequently, the null hypothesis is rejected, implying environmental pollution appraisal cost has significant and positive effect on oil and gas firms' profitability.

Environmental pollution appraisal cost and profitability of oil and gas firms

From test of this hypothesis in the estimated result in Table 4.10 the result is positive and significant at 5% level. This result implies that environmental pollution appraisal cost has a significant and positive relationship with the profitability of firms. The plausible reason is that environmental pollution appraisal can help reduce environmental pollutions such as land, water and air pollutions, improve the relationship between oil firms and the community and thereby enhance profitability.

This result agrees with the findings of Makori and Jangogo (2013) in Kenya whose study result shows thatenvironmental accounting has positive significant effect on firms' profitability; Gatinbu and Wabwire (2016) in Nairobi who finds that environmental accounting disclosure has a positive and significant effect on corporate profitability. However, the result negates the findings of Adediran and Alade whose study show that environmental and social cost has negative relationship with performance of firms in Nigeria.

V. CONCLUSION AND RECOMMENDATION

This study shows that environmental pollution appraisal have significant effect on the profitability of oil and gas firms in Nigeria.

The harmful effects of pollution on the environment are numerous. Oil spillages destroy plants, animals and aquatic life in the estuarine zone, while gas flaring pollutes the air and destroy the ozone layer. Activities of firms in the oil and gas sector have profound impact on the environment hence the necessity to examine the impact of environmental pollution appraisal cost on the profitability of oil and gas companies. Oil and gas firms incur appraisal cost in a bid to monitor their activities and inspect the environment to assess the effect of their activities on the environment where they operate. Moreover, regulatory requirements dictate that firms must take necessary steps to reduce air, land and water emission, thus necessitating regular appraisal of the environment.

Environmental pollution appraisal cost affects profitability of oil and gas firms especially if they fail to take proactive step to prevent oil spillage. Moreover, failure to include environmental costs in financial reports can present a firm in bad light before stakeholders. The findings of this study show that environment pollution appraisal affect profitability positively. This is because such expenditure assist to reduce oil spillage, gas flaring and the effect on the environment. This creates a conducive atmosphere for the oil firms to carry out their operations without interference from the host community.

Based on the findings of this study, the following

recommendations are made:
Oil and gas firms in Nigeria should constantly appraise the environment and monitor oil facilities to obviate spillage and the associated consequences.

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Tax Incentives and the foreign direct investment inflows in Sub-saharan African Countries

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Abstract

This paper considered tax incentives and foreign direct investment in Sub-Saharan African countries. It employed historical research approach to review the literature on the influence of tax incentives on foreign direct investment in Sub-Sahara African economies, particularly Nigeria. It finds that even as tax concessions, longer tax holidays, withholding tax and other tax expenditures in Sub-Sahara African countries have continued to be in the increase, their impact on FDI has remained generally non-significant. This situation is blamable on the several factors that have played against the business environment for foreign investments in developing countries. Our study recommends that tax incentives should be properly structured to deal with policy lapses by the governments of Sub-Saharan African countries. Otherwise, achieving the main goals such as poverty eradication, sustainable growth and development in the competitive global economy might be unrealizable.

Keywords: Sub-Sahara Africa, Nigeria, tax incentives, tax waivers, foreign direct investment.

1. Introduction

African countries have faced competition and several challenges in striving to attract foreign direct investment (FDI) as a result of the role that FDIs play in the development process (Appiah-Kubi et al, 2021). According to Appiah-Kubi et al. (2021), many of the efforts made become futile as a result of several factors that work against the business environment for foreign investments. There are some motivational factors that influence foreign direct investments in a nation. For several developing countries within Africa, there are some significant economic benefits. Such nations have been able to use the global investment pool and have drastically improved their standard of living(Appiah-Kubi et al., 2021) .As several countries implement a lot of extended venture systems, competitiveness for foreign investors are expected to continue increasing. For this reason, the foreign direct investment decision is increasingly gaining research interest. According to Appiah-Kubi et al.(2021), most researchers have emphasized that factors such as corruption, internal security, rule of law, quality of regulations, the effectiveness of government, voice and accountability, market size and infrastructure, among many others are the economic essentials for investment environment (Love & Klapper,2002; Dupasquier et al., 2012; Maruškinová, et al.2018; Agyemang et al. 2016; Bokpin et al. , 2017; Saini& Singhania,2018; Agyemang et al.,2019; Appiah-Kubi, et al.,2020).

Appiah-Kubi et al. (2020) note that there have been several recommendations for Africa countries to attract significant inflows of foreign direct investment to enhance infrastructural development by the United Nations Sustainable Development Goals (UNSDG).Nations compete for foreign direct investment because foreign investors generate job creation and economic growth, improve the productive resources of the nation, advance information and technology that lead to alleviation of poverty, and benefit the economy in other ways (Lee et al.,2012; Maitahz et al. 2014; Kuzmina et al. 2014; Malec, et al.,2016 and Appiah-Kubi et al., 2020). Several developing countries, especially in Africa, have been coming up with strategies aimed at enhancing the inflows of FDI (Appiah-Kubi et al., 2019).

African countries have been characterized by macroeconomic factors such as poor infrastructure, unemployment, low level of savings, and many others characterize African countries. Foreign direct

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investments are capable of constituting an immense substitute to increase the economic productivity of such economies and improve economic growth and its sustainability (Miletkov et al., 2014). These positive advantages that the inflows of foreign direct investment generate have caused competition among several developing countries.

Peters and Kiabel (2015) assert that investors' scale of preference when it comes to factors that influence their investment decision-making factors, such as sound security, exchange rate, political stability, inflation, etc., instead of fiscal incentives. In a bid to surmount this problem, African countries initiate and implement various measures of improving a friendly business environment to attract the inflows of foreign investors.

Tuomi (2011) claims that such measures adopted by African countries include liberalization of the economy, tax incentives, and provision of infrastructure. These measures are adopted by African countries in attracting foreign direct investment. The major tool used by several developing economies in attracting foreign investors are tax incentives such as low corporate tax rates, tax holidays, tax credits, investment allowance, tax deductions, and many others have been (Peters & Kiabel, 2015).

The costs and benefits of tax incentives differ from country to country. Consequently, the effects of tax incentives on the economic growth and expansion of the overall tax are not the same across the board. While in some cases, tax incentives may obviously play a crucial role in attracting new investments that contribute to substantial economic growth and development of the country, in others, a particular tax incentive scheme may bring about few new investments but with a significant cost to the government.

Many Sub- Sahara African countries are cash trapped and unable to sufficient revenue and meet their budgetary requirements. In spite of this problem, they still offer a wide range of tax incentives. As a result of globalization, it has become very easy for multinational companies to engage in international tax planning and reap maximum economic benefits. In spite of this, many of them remain in a net tax credit position as a result of huge tax incentives. In order to continue to enjoy tax-free status, some of them would close shop soon after opening such, register a new company in the same locality and continue their old business. By so doing, those companies deny the government the much needed revenue that inform the grant of tax incentives. According to Anyadike and Eme (2017), part of the objectives of tax waivers in Nigeria is to boost local industries, make the much-needed raw materials or goods available in the short-term and generate employment. The authors report that after many years, none of these lofty objectives has been achieved. Most of the local industries have closed shops for lack of raw materials. This has resulted in the growing army of the jobless in the Nigeria. Further, Anyadike and Eme (2017) observe that in other economies, waivers are seen as a mechanism for achieving set economic goals such as protection of local industries, job creation, export promotion as well as generation and preservation of foreign exchange. For instance, China, India, Malaysia, Japan and many other economies have at various times used waivers, concessions and grants to protect and build local manufacturing and agriculture. However, the situation in Nigeria is different. For instance, in 2014, the Coordinating Minister for the Economy and Minister of Finance, Dr. Ngozi Okonjo-Iweala, declared that Nigeria had lost N797.8 billion between 2011 and May 2014 to import waivers and tax holiday concessions. Of the amount, N25.814 billion was the level between January and May of that year (Anyadike & Eme, 2017) regret that none of the objectives of tax waiver has been met in Nigeria. The system has been too corrupt. According to Anyadike and Eme (2017), some beneficiaries sell duly-approved waivers for essential goods to importers of cars or other products which are of little or no benefit to the economy. Some defaulting companies in duties and levies to the Federal Government even got fresh waivers to import more in an era of impunity where monitoring was zero and the system was run without human face(Anyadike & Eme,2017).

In Nigeria particularly, many multinational firms carrying out operation within pay little or no tax to the government for several years. Many of them that operate in the export processing zones close down after enjoying the ten-year tax holiday period and relocate to China, India, Uganda and Ghana which either had introduced similar incentives or provide infrastructural facilities that lower production costs. Furthermore, the appropriateness of providing tax incentives in developing countries has become a subject for debate, as they have come quite often with huge costs in the form of administrative fees, expenses, and inefficient allocation of capital, foregone revenue, and many more.

Several scholars have discussed the likely effects, including their benefits and risks of tax incentives (Peters & Kiabel, 2015).A number of studies have been carried out on the effect of tax incentives on foreign direct investment. Apart from the fact that majority of such studies focused on developed countries, and relatively few on African countries, they emerged with conflicting results. For African countries, effective tax incentives have been cited as a major factor in enhancing investment in developing countries (Peters & Kiabel, 2015). Considering the significant role that foreign direct investment is expected to play in the economic progress of developing economies, the governments in Africa must focus on the formulation and execution of schemes and strategies that would serve as incentives for foreign businesses to channel FDIs into their economies. To provide a guide to the African governments in their policy formulation and implementation in this regard, an empirical study that investigates the impact of tax incentives on foreign direct investment inflows deserves to be embarked upon. This study seeks to achieve this. In addition, in alignment with Richard et al. (2021), we contend that understanding the scope and impact of tax incentives is a necessary condition for the reform of tax incentive systems in Sub-Sahara Africa, enabling citizens to assess whether policymakers are making informed decisions to increase revenue at a time when Africa's financing gap is widening. Hence, the justification for this study.

Consequently, the objective of this paper is to investigate the extent to which effective tax incentives have influenced the inflows of foreign direct investments in Sub-Sahara Africa with particular interest in Nigeria.

2.0 Review of the related literature

2.1 Conceptual framework

2.1.1 Tax incentives

Tax incentives are some government measures which are intended to encourage individual tax paying entities to spend money or to save money by decreasing the amount of tax that they have to pay. Tax incentive is a reduction made by the government in the amount of tax payable by a particular group of people or type of organization or a change in the tax system that benefits those people. It is an aspect of a country's tax code which is designed to encourage a particular economic activity by reducing. Tax incentives can have both positive and negative impacts on an economy. If implemented and designed properly, tax incentives can attract investment to a country. Additional benefits of tax incentives include increased employment, higher number of capital transfers, research and technology development, and also improvement to less developed areas. Also, if implemented properly, tax incentives can enhance economic welfare through increasing economic growth and government tax revenue (after the expiration of the tax holiday/incentive period). On the other hand, tax incentive can cause negative effects on a government's financial condition(McDonald et al., 2020) among other negative effects, if they are not properly designed and implemented(Easson & Zolt, n.d) Tax incentives have traditionally been used by governments as tools for promoting a particular economic goal. According to Trepelkov and Verdi (2018), they are preferential tax treatments which are offered to a selected group of taxpayers. Tax incentives come in several forms and are aimed at attracting greater investment, spurring growth, and creating jobs. They take the form of exemptions, tax holidays, credits, investment allowances, preferential tax rates and import tariffs (or customs duties), and deferral of tax liability(Richard et al.,2021). The justification for using tax incentives has been the need to: (i) correct market inefficiencies associated with the externalities of certain economic activities; (ii) target new industries and mobile investments that are subject to tax competition; (iii) generate a form of agglomeration economies, or concentration externalities; and (iv) subsidize companies during their sector's downturn (Trepelkov & Verdi, 2018). In addition, it is usual for developed countries to employ tax incentives to promote research and development activities and export activities. Also, tax incentives are used to support the competitiveness of the enterprises of developed countries in the global market, to attract foreign investment and foster national industries. Tax incentives according to Kuewumi (1996) encompass all the measures adopted by government to motive tax payers to respond favorably to their tax obligations. It includes adjustments to tax policy aimed at lessening the effects of taxation on an industry, a group of persons or the provision of certain services. Such measures may subsume the adoption of benign low tax rate; the effective dissemination of fiscal information by tax authority; or the non-imposition of tax at all. Similarly, tax incentives is considered as a deliberate reduction in tax liability granted by government in order to encourage particular economic units (e.g. corporate bodies to act in some desirable ways (e.g. invest more, produce more, employ more, export more, save more, conserve less, pollute less, and so on). Any tax is amenable to being modified to create a tax incentive. The reduction in tax liability, which a tax incentive constitutes, can be achieved through a reduction in tax rate, reduction in tax base, and so on.

2.1.2 Foreign Direct Investment

Foreign direct investment is an investment by a multinational corporation in foreign countries in order to control assets and manage production activities in those countries (Dutse, 2008). Macrotrends (2021) defines Foreign Direct Investment (FDI) as direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy which has control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship (Macrotrends, 2021).

There is a disagreement among policy makers and scholars on the benefits and costs of FDI to the host countries. The critics argue that there may be evidence of benefits in the short run but in the long run the cost may be far more enormous than the supposed benefits. On the other hand, the advocates for FDI argue that it sets an economy on the path to development. The pro-FDI argument is based on the opportunity that FDI offers the host countries to close the gaps between domestic savings, foreign exchange, government revenue, skills and the planned levels of these resources necessary to achieve development targets.

Based on the Harrod-Domar development model, a nation whose rate of savings falls short of the level sufficient to enable it achieve a planned level of investment can fill the gap with foreign capital. The neo-classical scholars contend that this will make a nation achieve its target rate of growth. FDI contributes to a nation's development by filling the gap between targeted or desired investment and locally mobilized savings. Another role played by foreign direct investment is its contribution to filling the gap between target foreign exchange requirements and those derived from net export earnings. This foreign exchange or trade gap, it is argued, can be filled by an inflow of foreign capital. If the multinational enterprise is able to generate net positive export earnings, the deficit incurred by the host country can be removed over time. This is the basis of arguing that the operations of multinational corporations leave a positive effect on the balance of payments of the host nation. Again, pro-FDI scholars argue that by taxing multinational corporation's profits the government of the host nation mobilizes sufficient funds for development projects. One other advantage that FDI confers on the host country is a whole lot of packages such as management, entrepreneurship, technology and skills. Multinational corporations not only provide circulating capital but also new factories and sophisticated technological knowledge which can be transferred to their local counterparts by means of training programs and the process of learning by doing.

2.2 Theoretical framework

2.2.1Trickle-down theory

Trickle-down theory also called trickle-down economics states that tax breaks and benefits for companies and the wealthy will trickle down to everyone else. According to Kenton(2021), this theory argues that income and capital gains tax breaks or other financial benefits to large businesses, investors, and entrepreneurs stimulate economic growth based on two assumptions, namely (i)All members of society benefit from growth, and (ii)Growth is most likely to come from those that have the resources and skills to increase productive output. Trickle-down economics involves less regulation and tax cuts for those in high-income tax brackets as well as corporations. However, critics contend that the added benefits the wealthy receive add to the growing income inequality in the country. Trickle-down economics is political, not scientific (Kenton.2021). The first reference to trickle-down economics was made by American comedian and commentator, Will Rogers. Trickle-down economics comes in several forms. For instance, while the supply-side theorists believe that less regulation, tax cuts for corporations, and high-income earners would motivate companies and the wealthy to raise output and create better jobs, the demand-side theorists believe in subsidies and tariffs, whereby the wealthy need protections to keep paying their employees or to raise spending.

An advisor to the Reagan administration, developed a bell-curve style analysis that plotted the relationship between changes in the official government tax rate and actual tax receipts. This became known as the Laffer Curve. A nonlinear shape of Laffer Curve, developed by an American economist Arthur Laffer suggests that taxes could be too light or too onerous to produce maximum revenue. This implies that a 0% income tax rate and a 100% income tax rate each produce $0 in receipts to the government. At 0%, no tax can be collected; at 100%, there is no incentive to generate income. This should mean that specific cuts in tax rates would boost total receipts by encouraging more taxable income. Laffer's idea that tax cuts could drive growth and tax revenue was quickly labeled "trickle-down."

2.3. Empirical review

Beyer and Schwefel (2002) reveal no courting among tax concessions and FDI appeal in transitional economies. Wilson and Wildasin (2004) define withholding tax as an income tax that is paid to the government through the corporation, as opposed to the employee wherein countries implement tax rate strategies in a bid to steer the investment of internationally mobile capital. The current proof on the relationship between tax and investment in business international locations cannot simply be extrapolated to growing countries. In addition, Asiedu (2006) finds that even inside growing nations, tax results on FDI might be exceptional in Africa. Different tax incentives have additionally different effects on the user cost of capital. Lei Guangping (2006) cited in Yan (2016) found that the reaction to different types of business tax incentives are not the same. The study also concluded that tax incentives can neither make up for the defect in the investment climate in the country, nor produce the desired external effects. However, when other factors (such as infrastructure, trans- port costs, political and economic stability) are substantially equal to a regional tax they are likely to have a great impact on investor choice. However, this effect is not stereotyped, as it all depends on the tax means used, multinational characteristics, and the relationship between the national tax system and investment between the receiving countries According to Rendon-Garza(2006), tax competition should be taken into consideration as the government's planned reduction inside the domestic tax costs for economic activities by way of foreigners with the sole motive of attracting foreign mobile capital and enhancing economic functions.

Djankov et al. (2010) in partnership with Price Waterhouse Coopers surveyed 85 countries. It emerged that corporate tax quotes harm gross investment, FDI, and entrepreneurship. The conclusions show divergent views on the effectiveness of tax incentives on FDI attraction. Walid (2010) analyzed the monetary factors and risks on FDI on a full-scale level from 1997 to 2007 by utilizing a multiple linear regression model, which uncovered that there exists a critical and positive connection between FDI, and monetary factors used for the examination. Taking all the variables into account, the examination suggested the advancement of FDI through tax incentives to draw in new investments. Kransdoff (2010) in their observation of the usefulness of tax incentives on foreign direct investment attraction in South Africa presumes that taxation is crucial in attracting performance-searching for FDI. For instance, Djankov et al. (2010) points to the ambiguous impact of tax holidays on the value of capital, relying on the span of the investment, the evolution of the sales, and the quantity to which the invested capital is deductible. Tuomi (2011) additionally examined the function of investment climate and tax incentives within the foreign businesses' investment choices in South Africa. The study uncovered those monetary incentives assuming a negligible position within the choice for the majority of foreign firms. Through spatial econometrics strategies, Klemm and Van Parys (2012) researched the results of tax incentives in over 40 Latin American and Caribbean countries during 1985–2004.They found out that there is proof for vital communication in tax holidays, notwithstanding notable rivalry over the corporate income tax (CIT) rate. Additionally, there was proof that lower CIT rates and longer tax holidays are viable for attracting FDI in Latin America and the Caribbean. While other studies that include Klemm and Parys (2012) discover tax incentives to be crucial to luring foreign direct investment in low-income countries, Van Parys and James (2010) additionally find tax concessions to have a very positive impact inside the Caribbean Island countries.

The evidence of several studies recommends that by and large, investment incentives are not a large reason for internal FDI. Furthermore, in any event, when incentives prevail concerning drawing in foreign direct investment, their expenses can surpass the resultant advantages. Regardless of these discoveries, motivation plans keep on extending. This proposes that either the macro analyses are missing some aspect or that the lack of microeconomic exploration is permitting governments to limit the worth of scholarly examinations. Fawowe (2013) in his study examined whether fiscal incentives promote investment in Nigeria via constructed indexes from 1970. The empirical results of his study revealed a noteworthy negative relationship between fiscal incentives and FDI in Nigeria. The results recommend that Nigeria effectively concentrate on the removing factors such as insufficient infrastructure, low-quality institutions, and poor regulations that could discourage foreign investors.

Obeng (2014) contemplated the impact of corporate tax on regional explicit investment in Ghana, to be specific, mining, assembling, and administration areas, utilizing the Johansen co-integration strategy and quarterly information from 1986 to 2012. Factors utilized in the examination were genuine corporate tax rate, exchange rate, net exports, inflation, and investments in different areas. The paper tracked down that corporate tax affects FDI inflows into those areas. The paper therefore suggested that government authorities should maintain a low tax rate to drive more FDI into the country. By using static error correction modeling (ECM), Peters and Kiabel (2015) inspected the impact of tax incentives in the choice of foreign investors to locate in Nigeria, utilizing information from the yearly measurable bulletin of the Central Bank of Nigeria and the World Bank World Development Indicators Database. Their outcomes uncovered that FDI reaction to tax incentives is adversely critical. They further suggested that reliance on tax ought to be decreased and more consideration be focused on different incentive techniques, such as stabilizing financial changes and the political environment. With some data from 36 cities, Yan (2016) built a model to examine whether a series of tax incentives for promoting FDI inflows had a significant effect or not after 2001. The results showed that after WTO, preferential tax policies which were taken to promote FDI inflows and upgrade industrial structure indeed had some effect. From sub-regional perspective, preferential tax policies for central and western regions attracted FDI, while the effect in the eastern region was no longer significant. Majavu and Kapingura (2016), in their examination to distinguish the determinants of FDI inflows into the South African economy, applied the VEC model to many factors such as exchange rate, inflation, market openness, and corporate tax, in addition to using foreign direct investment as the dependent variable. The experimental outcomes showed that these factors are significant drivers of FDI inflows into the South African financial system with corporate tax applying measurably critical negative impact both in the short and long term. Onapajo and Ezuma (n.d), since reports show that Nigeria has recorded huge losses in tax incentives over the years, questions have had to be asked whether Nigeria really needs tax incentives in the economic space, especially in the midst of the recent economic recession. Onapajo and Ezuma (n.d) sought an explanation of the reasoning behind the tax waivers granted to multinational corporations (MNCs). The authors wanted to find out if the idea behind tax waivers is mainly driven economically or if there are other political (or ulterior) motives behind it. They found that there is no substantial evidence to prove that the tax waivers are a major driver for Foreign Direct Investment (FDI) into the country. Rather, according to them, the system of tax waivers has been a conduit for MNCs to evade taxes and perpetuate corruption in the system.

Lodhi (2017), utilizing the ARDL, dissected the effect of tax incentives on investment in Pakistan from 1990 to 2014. FDI and domestic investment were the reliable factors while corporate tax rates and levy costs were the unbiased variables. The discoveries uncovered that the corporate tax rate is altogether adversely connected with domestic investment and FDI inflows in Pakistan in both the short and long term. It was therefore suggested the public authority of Pakistan reduce the corporate tax rates and duties to drive investment to Pakistan. Anyadike and Eme (2017) examined the economic implications of the abuses of waiver in Nigeria. The paper addressed those challenges using secondary sources. It paper suggested among others that the National Assembly should complement the executive arm of government to end tax waiver abuses in Nigeria. Agbo et al. (2018) investigated the effect of foreign direct investment on economic growth with specific reference to the Nigerian economy. Multiple regression analysis technique was employed in estimating the model. The data used for the study were extracted from the Central Bank of Nigeria statistical bulletin from 1980 – 2012. The results of the study showed that foreign direct investment has a positive relationship with Nigerian economic growth. Similarly, exchange rate was found to be positively correlated with Nigerian economic growth. Etim et al. (2019), in their investigation over 19 years, determined the result of cost focused and benefit-fixed tax technique incentives on FDI in Nigeria. This was accomplished by using secondary data sourced from the CBN and World Bank data sets via multiple regression strategies. The discoveries uncovered that the expense-focused tax strategy incentives had a powerful impact on FDI when compared with benefit-focused tax strategy incentives; however, there was no critical connection between cost-focused versus benefit-based tax strategy incentives and FDI in Nigeria. It was consequently recommended that nontax incentive mediations should be sought after by the government as a fundamental enhancement to the tax strategy incentives to drive FDI inflows into Nigeria. Abille et al. (2020) attempted to explore the function of fiscal incentives in attracting foreign direct investment inflows into Ghana by using data from 1975 to 2017. This was done by applying the distributed lag (ARDL) bounds test technique, which showed that corporate tax rates have a significant negative impact on FDI inflows into the Ghanaian economy in the long run. They recommended that the Ghana Revenue Service redesign the corporate tax administration in the country to control policy lapses. Appiah-Kubi et al. (2021) analyzed the effect of tax incentives on foreign direct investment in African countries based on data from 2000–2018. The study employed panel data on forty (40) African countries and an econometric model of four proxies of tax incentives, after controlling other variables, with robust Random Effect as its discussion estimator. The results of the study revealed that FDI responds to lower corporate income tax Furthermore, the study found that foreign direct investment predominates in African economies with longer tax holidays and withholding tax. However, tax concession was found to be insignificant to the inflows of FDIs in Africa. The authors recommend proper restructuring of the tax incentives to deal with policy lapses by the governments of Africa to enable them achieve the four main goals, i.e., poverty eradication, sustainable growth and development, African integration in the competitive global economy, and women empowerment. Considering that FDI has an immense role in economic development, empirical literature reveals the knowledge gap to be addressed and thereby providing an impetus for our study. Developing countries with poor technological development and a shortage of capital have adopted tax incentives as effective strategies and schemes. The following therefore constitutes some of the empirical literature that exists on this subject matter.

3. Methodology

This study aligns with the work of OECD (2021) in adopting the historical research design. Its few limitations notwithstanding, the main advantage of historical research is that it is the only research method that can study evidence from the past, is well suited for trend analysis and permits the investigation of topics that could be studied in no other way. Historical research or historiography, "attempts to systematically recapture the complex nuances, the people, meanings, events and even ideas of the past that have influenced and shaped the present". (Berg & Lure, 2012: 305)

4. Up-date on the nature and quantum of tax incentives offered by Sub-Sahara African countries, the FDI inflows experienced by them, the challenges and suggested remedies

4.1 Tax incentives in Sub-Sahara African countries

According to a 2020 study of tax incentives in the United States, "states spent between 5 USD and 216 USD per capita on incentives for firms." (Slattery & Zidar, 2020). Slattery and Zidar (2020) affirm the existence of some evidence that this tax expenditure lead to direct employment gains. However, there is no strong evidence that the incentives increased economic growth. Setzler and Tintelnot (2021) report that a 2021 study found that multinational firms boosted wages and employment in localities, but that the surplus that the firms generated tended to go back to them in the form of local subsidies. According to KPMG(2016) cited in Setzler and Tintelnot (2021) , many African countries have incentives related to manufacturing- an indication that African countries are reforming the incentive policies to include manufacturing incentive with the intention of attracting manufacturing Foreign Direct Investment within their countries. South Africa, Nigeria and Morocco are the only countries in Sub-Sahara Africa that offer cash grants in addition to tax incentives; all of them require prior approval by government (KPMG, 2016). Table 1 presents the incentives offered by 28 Sub-Sahara African countries as documented in KPMG (2016).

Table 1; Incentives offered by some African countries

	Offer Tax Incentives	Offer Cash Grants	Pre-approval requirements	SEZ/Export Free-zones	CIT Rate (%)	Reduced CIT Rate (SEZ /Free-zones)	Job creation requirement	Training incentive
Algeria	Yes	No	Yes	Yes	23	0 (i)	Yes	No
Angola	Yes	No	Yes	Yes	30	-	Yes	No
Botswana	Yes	No	Yes	No	22	15	Yes	Yes
Cameroon	Yes	No	Yes	Yes	33	0	No	No
Chad	Yes	No	Yes	No	40	-	No	No
DRC	Yes	No	Yes	No	35	0 (ii)	No	No
Djibouti	Yes	No	Yes	Yes	25	0	No	No
Ethiopia	Yes	No	Yes	Yes	30	Tax Holiday Period	No	No
Ghana	Yes	No	Yes	Yes	25	0	No	No
Kenya	Yes	No	Yes	Yes	30	0	No	Yes
Libya	Yes	No	Yes	No	20	Tax Holiday Period	No	No
Malawi	Yes	No	No	Yes	30	-	No	No
Mauritius	Yes	No	No	Yes	15	15	No	No
Morocco	Yes	Yes (iii)	Yes	Yes	30	10	No	Yes
Mozambique	Yes	No	Yes	Yes	32	Tax Holiday Period	No	Yes
Namibia	Yes	No	Yes	Yes	33	-	No	Yes
Nigeria	Yes	Yes	Yes	Yes	30	0	Yes	Yes
Rwanda	Yes	No	Yes	Yes	30	0	Yes	No
Senegal	Yes	No	Yes	No	30	15 (iv)	No	No
Sierra Leone	Yes	No	Yes	No	30	-	Yes	Yes
South Africa	Yes	Yes	Yes	Yes	28	15	Yes	Yes
Sudan	Yes	No	Yes	Yes	35	0	No	No
Swaziland	Yes	No	No	Yes (v)	27.5	-	No	Yes
Tanzania	Yes	No	Yes	Yes	30	Tax Holiday Period	No	No
Tunisia	Yes	Yes	Yes	No	25	-	No	Yes
Uganda	Yes	No	Yes	Yes	35	-	No	No
Zambia	Yes	No	Yes	Yes	35	15	No	No
Zimbabwe	Yes	No	Yes	No	25.75	15 (iii)	No	No

Source : KPMG(2016) Africa Incentive Survey, 2016

4.2 Tax incentives regime in Nigeria

Various Ministries, Departments, Agencies and Commissions are charged with administering tax incentives in Nigeria. According to Marwam et al (2018), the extensive use of tax holidays reduced rates. Also, generous allowances by Nigeria eroded her revenues from CIT, which only yielded 1 percent of GDP in 2016. In spite of imposing a relatively high statutory rate of 30 percent, Nigeria's CIT efficiency, as measured by the ratio of CIT revenues to the GDP and the corporate tax rate, is only 0.03 when calculated with respect to the non-oil economy only, and 0.06 when CIT revenue is compared to GDP. These values are significantly lower than the 0.07 ECOWAS average and the 0.13 average for the group of emerging and developing economies. This indicates that Nigeria's corporate tax base has been eroded by tax expenditures. Nigeria was reported to have lost 1.3trillion naira to granting of tax waivers to companies operating in three sectors of the economy in the last five years. Table 2 shows Nigeria's partial estimate of tax expenditures for the period between 2011 and 2015.

Table 2. Nigeria: Partial Estimate of Tax Expenditures

Partial Qualification of Tax Expenditures

(Billion Naira)	Import Duty Waivers	Vat Waivers/ Concessions	Pioneer Status (oil companies)	Pioneer Status(nonoil Companies) CIT	Duty Waiver	Total	% GDP
2011	78.5	52.5	15.74	5.3	0.3	152	0.24%
2012	128.5	47.1	77.86	4.8	0.3	259	0.36%
2013	46.1	24.3	107.73	17.3	2.1	198	0.24%
2014	87.7	22.9	18.72	24.7	3.0	256	0.17%
2015	162.8	81.9		14.6	2.3	261	0.27%
Total	503.6	227.8	219.5	66.7	8.0	1026	

Source: Report of the Inter-Ministerial Committee on the Review of Duty Waivers, Exemptions, Concessions and Incentives (May 2016)

Nigeria offers several types of tax incentives and allowances (Marwam et al, 2018). The income tax system has generous incentives in the form of tax holidays of 3 to 5 years for pioneer industries and products, complete exemption of tax at the federal, state and local level for companies that are under the free zones regime, as well as several waivers and reductions by presidential decree or as contained in the CITA for preferential sectors (NIPC, 2017). The justification for tax incentives is to change relative prices, profits and costs to attract investment in a desired direction. However, if tax incentives are granted almost to all sectors of the economy their efficiency is diffused and make little difference in attracting investments ((Marwam, et al,2018).The Nigerian government is accused of often trying to rationalize the country's endemic use of tax incentives as one of the strategies of increasing non-oil revenues . They set up an Inter-Ministerial Committee in January 2016 to undertake a review of tax expenditures resulting from 52 types of incentives being implemented by the Federal Government through its agencies (NCS, FIRS and NIPC). The Committee's preliminary findings based on a partial quantification of expenditures indicate that between 2011 and 2015, the government conceded N1 trillion, or 1.28 percent of GDP to the granting of only four types of incentives: import duty and VAT waivers, concessions, grants, and pioneer status. The largest share of incentives came from the granting of import duty waivers, which represented almost half of the total cost of incentives ((Marwam, et al., 2018).

According to Richard et al. (2021), Nigeria is facing a fiscal crisis. In 2019, tax incentives cost the federal government US$3.2 billion in revenue. However, the situation was not perculiar to Nigeria as the revenues forgone through tax expenditures (a broader term that includes tax incentives) in low- and lower-middle-income countries averaged just under 2.7% of GDP in 2019. In some countries, the figure is much higher: 8% of GDP in Mauritania and more than 6% in Cape Verde. Richard et al.(2021) estimated that the Sub-Saharan African countries collectively experienced forgone revenues of roughly US$46 billion in 2019.This amount is bigger than what they received in foreign assistance in 2019 (US$41 billion) and owe in debt service payments in 2021 (US$35 billion).

Richard et al. (2021) consider tax incentives as often becoming a black box. According to the authors, while the Global Tax Expenditure Database has tax expenditure data for 97 countries, very few low- and lower-middle-income countries publish such data. This makes it challenging to assess the impact of tax incentives. According to Richard et al. (2021), nearly 60% of low- and lower-middle-income countries do not provide information on the types of tax incentives offered and their revenue implications, while eight countries provide only aggregated data. They authors assert that only half (28 of 54) African countries publicly reported their tax expenditures at least once between 2000 and 2019.Even at that, quality of their data has often been poor.

4.4 Current status of foreign direct investment in Sub-Sahara Africa

According to KPMG (2016), Nigeria is making effort to attract foreign direct investments in order to grow other sectors of the economy with the decline of revenue from the oil sector. Ugbodaga (2021) reports that FDI inflows to Nigeria increased to $2.4 billion in 2020 from $2.3 in the previous year despite the COVID-19 pandemic that plagued global economies. Nigeria emerged as the third largest economy, alongside Ethiopia ($2.4 billion), that attracted FDI inflows in Africa in 2020.

According to Trading Economics(2021), Foreign Direct Investment in Nigeria increased by 2138.38 USD Million in the first quarter of 2021.It averaged 949.31 USD Million from 1990 until 2021, reaching an all- time high of 3084.90 USD Million in the fourth quarter of 2012 and a record low of 63.50 USD Million in the fourth quarter of 1990.

Egypt was reported to have been the largest recipient of FDI in Africa, however, with a significant reduction of 35 percent to $5.9 billion in 2020;it was followed by the Republic of the Congo ($4 billion), while South Africa was fourth with $3.1 billion (a decline of 39 percent).It was also reported by the UN body that the COVID-19 crisis caused a dramatic fall in FDIs in 2020 - thereby pushing global FDI flows to $1 trillion from $1.5 trillion in 2019 (a decline of 35 percent). The level of decrease is almost 20 percent below the 2009 trough after the global financial crisis. The UN body said that FDI outflows in Africa likewise declined by 16 percent to $40 billion — the lowest in 15 years — while its outflows fell by two thirds in 2020 to $1.6 billion from $4.9 billion in 2019.

According to UNCTAD (2020) FDI flows in Africa are expected to rise in 2021 but to a limited extent. It predicted that vaccine availability, domestic economic recovery policies and international financial support would be critical to the revival of FDI and the post-pandemic recovery in the continent. Finally, it projected that global FDIs will remain at a low level – about $1.2 trillion, over 2021 and 2022.

4.6 Principles to be adopted to increase the transparency and governance of tax incentives for investment in developing countries

OECD (2021) observes that the problem of tax base erosion due to tax incentives is worsened by the lack of transparency and clarity in the provision, administration and governance of tax incentives. It notes that the granting of tax incentives for investment is often done outside of a country's tax laws and administration, sometimes under multiple pieces of legislation. Generally, despite the widespread use of tax incentives for investment, there is inadequate analysis of their costs and benefits in a national context to support government decision-making. Also only limited data are collected on granted tax incentives, qualifying investments made, direct (and indirect) benefits to the host economy, and the cost of these tax incentives in terms of foregone revenue. Furthermore, even the information that ought be more readily available – lists of tax incentives and beneficiaries – is rarely collected or reported

Consequently, OECD (2021) suggests that to increase the transparency and governance of tax incentives for investment in developing countries the relevant governments should take the following actions:

(i) Make a public statement regarding all tax incentives for investment and their objectives within a governing framework;
(ii) Use tax laws only to provide tax incentives for investment;
(iii) Pull together all the tax incentives that are for investment under the authority of one government body, if possible;
(iv) Insist that tax incentives for investment are ratified through the law making body or parliament;
(iv) Administer tax incentives for investment transparently;
(v) Compute the amount of revenue forgone that is attributable to tax incentives for investment and release a statement of tax expenditures

publicly;

(vi) Review the continuance of existing tax incentives periodically by assessing the extent to which they meet the stated objectives.

(vii) With a regular statement of tax expenditures, highlight the largest beneficiaries of tax incentives for investment by specific tax provision, where possible;

(ix) Engage in a systematic collection of data to underpin the statement of tax expenditures for investment and to monitor the overall effects and effectiveness of individual tax incentives;

(x) Increase regional co-operation to avoid harmful tax competition;

In addition to the actions to be taken by governments, other stakeholders have the following responsibilities:

(a) Business entities should refrain from seeking or accepting exemptions not contemplated in the statutory or regulatory framework related to taxation, financial incentives, or other issues.

(b) The civil society should draw attention to, and publicize, the revenues forgone from wasteful tax incentives that could free up resources for development.

(c) Development partners and donors need to include tax incentives and revenues forgone in the dialogue with governments in developing countries and provide appropriate technical advice and assistance.

(d) International assistance providing countries and organizations should provide technical and other assistance aimed at building the capacity of developing countries to collect and analyze the data required to enhance the transparency of tax incentives for investment.

4.7 Tax Incentives and the Nigeria Economy

Taxation is very essential for sustainable development and the growth of emerging economies especially where natural resources are relatively scarce. Tax incentives are basically designed to attract new investments and to expand existing ones in priori industries which is based on the country development plan. In literature, the broadening of a country's taxable capacity is often linked to the generous incentives prevalent in its tax system. The provisions of generous exemptions often tend to erode the tax base, which in turn, affects income elasticity of a tax through tax-to-base elasticity (Osoro, 1993).

Nigeria's experience in the granting of tax incentives can be traced to the commencement of British Administration in the territory when all sorts of reliefs, allowances, and tax holidays were granted to British companies and individuals as an attraction to establish trade links with it. Specifically, tax incentives for industrial development started in 1958 and included:

(i) Pioneer companies relief, which exempted companies operating in pioneer industries for up to 5 year from paying company income tax;

(ii). Companies Income Tax relief which gave capital allowances regarding investments in machinery, building, loss carry-forward facility, etc.

(iii) Import duties relief which exempted selected pioneer companies from paying import duties on imported inputs; and

(iv) Approved user scheme, under which import duties were refunded to the approved enterprises which import in the export-tuned production. Generally, tax incentives have operated under the following sub-heads in Nigeria: tax holidays, investment allowance, rural investment allowance, tax free interest, deductible capital allowance, research and development, tax-free dividends, tax treaties, reliefs and allowances; and capital allowances.

Current policy of Nigerian Government is to ensure: incentives are sector based and not granted arbitrarily, the benefit to the Nigerian economy exceeds the cost of taxes foregone, and incentives are reviewed regularly to confirm if they are serving the expected purpose, while foreign investors enjoying incentives are expected to voluntarily plough back into the Nigerian economy.

5. Conclusion and recommendations

In due recognition of the role played by foreign direct investments in the development process, Sub-Sahara African countries have been in a serious competition and faced several challenges while striving to attract them. This study employed the historical research approach with the purpose of obtaining an updated literature on what has been the effect of tax incentives on foreign direct investment in Sub-Sahara African countries. Nigeria was the major location of the study. We found that as good as employing tax incentives is a good economic strategy for enhancing economic growth, they have suffered serious abuse in the hands of corrupt politicians. Consequently, even as tax concessions, longer tax holidays, withholding tax and other tax expenditures in Sub-Sahara African countries have continued to be in the increase, their impact on FDI has remained weak generally. This situation is equally blamable on a number of factors that have played against the business environment for foreign investments in developing countries. Our study recommends that tax incentives should be properly structured to deal with policy lapses by the governments of Sub-Sahara African countries. In addition, our study recommends the following actions to be taken by the governments of Sub-Sahara African countries:

(i) Governments should embark on an extensive review of tax incentives using independent audit firms. This should be used as a parameter to judge if tax incentives are really beneficial or not to the economy.

(ii) There should be an efficient monitoring and evaluation system which would offer a periodic and timely evaluation of the tax incentives so as to prevent abuse by the MNCs and their local collaborators.

(iii) The governments should incorporate the abuse of tax waivers in their anti-corruption drive. The individual found to be culprits ought to be punished under the framework of the existing anticorruption institutions.

(iv) The governments should empower its tax institutions with the intention of enhancing transparency around tax waivers given to MNCs.

(v) The legislatures of Sub-Sahara African countries need to improve on its oversight functions on the issue of tax waivers. The issues concerning tax waivers must be seriously checkmated by them.

(vi) Policy inconsistencies and reversal construed in order to meet the desires of the political class in power, who also double as importers, exporters and manufacturers should be discouraged.

(vii) The practice of excluding vatable items to suit some sectors of the economy need to be discontinued.

(viii) Excessive dependence on external capital should be discouraged as that will lead to greater vulnerability to external sources of uncertainty.

(ix) The resource-rich countries need to reap benefits from FDI and foster linkages in order to diversify their economies. This study anticipates that fostering local firms and human resources to reap the benefits from FDI will probably be the next area of focus for many SSA countries.

The unavailability of required data as well as the reliability of some the available data on tax incentives posed some limitations to the use of time series data to determine the impact of tax incentives on FDI of Sub-Sahara African countries. We hope that future research will be able to overcome the limitations not addressed explicitly by this study.

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Effect of integrated personnel payroll and information system (IPPIS) on payroll fraud in Nigerian public sector

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Abstract

The condemnable practice of illegal, unlawful and unauthorized recruitment of personnel into Government services have become the order of the day. Persons in position within the public service expropriate their powers to populate and overshoot the employment ceiling in the pursuit of personal gain. More worrisome is that most of these unauthorized employment into the system whether real or fictitious names, is perhaps one of the avenues for perpetuation of ghost workers and payroll fraud. The purpose of this study is to investigate the effect of integrated personnel payroll and information system (IPPIS) on payroll fraud (ghost workers & unauthorized employment) in the Nigeria public sector.

This study adopted a field survey research design in which structured questionnaire was designed and distributed to the respondents as a means of gathering information. This study used primary source of data due to the fact that the data needed from this study will be obtained by the field survey of knowledgeable individuals through the administration of questionnaire to respondents. The population of this study focus on government Ministries, Department and Agencies. The population shall consist of staff of Lagos State Civil Service from Grade Level 08 and above and who have been in the Civil Service before the implementation of IPPIS in the state. One hundred (100) questionnaires were administered to Lagos State Civil Servant. Therefore, 100 questionnaires were raised and distributed to the respondents in order to achieve the objectives of this study.

Method of data analysis for this study was frequency analysis and chi square t-test econometric models which explain the variation in the values of the independent variable on the basis of change in other dependent variables. Empirical findings revealed that IPPIS has a positive and significant influence on ghost workers and unauthorized employment fraud of Nigeria public sector. Therefore, this study concluded that IPPIS has a positive and significant effect on payroll fraud of Nigeria public sector. The study recommends IPPIS should be enforced in all government parastatals as well as agencies in order to broadened employment opportunities, reduces corruption in the public service and reduced personnel costs.

Keywords: IPPIS, payroll fraud, authorized employment, ghost workers

1. INTRODUCTION

In Nigeria, the general belief is that government job is not only for them to maintain for eternity by handing it down from generation to generation, but it is also commonly utilized as an illegal scholarship and or social assistance system for their friends and family members. (Oguzierem & Sofiri, 2017). Even though government at all levels in Nigeria is undoubtedly the leading employer of labor, a lot of challenges amongst this huge workforce is faced which include the issue of payroll fraud (IPPIS, 2018). Illegal, irregular, and unauthorized employment in the public sector, as well as other activities such as illegal transfer of service, exchange of names of retired staff, replacement of names of deceased employees, duplicate employments, transfer of or inherited employment status, and reactivation of appointments, among others, have resulted from the kind of perception identified by Oguzierem and Sofiri (2017). This means that even if they report for work every day, underage, overage, backdated employments, inherited employments, untrained personnel, and illegal staff are all classified as ghost workers and payroll fraud in the Nigerian public sector (Agboola 2018). The majority of the time, these dishonest

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public officials falsify the required paperwork and authorizations to add a new employee to the payroll.

All these illegal, irregular and unauthorized names that miraculously find their way inside the government payroll system create unscrupulous unemployment and they are known to be Ghost workers. This brought about what is now called Ghost workers syndrome. Nangih and Davies (2017) concluded that an unauthorized staff as a fabricated employee added to the payroll. Wages or salaries are paid to the fraudulent wage claimant and redirected to the perpetrator's beneficiary. They went on to say that the phrase "ghost worker" was coined to describe employees who deceitfully convert paychecks, or when a fake person or a genuine worker simply did not work but was paid. According to Oguzierem, Sofiri, and Okodudu (2017), there are non-apparent ghost workers in addition to illegal personnel and fraudulent wage claimants, who are fictional and non-existing employees put to the payroll by payroll managers. Real employees in the public sector who get false compensation due to payroll errors fall under these kinds of ghost worker fraud. This includes people receiving undeserve salaries by false means; for example, employees who have multiple positions in the civil service, receive dual or multiple salaries using the pseudo name(s), employees earning more pay or benefits than their rank, temporary staff or leave without leave but still earning full salary; and staff who are transferred or retired but have not received their fullest salary (Oguzierem et al., 2017).

Integrated Personnel Payroll and Information System (IPPIS) is an innovation which enhances productivity by removing cumbersome manual processes in Ministries, Department and Agencies (MDAs) in Government. Integrated Personnel Payroll Information System which is used to calculate salaries also provide a range of supporting functions such as preparing pay slips and payroll reports (Hyaledzigbor, 2015). It is connected to and is a component of an Integrated Financial Management Information System (IFMIS). Regardless of how well the ministry/department has organized its payroll, establishment control, budgeting, and personnel management activities, these systems must be tightly connected in order for information regarding staff expenses and deployment to be shared.

Worse, the majority of these unlawful employments into the government payroll system, whether under genuine or fictional identities, might be one of the pathways for the maintenance of ghost workers and payroll fraud. More significantly, the personnel are unqualified for the position, with many being too old, too young, or otherwise unemployed. These haphazard methods have resulted in excessively inflated nominal and payroll vouchers (Zaid, 2015). Payroll fraud caused by ghost employees syndrome, according to Olken and Pande (2012), is mostly attributable to a lack of study and awareness on the phenomenon. In light of the country's current economic reality, the challenges have become extremely obvious and noticeable. With declining crude oil prices being the country's primary source of revenue, the government has been known to borrow to pay the wages of workers, many of whom are phantoms. Whatever the root of the problem, it must be permitted to persist. Furthermore, in public interest companies, a lack of internal control and an accounting system creates opportunities for fraud. Nangih and Davies (2017), Idris et al (2015), and Olaseni (2016) investigated how cutting-edge technology such as bank verification numbers (BVN) and the Integrated Personnel Payroll and Information System (IPPIS) might be utilized to eliminate ghost worker syndrome and payroll fraud in their studies. According to Nangih and Davies (2017), the integration of biometrics and BVN as a technical tool has significantly reduced payroll fraud and ghost employees in Nigeria's local government payroll system. This is reflected in the negative impacts that have been felt, such as low staff morale, massive corruption, dwindling employee career possibilities, and decreased efficiency. According to Olaseni (2016), collecting bio-data of government officials in the Integrated Personnel Payroll and Information System (IPPIS) platform will make detecting ghost workers more difficult and reduce payroll fraud. However, the purpose of this study is to investigate effectiveness of IPPIS on the payroll fraud using ghost workers and unauthorized employment as a dimension of payroll fraud. This is the problem the study intends to bring to limelight. The specific objectives are to;

i. examine the effect of implementation of integrated personnel payroll and information system (IPPIS) on ghost workers in the Nigeria public sector.
ii. evaluate the impact of integrated personnel payroll and information system (IPPIS) implementation on illegal staffs present in Nigerian public sector.

2.1 Literature Review

Integrated Personnel Payroll and Information System (IPPIS)

The Integrated Personnel and Payroll Information System is one of the Federal Government of Nigeria's Public Financial Management reform programs (IPPIS). Its objective is to help the Nigerian government enhance human resource management and prevent fraud. IPPIS is a centralized computer-based payroll and administration system described by Omolehinwa and Naiyeju (2015) as a system targeted at eliminating payroll fraud in the public sector. Its primary goal is to determine the exact number of employees and the entire salary expense at a single glance. It also aims to maintain data integrity, ensuring that personnel data is accurate and complete. According to IPPIS department (2015), explained that IPPIS was designed to achieve the following objectives: facilitate human resources planning by providing information for decision making; provide a platform for accurate budgeting and annual recurrent expenditure on staff emoluments; monitor monthly payment of staff emoluments against FGN's annual budget to ensure minimal wastage and leakage; eliminate payroll fraud such as multiple payment of emoluments to single employee or payment of monthly salary to a non-existent employee; facilitate easy storage, updating, and retrieval of personnel records; ensure database integrity so that once entered cannot be manipulated by unauthorized users; enhance confidence in the process of determining staff emolument cost; prompt deduction and remittance to accounts of all third parties payments such as Pension Fund Administrators (PFAs), National Health Insurance Scheme (NHIS), Pay As You Earn (PAYE), etc (Enakirerhi & Temile, 2017).

The Office of the Accountant-General of the Federation (OAGF) manages the Integrated Personnel Payroll and Information System (IPPIS) in collaboration with the Office of the Head of Service (OHCSF), the Federal Civil Service Commission (FCSC), the Budget Office of the Federation (BOF), the Office of the Auditor-General of the Federation (OAUGF), and the Central Bank of Nigeria (CBN) (Adongoi & Eyo, 2014). IPPIS is based on an intranet that connects the MDAs' data centers to the OAGF's primary server (Omolehinwa & Naiyeju, 2015). IPPIS has saved the Federal Government of Nigeria billions of Naira since April 2007 due to discrepancies between the personnel budget and the actual amount paid by IPPIS for MDAs (IPPIS Department, 2015). There were 396 MDAs registered on IPPIS as of December 2015. In 2016, the Nigeria Police Force, Nigeria Immigration Service, Nigeria Security and Civil Defence Corps (NSCDC), and Federal Fire Service, as well as universities, polytechnics, and colleges of education, will join IPPIS (Oguzierem & Sofri, 2017).

According to IPPIS (2018), the Integrated Personnel Payroll and Information System (IPPIS) is a World Bank-assisted project under the Economic Reform and Government Project (ERGP) aimed at establishing a reliable and comprehensive database for the public service, facilitating manpower planning, assisting in providing information for decision making, eliminating double dipping, and credentialing the public sector. The IPPIS initiative enables government ministries and MDAs to identify and eliminate ghost workers in order to achieve public accountability in governance (Nyaledzigbor, 2015). Salary is the personal emolument provided to an employee of an organization, generally for monthly services rendered at a fixed rate of compensation, according to the 2013 constitution. Furthermore, the Financial Regulations Act stated that until otherwise changed by legislation, the standard payroll system must be used in all offices.

The Integrated Personnel Payroll and Information System, as well as the Integrated Financial Management System, have improved openness and accountability in government spending. The Federal Ministry of Finance recognized in 2013 that IPPIS has improved personnel cost planning and budgeting since it is based on actual, verifiable objectives rather than estimates (Oyedele, 2015). As a result, job possibilities have increased, corruption in government-owned businesses has decreased, and staff expenses have decreased. It has improved the efficiency of conducting government business by restoring public confidence in the payroll system and budgeting, greatly improving information and reporting management, providing opportunities for improved infrastructural facilities, and creating a serene work environment and job security (Oyedele, 2015). Employees anticipate bureaucratic delays, deteriorated facilities, wicked unionism, lower wages for recruiting, and a lack of sensitivity and dedication on the side of the government in terms of carrying out its plans in the past. Mayo (2001) examined the attainable success and concluded that it can be achieved entirely by its use at all levels of government, particularly at the local level, in order to address the system's ongoing issue of ghost workers.

Integrated Payroll Personnel and Information System (IPPIS) in Nigeria

In an effort to reduce payroll fraud, in October 2006 the Nigerian government designed an IPPIS (Integrated Payroll Personnel and Information System), which was mainly perpetuated through payroll fraud and ghost workers, to provide a reliable and efficient public-sector database to eliminate payroll fraud, facilitate easy storage, plan workforce, and update and recover personnel records (Haruna & Joseph, 2015). In April 2007, the IPPIS project was formally tested on six ministries: Education, Foreign Affairs, Finance (including the Federation's Budget Office), Works, Information and Communications, and the National Planning Commission. Aviation, Health, Agriculture, Petroleum Resources, Transportation, the Office of the Accountant General of the Federation, the Office of the Head of the Civil Service of the Federation, the Office of the Secretary to the Government of the Federation, and the Federal Civil Service Commission were among the nine Ministries, Departments, and Agencies that were added to the scope in 2009. (Enakirerhi & Temila, 2017).

IPPIS was found to have saved the government $416 million in the first month of its implementation. The savings reached $12 billion at the end of the first phase of implementation in 2010. Following the pilot phase's success, the government decided that IPPIS should be implemented across the board in 2011. (Ikechukwu & Chikwe, 2015). All 585 government MDAs, made up of the mainstream Civil Service and other Agencies in the Public Service that draw personnel costs from the national budget, were supposed to be enrolled in the IPPIS platform by the end of 2014, according to the government's plan (Ikechukwu & Chikwe, 2015). At the moment, the government is working to complete the human resource management component of IPPIS, as well as connect all human resources and financial departments to the system. The quality of government payroll administration has improved dramatically, and a growing number of MDAs are abandoning manual payroll administration. The MDAs have all of the information they need to budget for their staff costs. IPPIS has decreased corruption by practically eradicating the ghost-worker problem in places where it has been implemented, lowering the cost of government. Since its inception in 2007, the Scheme has saved the government a total of 185 billion (approximately $1 billion), which represents the difference between the amount the government would have released to MDAs based on their estimated nominal roll submissions and the amount actually paid through the IPPIS platform (Ikechukwu & Chikwe, 2015). The program currently encompasses 359 MDAs and has enlisted 237,917 employees while weeding out 60,450 "ghost workers."

Furthermore, Obinna (2015) views public service as a non-elective salaried position in an executive branch of government. The public service is primarily responsible for putting the machinery of governance in place, and its importance cannot be overstated. According to Okoh (2003), the public service is the main institutional tool used by government to accomplish its policies and programs, and so it is the managerial arm of government entrusted with pushing government machinery to the pre-determined objective. The Nigerian government views the implementation of a computerized system as the most important tool for addressing the country's massive personnel costs, as it will increase the effectiveness and efficiency of government transactions while also increasing confidence in personnel costs and budgeting, resulting in better management reporting and information. In addition, the Integrated Personnel Payroll and Information System would assist Ministries, Departments, and Agencies (MDAs) in avoiding regulatory violations as a consequence of ghost workers. This strategy will establish a synergy between government and employees in the fight against corruption (King, 2016).

Payroll Fraud

Fraud is defined as a deliberate misleading conduct that is intended to give the offender with an illicit gain or access to resources, or to deprive a victim a right (Larson, 2016). Fraud is the intentional withholding of vital information or the making of false claims to another person with the objective of obtaining something that would not have been supplied without the deceit. Payroll fraud involving phantom workers is perhaps the largest and most persistent kind of fraud in Nigeria, costing the government hundreds of billions of Naira annually in lost income to the criminals (Larson, 2016). Payroll fraud, as previously stated, refers to the complete process of employee impersonation that results in a salary cost to the government. All unlawful, unauthorized, unqualified, fake, and non-existent employees who make wage claims from the government coffers are included in this category. The above suggests that ghost employees and payroll fraud in the public sector include underage, overage, backdated employments, inherited employments, unqualified personnel, and unlicensed staff, even if they report for work on a daily basis. In certain cases, these dishonest public officials falsify paperwork and authorizations in order to add an employee to the payroll (Lekubu, 2013).

Ghost workers

Ghost workers are non-existent employees whose names and other information are retained on the company's payroll and wages are given to them, but the money is collected by others (most often the fraudster) who had the name added or left in the register. If payroll administrators take too long to remove the identities of people who are no longer employed by the company, ghost workers may be maintained on the payroll (Lekubu, 2013). Payroll clerks may put fake or separated workers' identities on the payroll, counterfeit their signatures, and collect their wages on their behalf in some situations (Izedonmi & Ibadin, 2012).

Because individuals who should be responsible for preventing the phantom names from entering the payroll are themselves part of the crime, ghost workers put into the payroll through collaboration are generally difficult to identify. Internal control flaws in government institutions also contribute to the spread of such crimes (Wells, 2002). In an organization, the formation of ghost workers may also arise if a single individual is responsible for completing personnel and payroll operations from start to finish. Such people can establish or keep ghost workers on the payroll without their identities being discovered. Because of the enormous number of employees in the public sector, governments frequently perform headcount exercises to detect ghost workers and remove them off the payroll (Tanzi, 2013). However, due of internal cooperation, these exercises seldom produce the desired effects.

Illegal Staff / Unauthorized Employment

Unauthorized employment is the employment that are done without proper process being done by the government agencies. This type of employment is found to be illegal, fraud, deceit and false. This is a situation an employee name will miraculously find itself in the government payroll without passing through the right procedures. Prior to the implementation of IPPIS, employees' wages were distributed to MDAs, and the ministries were responsible for paying individual employees. As a result of this practice, there was a significant army of illegal workers in the MDAs, with 46,000 names on the payroll representing nearly one out of every three workers in the MDAs thus far covered (Oguzierem & Sofiri, 2017). Nonetheless, some of these unauthorized jobs are located within the government's IPPIS system, but they were obtained through system manipulation by certain questionable individuals in control of the system. In 2016, the Ministry of Finance said that over 24,000 illegal personnel in the federal public service payroll had been identified, saving the government approximately N2 billion Naira. This is on top of the approximately 60,000 unidentified workers that were stricken off the federal government's payroll in 2014. (Olken & Pande, 2012).

Nigeria's unemployment rate rose to 23.9 percent in 2011 from 21.0 percent in 2010, after averaging 14.6 percent from 2006 to 2010. In 2014, the unemployment rate in Nigeria was around 80%. More importantly, this has an impact on individuals' socio-economic well-being, and the prevalence of corruption is clearly one of the factors contributing to this trend (Hyaledzigbor, 2015). For example, a 2013 staff audit in the federal capital area found that 6000 of the 26,017 employees on the payroll were fake (Adongoi & Eyo, 2014). The audit reveals the scale of massive corruption, embezzlement, and financial irregularities that might have been prevented if the computerized payroll system had been completely deployed in the public sector.

Integrated Personnel Payroll and Information System (IPPIS) and Payroll fraud in Nigeria

The Federal Government of Nigeria saves N20 billion every month, according to the Accountant General of the Federation (Enakirerhi & Temile, 2017). As a result, since April 2007, when the scheme began, 459 MDAs have enrolled, employing a total of 310,453 people, saving over N120 billion as a result of the difference between the amount the government would have released based on appropriation and the actual amount released and paid through IPPIS (King, 2016). Because of the implementation of IPPIS, enormous financial losses caused by payroll fraud through the employment of ghost workers are progressively being detected and removed. Huge savings have been realized, which have been put towards improving overhead and capital flows to MDAs (Haruna et al., 2015).

Despite its human flaws, the Nigerian public service is said to be excessively burdened by a ghost population that not only writes job applications and shows up for interviews, but also opens bank accounts and collects paychecks! Surprisingly, the CBN's "know your customers" instruction to banks had little effect on the creation of bank accounts for such phantoms (Enakirerhi & Temile, 2017). The Rivers State Universal Basic Education Board reported annual losses of N2.4 billion due to 1477 ghost workers in July 2011, while the National Identity Management Commission revealed that it had discovered 4000 ghost workers out of about 10,000 employees on its payroll after conducting a biometric data exercise. Furthermore, Garba Tagwai, the Niger State Commissioner for Local Government Affairs, stated in December 2011 that 20000 ghost workers had been discovered on the payrolls of Niger State's 25 Local Government Areas (Tanzi, 2013).

Prior to his administration, Ekiti State Governor, Dr. Kayode Fayemi, noticed phantom workers. Prior to his administration, the Ekiti State government lost about N3 billion yearly to ghost workers out of an annual budget of N80 billion. Unfortunately, the federal government is not immune to such income leakages; in fact, the Accountant General of the Federation, Chief Joseph Naiyeju, announced the finding of 40,000 ghost workers during a manpower verification effort in 2001. (Haruna et al., 2015).

Similarly, while Mallam Nasir El Rufai was Minister of the Federal Capital Territory in 2006, 6000 phantom workers were discovered following the conclusion of a personnel audit; the FCT government was losing around $8 million per year due to ghost workers on its payroll. When El Rufai was Chairman of the Bureau of Public Service Reforms, the Nigerian-based System Specs Consortium was awarded a $4.9 million World Bank-sponsored contract in October 2006 to provide a more cohesive Integrated Personnel Payroll and Information System (IPPIS). In May 2009, the House of Representatives Committees on Customs and Excise revealed that approximately half of the Nigeria Customs Service's 20,000 employees were ghost workers. Through the deployment of the IPPIS, Mr. Olusegun Aganga announced in July 2011 that the federal government has removed a total of 43,000 ghost workers from the former payroll of 112,000 employees in different MDAs between 2010 and 2011. In February 2012, the Chairman of the Nigeria Pension Reform Task Force, Ahaji Abdulrasheed Maina, revealed that his team discovered 71,133 fraudulent pensioners after completing a successful national biometric verification of pensioners. In addition, N151 billion at fraud was discovered in pension offices around the country (Adongoi & Victor, 2016).

Despite the available documentation proof, particularly from banks, none of the identified beneficiaries of the ghost worker fraud has ever been prosecuted, convicted, or even ordered to refund all stolen monies or forfeit any assets or property gained from the scheme. Inexplicably, these unseen "blood sucking" monsters have continued to oppressively thrive and torment us for the past three years, as the following, more recent media stories reveal. "The federal government is looking into 11,000 phantom workers" (King, 2016). "The Federal Government is examining an additional 11,000 people to see if they are ghost workers," says Finance Minister Kemi Adeosun, "but approximately 23,000 such workers were recently identified, saving the government N2.29 billion monthly." The EFCC is looking into the payment of N1b to "ghost employees" (King, 2016). "Investigators are looking into new leads in the suspected use of public funds to pay 23,000 phantom workers."

Slush funds, The Economic and Financial Crimes Commission (EFCC) was taken aback when they discovered that the majority of the slush accounts used in the pay scam had either a faulty or non-existent Bank Verification Number (BVN). Ms Chinelo Amazu, the Director General of the Pension Commission, has also been summoned by the Minister to testify before a panel investigating how Pension Funds Administrators (PFAs) reportedly produced bogus PFA numbers for "ghost workers." According to Magu, the EFCC has identified 37,395 phantom workers in the federal public service. (Adongoi & Victor, 2016). "The EFCC chairman said in Abuja that the agency has discovered 37,395 phantom workers on the federal public service payroll. "In terms of procurement scams, the number of petitions coming to the commission pertaining to violations of the Public Procurement Act 2007 has increased dramatically," he added. According to Osibanjo, the federal government has discovered 5,000 additional phantom workers (Adongoi & Victor, 2016) "Prof. Osibanjo stated the administration discovered an extra 5,000 ghost workers in the public service while speaking at a church event in Ogere, Ogun State. The finding brings the total number of phantom workers discovered under the Single Treasury Account to 40,000. (TSA). "The FG has removed 50,000 fraudulent personnel from the payroll" (Adongoi & Victor, 2016).

According to Garba Shehu, Senior Special Assistant to the President on Media and Publicity, the government has embarked on continuous auditing of government departments' salaries and wages, as a result of a notable initiative by the Federal Ministry of Finance's Efficiency Unit; as a result, about N13 billion will be saved from the existing monthly salary bill of N151 billion as of February 201. Additionally, N1.1 billion will be saved from the current monthly pension cost of N15.5 billion. Sadly, based on the preceding, the federal, state, and 774 local governments throughout the country may have more ghost workers on its payroll than actual employees (King, 2016). Despite the removal of thousands of ghost workers from government payrolls, government recurrent expenditure budgets have continued to rise rather than fall; worse, both the federal government and some state and local governments owe a backlog of several month salaries, which they are now attempting to fund with high-cost loans (Ziad, 2015).

On Monday, June 10, 2013, the Federal Government said that it had discovered 46,821 ghost workers in 215 of its ministries, divisions, and agencies where the Integrated Payroll and Personal Information System – IPPIS – had been implemented. The IPPIS is a government-developed system that aims to improve effective personnel cost planning and budgeting by using real, confirmed statistics rather than estimations. Dr. Ngozi Okonjo-Iweala, the Minister of Finance, announced the news during her presentation at the 2013 Ministerial Platform in Abuja. Furthermore, according to Okonjo-Iweala, the IPPIS has 153,019 members of staff from 215 MDAs as of January this year. Most notably, work is now underway to integrate the remaining 321 MDAs into the system. This was also part of the reform initiatives aimed at increasing openness and accountability in government resource management. "The Integrated Payroll Personnel and Information System (IPPIS) improves the effectiveness of personnel cost planning and budgeting since personnel costs are based on real verified data rather than estimates," the minister added. As of January 2013, 215 MDAs (153,019 employees) are on the IPPIS, saving N118.9 billion in payroll costs to date, while work continues to bring in the other 321 MDAs not yet on the IPPIS. In terms of locating 46,821 phantom workers (Jing, 2013). The Federal Government of Nigeria found 80,115 phantom officers on the payroll of the Nigeria Police Force after merging the force's payroll into the Integrated Payroll and Personnel Information System (IPPIS) (King, 2016). According to a Premium Times article, the Nigeria Police Force had 371,800 people on its payroll prior to the merger. However, a later audit by the Office of the Accountant-General of the Federation revealed that the total number of employees was 291,685, with a gross compensation of roughly N22.3 billion. According to Presidency sources, the NPF was eventually enrolled into the Integrated Payroll Personnel and Information System (IPPIS) after overcoming stiff opposition "including sponsored protests by policemen in Abuja and Lagos," which revealed that officials of the force had padded the monthly emolument register with 78,315 ghost personnel (Lekubu, 2013).

Challenges of Integrated Personnel Payroll and Information System (IPPIS)

Although the integration of personnel records and payroll has reduced paperwork, end of month activity is still partly paper based. Hard copies of nominal roll are sent by the open hand open space to the respective MDAs for staff verification and processing of warrants before sending the hard copies of nominal roll and warrants to the AG for payment. However, the AG who is one of the few that has access code to the HRMIS, does reconciliation of the hard against the electronic versions of nominal roll before authorizing payment of salaries. This is undoubtedly a long process dependent on paper, which is subject to human errors and possible financial leakages, and some delays in payments. This process can be shortened with the consolidation of IPPIS. Integrated and consolidated reporting has been difficult without a comprehensive database. The current human resources management information system (HRMIS) still does not have comprehensive personnel information. For example, it does not have information to track career progress, develop workforce and succession plans or develop employee capacity based on needs and performance. It however has some information for tracking nominal seniority in the service such as date of appointment and dates of last two promotions of officers etc. It can also generate a report outlining on each employee's total compensation package for management when required.

Some of the possible challenges when information is not fully captured and/or is not fully integrated with payroll are: Collating, inputting and controlling the HR and payroll data is challenging making it difficult to combine information for reporting which may delay the production of reports as you deal with different types of databases such as paper based and electronic; loss of revenue due to leakages in payroll system and inefficient HR record keeping that is manually driven. Non-employees ("ghost workers") and non-existent/dead pensioners in the database and payroll are now being handled.

2.2 Theoretical Framework

Institutional Theory

Institutional theory examines the deeper and more durable components of social organization, according to Nagalinagm, Mangala, and Kumudine (2015). The mechanisms through which structures such as cognitive, normative, and regulatory structures, as well as norms, rules, and routines, get established as authoritative guides for social behavior and practice are the subject of this theory. The new recognized behaviors, regulations, and norms that must be followed in Nigeria's public accounting framework, and the question common in this theory and addressed here is whether these recent changes (financial management reforms) are attributable to normative or regulatory practices. This theory is concerned with practices that have been the topic of recent events in the public sector. Adoption of IPSAS, TSA, GIFMIS, and IPPIS, among other things, can improve the technical efficiency of the business or institution implementing these techniques (Nagalinagm et al., 2015). It also legitimizes conventional procedures, and if they aren't followed, the organization is labeled illogical, crooked, and incompetent. The total impact of these reforms is to promote organizational uniformity, with the MDAs serving as a point of reference throughout Nigeria. It can even go so far as to assure worldwide uniformity, and this structure was designed to enhance efficiency, effectiveness, openness, and accountability. This makes the theory serve as a benchmark for this study.

Public Finance Management Theory

This theory believes that government should effectively manage all elements of financial resources, including mobilization and expenditure, for the benefit of citizens. It includes resource mobilization, program priority, budgeting processes, resource management efficiency, and the use of control to counsel against dangers. The purpose of the Treasury Single Account (TSA) is to prevent the misuse of public monies.

2.3 Empirical Review

Enakirerhi and Temile (2017) investigated Nigeria's Integrated Personnel Payroll and Information System (IPPIS) by examining the obstacles of implementation, the advantages that would be realized after IPPIS is completely implemented, and what the future holds. The study was descriptive in nature, and the data was gathered from primary sources using a five-point likert scale questionnaire. According to the report, the primary benefits of IPPIS include accurate and trustworthy personnel information, the reduction or eradication of corrupt and sharp activities, and the facilitation of contemporary scientific and accurate budgeting and forecasting. These advantages, however, are jeopardized by a lack of skills transfer, a lack of supporting infrastructure, technology obstacles to infer MDAs transfer, stakeholder opposition, and a lack of desire to adopt quickly.

Unauthorized employment as an increasing feature of ghost employees and payroll fraud was investigated by Oguzierem and Sofiri (2017) in Bayelsa State, and how it impacts salary bills of Local Government Areas (LGAs) and Rural Development Areas (RDAs). Ex post facto research was used in this study, and data was gathered from secondary sources. The findings of the study indicated that public office holders in LGAs and RDAs in Bayelsa State engaged in continual unlawful employment for monetary and other motives, bloating the wage bill and diverting monies allocated for local area development. The research proposed, among other things, that employment-related problems be handled by the Local Government Service Commission, which would be subject to rigorous guidelines established by the Governor.

Ikechukwu and Chikwe (2015) were focused on local government areas in IMO state on phantom workers' syndrome and electronic human resources management. The study employed a descriptive method and data from the 164 surveys were obtained through a five-point Likert Scale questionnaire given by senior staff members of the seventeen selected local administrative districts in Imo State. The results of the Mann Whitney test (U) revealed that the maladies that have infested the Nigerian local government system can be addressed through the effective deployment of electronic human resources management tools, which will result in a reduction in personnel costs, allowing the LGAs to better position themselves for effective and efficient grassroots service delivery.

The effects of ghost names in Ghana on the Government Wage Bill were studied by Nyaledzigbor (2015) on Payroll Fraud. The goal of this study is to extend the conceptualisation of the fraud triangle theory to Cressy by selecting 85 heads of public agencies to participate in the survey to evaluate the applicability of the graft estimate model of Reinikka and Svennson using non-probability quota sampling systems. The results indicate a statistically significant, positive link between the amount of chances for ghost employees and the number of ghost workers using correlations and multiple regression as a technique of analysis. The size of government agencies, on the other hand, had a negative connection with both the number of possibilities for ghost workers and the number of ghost workers. Revision of the Financial Administration Act of Ghana by establishing additional controls in payroll administration at the Controller and Accountant General's office is one of the proposals for social transformation.

Idris, Adaja, and Audu (2015) investigated the consequences of ghost employees' syndrome and how the Integrated Personnel Payroll and Information System (IPPIS) may be used to combat the problem in the public sector. For data collecting, the researchers used both primary and secondary sources. Simple percentages, frequency tables, mean scores, and the spearman rank order correlation approach were used to evaluate the data. The study indicates that the occurrence of ghost workers in the public sector is extremely likely. In Jordan, Ziad (2015) performed study to determine the efficiency of IPSAS implementation. To achieve their goal, SPSS and other statistical tools were used, and the study discovered that the Jordanian public sector was poor in its implementation of IPSAS, and it was advised that it be used more widely and that its application be monitored more effectively.

3.1 Methodology

This study basically adopted a field survey research design in which structured questionnaire was designed and distributed to the respondents as a means of gathering information. This study used primary source of data due to the fact that the data needed from this study will be obtained by the field survey of knowledgeable individuals through the administration of questionnaire to respondents. The population of this study focus on government Ministries, Department and Agencies. The population shall consist of staff of Lagos State Civil Service from Grade Level 08 and above and who have been in the Civil Service before the implementation of IPPIS in the state. Purposive sampling technique was used to sample 100 respondents from the government MDAs who are State Civil Service in Nigeria which are easily accessible for the researcher. For the purpose of this study, the needed data was collected with the use of questionnaire designed to elicit the needed responses on the effect of integrated personnel payroll and information system (IPPIS) on payroll fraud in Nigerian public sector. One hundred (100) questionnaires were administered to Lagos State Civil Servant. Therefore, 100 questionnaires were raised and distributed to the respondents in order to achieve the objectives of this study. Method of data analysis for this study was frequency analysis and chi square t-test econometric models which explain the variation in the values of the independent variable on the basis of change in other dependent variables.

4.1 Data Analysis, Interpretation and Presentation

Table 1 shows the reliability statistics using Cronbach's alpha test. The acceptable reliability coefficient is seventy or higher in most social science research. Excellent values are between seventy percentile and eighty percentiles, while very good values are between eighty percentile and ninety percentiles. As a result, the majority of the variables received a score of at least 0.70, implying that the research instrument is trustworthy due to its high degree of internal consistency.

Table 1 Reliability Statistics

Cronbach's Alpha	N of Items
0.715	10

Source: Author's computation 2021.

Likewise, the survey contained questions of a demographic nature. The sample included individuals whom 58% were female and 42% were male. The respondents were also asked to indicate their Grade Level. The study found that majority of the respondents which constitute 79% of the respondents were above GL 08 The age bracket of the respondents was required. It was revealed that two third of the respondents, 66% were between the ages of 40-49years, one quarter of them between 20 to 39 and 9% were 50 years and above. Majority of the respondents representing 59 percent of the respondents indicated that they have year of service of more than 11 years. The respondents were required to indicate their educational qualification. Majority (68%) of the respondents indicated that they possessed either BSC/HND qualification. The second set of questions, measured through Likert-type scales, investigate the effect of implementation of integrated personnel payroll and information system (IPPIS) on ghost workers and unauthorized staffs in the Nigeria public sector. The Likert scale used in the study comprised of four scale points with labels ranging from strongly disagree to strongly agree. The data is measured and scrutinized by inspecting the regularity of occurrences and the importance of the problem. The research findings pertaining to payroll fraud will be discussed below.

Table 2: Frequency Distribution of Responses

	Factors	Responses in %				
		SA	A	D	SD	**Total**
i.	Payroll fraud is one of the serious challenges faced by the government as a result of corruption in Nigeria	33	29	25	13	**100**
ii.	The advent of IPPIS helps to checkmate the problem of payroll fraud and save government a lot of irrelevant cost.	33	32	20	15	**100**
iii.	IPPIS aid in correcting the inaccuracies and fallacies among government MDAs payrolls.	32	48	16	4	**100**
iv.	Implementation of IPPIS leads to reduction of ghost workers in the Nigeria public sector	41	47	9	3	**100**
v.	IPPIS has void the ministry of ghost worker syndrome due to centralization of personnel data	22	61	10	7	**100**
vi.	IPPIS enhance the opportunity for staff training and development in public sector by minimizing ghost workers in public sector	35	40	15	10	**100**
vii.	IPPIS enhance provision of appropriate Personnel information to ensure that no unauthorized staff is find in the payroll	12	46	25	17	**100**
viii.	IPPIS has brought about efficiency in public sector as genuine staff is being employed	23	38	28	11	**100**
ix.	Adoption of IPPIS through employment of authorized staff enhances the morale of employee in the public sector and promote team work.	13	48	32	7	**100**
x.	With the implementation of IPPIS it's difficult to make mistake during salary payment	17	27	33	23	**100**

Result from table 2 present the distribution of the respondents from the government MDAs who are State Civil Service in Lagos on effect of implementation of integrated personnel payroll and information system (IPPIS) on ghost workers and unauthorized staffs in the Nigeria. Majority of the respondents opined that IPPIS has a huge positive effect on the payroll fraud in Nigeria. Respondent from the government MDAs who are civil servant in Lagos State Nigeria opined that there exists positive relationship between implementation of IPPIS in Nigeria public sector and its exhibit a significant effect in curbing and preventing the payroll fraud activities such as ghost workers as well as the unauthorized employment in public sector from the unanimously agreement presented in the frequency table. These findings were further supported by chi-square test.

Chi- Square Test Statistics

Test Statistics

	IPPIS and Payroll Fraud
Chi-Square	288.415[a]
df	13
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 14.6.

The chi-square test showed that with chi-square stat of 288.415 and a degree of freedom of 13, the test statistics is significant at 1% level since the probability value 0.000 which is less than 0.01. This means that there is a significant relationship between implementation of IPPIS and payroll fraud in Nigeria public sector. This finding is in tandem with the Enakirerhi and Temile (2017), Ikechukwu and Chikwe (2015) whose studies found a significant influence of IPPIS on ghost workers and unauthorized employment in government parastatals.

5.1 Conclusion and Recommendation

The problem of payroll fraud has become quite pronounced and noticeable considering the present economic realities in the country. This fraud ranging from ghost workers, unrecognized staff, false wages claim etc. has dampened the purse of the government. Rendering the government incapable of paying the actual and recognized employee in the public sector. This prompt the introduction of Integrated Personnel Payroll and Information System (IPPIS) by the government to capture the bio-data of her staff and fished out the ghost ones. The integrated payroll and Information System and the integrated Financial Management System have enabled the use of government funds to improve transparency and accountability. As the focus of this study is to investigate effectiveness of IPPIS on the payroll fraud using ghost workers and unauthorized employment as a dimension of payroll fraud, empirical findings revealed that IPPIS has a positive and significant influence on ghost workers and unauthorized employment fraud of Nigeria public sector. Therefore, this study concluded that IPPIS has a positive and significant effect on payroll fraud of Nigeria public sector. The study recommends IPPIS should be enforced in all government parastatals as well as agencies in order to broadened employment opportunities, reduces corruption in the public service and reduced personnel costs. More importantly, because the adoption and implementation of IPPIS will increase public confidence in payroll costs and budgeting, improve management reporting and information, rebuild public confidence, provide opportunities for improved infrastructure, and create a conducive work environment and job security, the government must make all government MDAs aware of the benefits associated with IPPIS adoption.

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