

## FRAUD INVESTIGATION AND FRAUD PREVENTION IN NIGERIA'S PUBLIC SECTOR

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### **Abstract**

*This study investigated how fraud investigation can be successfully used to prevent fraudulent practices in Nigeria's public sector. A descriptive survey design was used for this study. The state with the highest total revenue was selected from each of the country's six geopolitical zones. Structured questionnaires returned by 341 respondents (85.5% response rate) who were mainly accountants, auditors and lawyers in the public sector were analyzed with ordinal regression analysis. Fraud investigation was proxy by Legal Framework; Whistleblower Protection; Trained and Skilled Investigators; Cooperation of Agencies; Transparent and Accountable Leaders and Public Awareness and Education. Findings showed that Legal Framework and Whistleblower Protection have negative and insignificant coefficients. The rest have positive and also negligible coefficients. All the six variables used collectively accounted for just 12% of fraud prevention in the public sector of Nigeria. The study concluded that investigation alone cannot curb fraud in the public sector of Nigeria. The study therefore recommends that fraud investigation should be combined with other methods to combat and eradicate fraud in the public sector of Nigeria.*

Keywords: Fraudulent practices; Fraud prevention; Legal framework; Public sector; Whistleblower protection

### **1.0 Introduction**

There is still great concern over the current level of fraudulent practices in Nigeria's public sector. Transparency International (2021) states that government institutions continue to face challenges related to embezzlement, financial theft, and corruption, which hinder the provision of public services and economic progress. The need to address financial misconduct and embezzlement concerns has been highlighted by prominent cases like "Dasukigate" of 2014, Halliburton case of 2015 and others. Robust anti-fraud protocols, transparent governance, and exhaustive fraud investigations remain crucial priorities within Nigeria's public sector (Premium Times, 2022).

Over the years, Nigeria has experienced several significant fraud scandals that have brought to light systemic corruption in the public sector and the pressing need for anti-corruption legislations and investigations. Former US Vice President Dick Cheney, who was CEO of Halliburton at the time, was accused of bribery and corruption in connection with contracts for liquefied natural gas in the Halliburton scandal of 2003 (The Indian Express, 2015). Large-scale bribery to obtain telecom contracts in Nigeria was exposed in the Siemens

Bribery Scandal of 2008, which resulted to significant fines (Reuters 2010). The 2012 Fuel Subsidy Fraud exposed the embezzlement of billions of dollars in fuel subsidies, leading to demonstrations and government inquiries (Reuters, 2012). Government officials and pension administrators were implicated in the 2013 Pension Fund Scam, which exposed the misappropriation of retirement monies (Premium Times, 2013).

"Dasukigate" was a security issue in 2014 involving the misappropriation of money meant for weapon procurement (BBC News, 2015). The contested allocation of oil block OPL 245 was the focal point of the Malabu Oil Scandal (2011–2020), which entangled multinational oil companies and high-ranking officials in court battles and corruption (Reuters, 2020). Investigations were prompted by allegations of financial mismanagement and embezzlement made against the Niger Delta Development Commission (NDDC) in 2020 (The Punch, 2020).

These incidents highlight how urgently comprehensive anti-corruption measures and strengthened accountability procedures, as well as how much transparency and investigations activities are needed in Nigeria's corporate and governmental sectors.

In response to multiple high-profile fraud incidents, the Nigerian government has demonstrated its resolve to fight corruption and fraud by launching some anti-corruption programs and institutions. Established in 2003, the Economic and Financial Crimes Commission (EFCC) is a key player in the examination and prosecution of financial offenses (EFCC, n.d.). Since its establishment in 2000, the Independent Corrupt Practices and Other Related Offenses Commission (ICPC) has aggressively pursued the fight against corruption in the public and private spheres through public awareness campaigns, the enforcement of ethical standards, and investigations (ICPC, n.d.). These bodies appear not to be making any significant progress in their investigative efforts as reflected in the rankings of Transparency International.

Over the past few years, Transparency International's rankings for Nigeria have been consistently disheartening. In 2016, Nigeria achieved a score of 28 on the Corruption Perceptions Index (CPI), ranking 136 out of 176 countries (Transparency International, 2016). Nigeria was in the 148th position (out of 180 countries) in 2017 (Transparency International, 2017); 144<sup>th</sup> position in 2018 (Transparency International, 2018); 146th in 2019 (Transparency International, 2019); 149th position in 2020; (Transparency International, 2020) and 150<sup>th</sup> position in 2022 (Transparency International, 2023).

Numerous recent researches on fraudulent practices examined fraud prevention across multiple nations. They include Adam et al. (2023); Agyemang et al. (2023) (Ghana); Mandal and Amilan (2023) (India); Roberts (2023) (Emerging Countries); Malle et al. (2022) (Tansania); Mokhomole (2023) (South Africa); Wuryandini et al. (2023) (Indonesia); Putri et al.(2023); Ofoje and Aggreh (2023)(Nigeria); Okpala (2019) (Nigeria); Okafor and Onyali (2015) (Nigeria). Notably, the extent to which fraud investigation can lead to successful fraud prevention was not explored in these researches. Despite the importance of fraud investigation as a tool for successful fraud prevention, the author is unaware of any studies that exclusively used fraud investigation as a tool for discouraging and reducing fraudulent activities in Nigeria. Some of the recent works are as follows: Franca *et al.*, (2023); Ofoje & Aggreh, (2023); Afriyie *et al.*, (2022); Alhassan,

(2021); Oyerogba (2021); Ojukwu, *et al.* (2020); Okoye and Obialor (2020); Alao and Odum, (2019); Eze and Okoye, (2019); Okpala (2019); Ogunlana *et al.* (2018); Ademola (2017); Chigozie-Okwum, *et al.* (2017); Ibrahim *et al.* (2017); Adebisi *et al.* (2016); Eiya & Otor, (2013). This is the apparent gap intended to be filled by this study.

This research has major local and international implications. At the national level, it combats corruption and may influence laws, allocates resources, and shapes anti-fraud strategies. It promises to promote openness and rebuild public confidence. The research offers significant comparative perspectives to other developing countries facing comparable difficulties globally. Enhancing international cooperation in anticorruption efforts, attracting foreign investors by showing greater openness in Nigeria's public sector, and broadly contributing to academic and policy conversations on fraud prevention and public service integrity are just a few potential benefits.

## 2.0 Theoretical Literature

This work is based on two major theories: Fraud Triangle Theory and Routine Activity Theory.

Understanding fraud prevention requires an understanding of Donald Cressey's Fraud Triangle Theory. The theory posits that opportunity, motive and justification must exist for fraud to occur (Cressey, 1953). The consideration of ethical issues in this work makes the theory relevant.

Rational Choice Theory contends that cost-benefit/ reward are considered before fraud is committed (Cornish & Clarke, 1986). This theory is suitable for this work because it shields light on the economic and psychological motivations involved in fraudulent practices in the public sector.

## 2.1. Empirical Review and Hypothesis Development

### 2.1.1. Empirical Review

A lot of work has recently been done globally on fraud prevention. Agyemang *et al.*, (2023) investigated the potential benefits of public sector audit reforms in addressing occupational fraud in Ghana. The mediating role of fraud awareness was investigated by Mandal and Amilan (2023) in order to clarify the contribution of moral leadership and internal control mechanisms to the prevention of financial statement fraud in India. Roberts (2023) emphasized the significance of audit quality in thwarting corruption and fraud in the public sector, especially in developing nations. Tanzanian public sector fraud prevention and detection systems were evaluated by Malle *et al.* (2022). Factors affecting fraud investigation were omitted from all the studies.

The role and effects of the Forensic Investigations Unit in the battle against financial misconduct, fraud, corruption, irregularities, and maladministration in South Africa's public sector were studied by Mokhomole (2023). Factors affecting successful fraud investigation were not included. Despite analyzing the characteristics of the Fraud Control Plan and its implementation in the workplace of Indonesia's public organizations, Wuryandini *et al.* (2023) neglected to consider factors affecting successful fraud

investigations. The proper methods for financial statement detection and prevention were examined by Putri *et al.* (2023). The work's primary focus was the private sector.

Most of the recent works: Eiya and Otolor (2013); Ademola (2017); Chigozie-Okwum *et al.*, (2017); Ibrahim *et al.*, (2017); Abdulrahman (2019); Eze and Okoye (2019); Alhassan (2021); Afriyie *et al.*, (2022); Franca *et al.*, (2023) focused mainly on forensic accounting and fraud prevention, neglecting the extent to which investigations can curb fraudulent practices in the public sector.

The application of forensic accounting in Jordan's public sector to detect and thwart frauds and false claims was examined by Alharasis, *et al.* (2023). A questionnaire was employed in the study, and it was distributed to professionals, students, and academics in accounting. The findings showed a close connection between fraud prevention and detection. Afriyie *et al.* (2022) did study on Forensic Accounting: A Novel Paradigm and Relevant Knowledge in Fraud Detection and Prevention in Ghana using 600 respondents from Ghana's public sector institutions. Research indicates that analytical skill increases the likelihood of preventing fraud.

Kulmie (2023) used data from a questionnaire that was completed by 160 respondents from certain public entities and a descriptive research approach to conduct study on the causes and effects of financial crimes in Somalia. Results indicate that the primary driver of financial crimes in the Somali public sector is opportunity, which generally comprises of inadequate internal audit and control, bad governance, and incorrect responsibility segregation. A systematic questionnaire was used for the investigation.

Factors influencing the prevention of fraud in the acquisition of goods and services formed the basis of Adi and Rohman (2023) research. within an Indonesian government agency. The sampling approach used a systematic random sample strategy and includes 258 individuals from 517 populations. The data for the study were processed using the Smart PLS 3.2.9 program, and the analysis technique utilized was structural equation modeling with partial least squares (SEM-PLS). The results of the investigation showed that e-procurement, efficacy, accountability, and internal control systems all significantly and favorably reduce the risk of fraud in the purchase of goods and services.

In addition to the recent researches done in other regions, certain studies have also been carried out in Nigeria. They did not employ any of the factors that affect successful fraud investigation strategies. The effect of financial restrictions on fraud prevention in Nigeria's Federal Ministries was investigated by Adam *et al.* (2023). The study collected secondary data through documentary analysis and a survey research design. The findings demonstrated that Nigeria's Federal Ministries tried to abide by financial rules, which decreased the frequency of fraud. Okafor and Onyali (2015) based their work on internal control and fraud prevention in government organisations. Accountants, Chief Executives and auditors were respondents. The findings showed that approaches to fraud prevention and detection were deficient in application.

Ofoje and Aggreh (2023) examined how the public sector in Anambra state used computerized forensic investigation methods and fraud detection. The research design for the study was a descriptive survey. A deliberate selection technique was used to pick 242 professional accountants from a population of 612 accountants who are employed in the state of Anambra and members of ICAN and ANAN. To collect the primary data, a

methodical questionnaire was employed. The results showed the following: there is no significant relationship between fraud litigation practice and fraud detection in the Nigerian public sector; computerized forensic accounting techniques significantly aid in fraud detection in the Nigerian public sector; and forensic accounting practice significantly and favorably relates to fraud detection in the Nigerian public sector.

Abdullahi and Mansor (2018) examined fraud prevention initiatives in Nigeria's public sector in order to investigate the connection between fraud events and the elements of the fraud triangle hypothesis. The quantitative survey employed a well-structured questionnaire including a ten-point Likert scale as an effective means of gathering data. On the other hand, all 1,239 accounting, internal audit, and administrative specialists from ten different Kano State ministries in Nigeria were included in the study's sample. The findings demonstrated a strong correlation between fraud incidents in Nigeria's public sectors and incentives or pressure to perpetrate fraud.

Oyerogba (2021) concentrated on fraud detection and forensic auditing methods: the Nigerian public sector case study. 298 individuals took part in the survey that was used for the study. Inferential statistics (binary logistic regression and ordinary least square regression) and descriptive statistics (ranking, mean, and standard deviation) were used to the data. According to the findings, forensic auditors must possess sufficient understanding of financial statement valuation and economic harm assessment. The findings also showed that in the Nigerian public sector, fraud detection is significantly predicted by the skills and methods of forensic auditors.

Franca et al. (2023) investigated fraud detection and forensic accounting in the Nigerian public sector using a case study of Rivers state. Using a stratified random selection process, 357 senior employees, directors, and accountants from various Ministries, Departments, and Agencies (MDAs) participated in this survey. Utilizing a standardized questionnaire, 357 respondents provided data, which was then analyzed using the Spearman rank correlation approach. In order to investigate forensic accounting using forensic accounting techniques, forensic accounting procedures, and proactive fraud audit, two fraud dimensions—payroll and procurement fraud—were examined. Payroll and procurement fraud are negatively and highly correlated with all three forensic accounting indicators, according to the analysis of the response.

### **2.1.2. Hypothesis Development**

Successful fraud investigations are crucial to the prevention of fraud in the public sector because they not only help uncover and stop fraudulent activity but also warn potential offenders. Proactive fraud detection and successful investigation can significantly reduce fraud losses, according to the Association of Certified Fraud Examiners (ACFE, 2020). By examining weaknesses in existing systems and controls, investigators can pinpoint the root causes of fraud and pave the way for stronger preventive measures.

Fraud prevention in the public sector must be successful for it to serve as a deterrent to others (Association of Certified Fraud Examiners, ACFE, 2020). Fraudsters often adapt and create more sophisticated methods to evade detection, thus reducing the effectiveness of previous investigative efforts (Cressey, 1953). Additionally, public sector organizations may lack the resources and expertise needed to implement comprehensive anti-fraud policies, hindering their ability to act on investigation findings (GAO, 2023).

Confrontational investigations can deter employees from reporting concerns or blowing the whistle due to fears of becoming subjects of inquiries, potentially hampering early detection and prevention (Miceli & Near, 2002). The success of a fraud investigation is heavily dependent on the availability of witnesses and evidence, which may be lacking, making it challenging to secure convictions in complex fraud cases (Coenen, 2011). Investigations can also divert time and resources from proactive prevention efforts, as highlighted by the 2020 Global Economic Crime and Fraud Survey by PwC. All these factors make fraud investigation less active as a tool for fraud prevention. Based on this, the following is hypothesized:

H<sub>0</sub>: Fraud investigations cannot successfully and significantly prevent fraudulent practices in the public sector of Nigeria.

### 2.0 Conceptual Framework

Figure 1 indicates the relationship between fraud prevention and fraud investigation. The figure vividly shows that fraud prevention depends on fraud investigation which is proxy by Legal Framework (LFM); Trained and Skilled Investigators (TASI); Collaboration of Agencies (COA); WhistleBlower Protection (WBP); Transparent and Accountable Leadership (TAAL); and Public Awareness and Education (PAAE).

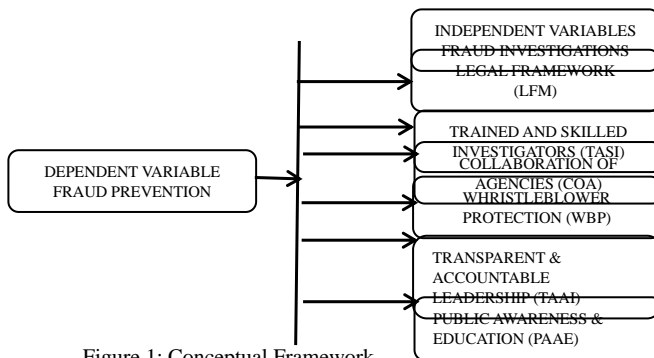


Figure 1: Conceptual Framework  
Source: The Author (2024)

### 3.0 Methodology

#### 3.1 Research Design

The descriptive survey design was used as the research methodology for this study. This design has shown to be a useful tool for describing and elucidating the links between phenomena as well as for ascertaining opinion and perception.

#### 3.2. Population

Nigeria is politically divided into six geo-political zones: three in the south and three in the north. These are: South West; South East and South-South. Others are: North Central, North West and North East. The study population is made up of 191, 767 public servants (Budgit, 2023) in selected states in the six geo-political zones of Nigeria (Table 1). The state with the highest revenue was selected from each zone (Tables 1 & 2). This was based

on the assertion by Adam *et al.* (2023) that the higher the revenue generated, the higher the tendency to indulge in fraudulent practices.

Table 1: 2022 Total Revenue and Civil Servants in the 36 States of Nigeria

SN	State	2022 Total Revenue (Billion Naira)	Number of Civil Servants
<b>SOUTH WEST</b>			
1	Ekiti	77.48	18, 940
2	Lagos	546.35*	58, 468
3	Ogun	124.790	29, 528
4	Ondo	97.25	23, 449
5	Osun	81.80	16, 390
6	Oyo	155.03	23, 954
<b>SOUTH EAST</b>			
1	Abia	73.92	14, 987
2	Anambra	82.64	12, 483
3	Ebonyi	56.95	9, 606
4	Imo	83.97	15, 276
5	Enugu	87.03*	21, 226
<b>SOUTH SOUTH</b>			
1	Bayelsa	173. 93	21, 299
2	Rivers	309, 53*	45, 673
3	Delta	299.33	48, 547
4	Akwa Ibom	190.02	29, 214
5	Cross Rivers	95.98	15, 624
6	Edo	101.92	14, 857
<b>NORTH CENTRAL</b>			
1	Benue	74.59	15, 947
2	Kogi	79.17	18, 731
3	Kwara	82.57*	16, 975
4	Nasarawa	73.36	16, 339
5	Niger	76.75	24, 322
6	Plateau	71.25	15, 450
<b>NORTH WEST</b>			
1	Jigawa	124.27	19, 661
2	Kaduna	146.15*	32, 137
3	Kano	118.33	55, 444
4	Katsina	117.58	20, 362
5	Kebbi	78.99	21, 554
6	Sokoto	101.23	30, 568
7	Zamfara	72.20	26, 658
<b>NORTH EAST</b>			
1	Adamawa	77.62	29, 657
2	Bauchi	89.10	30, 949
3	Borno	130.62*	17, 288
4	Gombe	71.10	19, 939
5	Taraba	90.53	Not Available
6	Yobe	76.34	27, 180

\*States with the highest revenue selected

Source: Author's Computation (2024) from Budget (2023) <https://yourbudget.com/wp-content/uploads/2022/10/2022-State-of-States-Report.pdf>

### 3.3. Sample Size

Table 2: Population of Public Servants, Sample Size in Selected States

S/ N	Zone	Selected State	Civil Service Population	Sample Size	Questionnaire Distribution and Returns		
					Accountants Distributed (Returned)	Auditors Distributed (Returned)	Lawyers Distributed (Returned)
1	South West	Lagos	58,468	121	30 (30)	30 (29)	61 (50)
2	South East	Enugu	21,226	43	12 (11)	11 (10)	20 (16)
3	South South	Rivers	45,673	95	23 (17)	24 (19)	48 (45)
4	North Central	Kwara	16,975	35	9 (6)	9 (9)	17 (14)
5	North West	Kaduna	32,137	69	18 (16)	17 (13)	34 (29)
6	North East	Borno	17,288	36	9 (6)	9 (7)	18 (14)
	Total		191,767	399	101 (86)	100 (87)	198 (168)
	Total Returned	341					
	Total Distributed	399					
	% Returned	85.5%					

Source: Author’s Computation (2024) from Budgit (2023)

The sample size of 399 (Table 2) was derived from Yamane, (1973), which is widely used and accepted in research works.

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

Where:

n is the required sample size,  
 N population,  
 e is the desired margin of error.

$$\begin{aligned} n &= \frac{191,767}{1 + 191,767 (0.05)^2} \\ &= \frac{191,767}{480.4175} \\ &= 399 \text{ (Approx)} \end{aligned}$$

The respondents were restricted to lawyers, accountants and auditors in various Ministries, Departments and Agencies (MDAs) in the public service of the selected states as they were considered more knowledgeable stakeholders on the subject matter. It is an improvement on the work of Okafor and Onyali (2015) which used mainly accountants, auditors and Chief Executive Officers as their work was on internal control systems that were in place in public sector organizations in Nigeria as opposed to the legal/investigative aspects which were the focus of this research work. Other stakeholders such as the Operatives Economic and Financial Crime Commission (EFCC) and Independent Corrupt Practice Committee



(ICPC) which are anti-fraud agencies and the Nigeria Police were left out because they are controlled by the Federal Government. The sample size of each selected state was divided into three strata: accountants, auditors and lawyers. Respondents were then randomly selected from each stratum. Accountants and auditors were regarded as members of the same profession; hence respondents were almost equally divided between accounting and legal professions.

### 3.4 Sources of Data

Primary sources in the form of questionnaire was used to gather the data used in this investigation. The questionnaire was divided into sections to account for dependent variables and independent variables. A five-point Likert scale was employed to assess the answers. Multiple regression analysis was used.

### 3.5 Model Specification

Many factors have been identified as capable of being used for fraud prevention in previous studies (Folorunso, 2023; Deltanet 2023, Financial Fraud Academy, 2023, Netrica, 2023, Pinow.com, 2023). They are: Inadequate internal controls, inadequate supervision and monitoring, lack of knowledge and training, political meddling and convoluted bureaucratic procedures. They are some of the elements that could seriously compromise fraud prevention efforts. Additional factors include insufficient protections for whistleblowers, financial limitations, collaboration and corruption, technological deficiencies, and an inadequate legal framework. They are relevant to this work and some of them are incorporated into model specifications.

Many factors were also identified as being capable of being used as fraud investigative tools in previous works (Deltanet 2023, Financial Fraud Academy, 2023, Netrica, 2023, Pinow.com, 2023). They are Legal Framework; Trained and Skilled Investigators; Collaboration of Agencies, Whistleblower Protection; Transparent and Accountable Leaders. Others are: Timeliness of discovery; Quality of evidence; Cooperation of witnesses and suspects; Resource availability Media and public perception; Cultural and ethical factors; Political and organizational influence. They are relevant to this study and some of them are incorporated into model specification.

These two categories of factors can be represented by the equation:

$$FP = f(FI) \dots \dots \dots \text{Equation 1}$$

Where:

FP = Fraud Prevention

FI = Fraud Investigation

The equation can be broken down further:

$$FP = \alpha + \beta_1(LFW) + \beta_2(TASI) + \beta_3(COA) + \beta_4(WBP) + \beta_5(TAAL) + \beta_6(PAAE) + \mu \dots \dots \dots \text{Equation 2}$$

Where:

LFW= Legal Framework

TASI= Trained and Skilled Investigators

COA= Cooperation of Agencies

WBP = Whistleblowers’ Protection

TAAL = Transparent and Accountable Leaders

PAAE = Public Awareness and Education

$\beta_1, \beta_2, \beta_3, \beta_4$  = Coefficient of each of the determinants/independent variables

$\mu$  = Error Term.

The model was adopted from Folorunso (2023)

Table 3: Number of Questionnaire Distributed and Returned

SA	Zone	Selected State	Number of questionnaire distributed	No of Questionnaire Returned	Percentage of returned questionnaire
1	South West	Lagos	121	109	90.1
2	South East	Enugu	43	37	86.0
3	South South	Rivers	95	81	65.3
4	North Central	Kwara	35	29	82.9
5	North West	Kaduna	69	58	84.1
6	North East	Borno	36	27	75.0
	Total		399	341	85.5 Average

Source: Author’s Computation (2024)

On average 85.5% of the questionnaire distributed was returned (Table 3). The highest return rate of 90.1% was from Lagos state (South West), while the lowest of 75.0% was from Borno state (North East).

#### 4.0. Data Presentation and Analysis

##### 4.1. Findings

Table 4: Normality Test

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
FP	.114	341	.000	.959	341	.000
LEW	.115	341	.000	.963	341	.000
TASI	.125	341	.000	.943	341	.000
COA	.126	341	.000	.970	341	.000
WBP	.118	341	.000	.962	341	.000
TAAL	.121	341	.000	.953	341	.000

Source: Author’s Computation (2024)

Table 5: Normality Test with Transformed Data

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
LOGFP	.113	341	.000	.940	341	.000
LOGLEW	.128	341	.000	.952	341	.000
LOGTASI	.152	341	.000	.895	341	.000
LOGCOA	.143	341	.000	.941	341	.000
LOGTAAL	.132	341	.000	.929	341	.000
LOGPAAE	.150	341	.000	.924	341	.000

Source: Author’s Computation (2024)

When the dataset is less than 100, the Shapiro-Wilk normality test is performed; if the dataset is higher than 100, the Kolmogorov-Smirnov normality test is employed. The Kolmogorov-Smirnov was used because there are more than 100 values in this dataset (Table 4). The null hypothesis is the presumption that there is no deviation from the normal distribution. The study rejected the null hypothesis and concluded that the data was not normally distributed because each variable's p-value was significant. The data did not show a normal distribution, even after transformation through logging (Table 5). This implies that OLS must be replaced by the non-parametric method of ordinal regression.

Table 6: Reliability Test

Cronbach's Alpha	Number of items
.724	7

Source: Author's Computation (2024)

The scale or instrument being evaluated has a fair degree of internal reliability, as indicated by Cronbach's Alpha coefficient of 0.724 (Table 6). This measure is frequently applied in studies to assess the coherence and consistency of test items, such as questions. Ratings of 0.7 or higher on a scale indicate that the items fairly consistently and effectively measure the same underlying concept, and are therefore regarded as highly related to one another.

Table 7: Correlation

	FP	LEW	TASI	COA	WBP	TAAL	PAAE
FP	1						
LEW	-.016	1					
TASI	.102	.129*	1				
COA	-.010	-.054	-.043	1			
WBP	-.010	-.054	-.043	1			
TAAL	.009	.006	.050	-.053	.001	1	
PAAE	-.001	.069	.008	-.014	-.022	-.071	1

Source: Author's Computation (2024)

Lack of multicollinearity is indicated by the fact that none of the correlations falls within the 0.8 threshold. The correlations among the variables are low, some are positive while some are negative.

Table 8: Model Fitting Information

Model	2 Log Likelihood	Chi-Square	df	Sig
Intercept only	1540.002			
Final	1535.931	4.071	6	.007

Source: Author's Computation (2024)

Determining the validity of statistical models requires knowledge about model fitting. The model successfully captured the underlying patterns in the data when the results were significant. This statistical significance implies that the links or effects being studied are real and not the product of chance. The model provides substantial support for the hypothesis, as shown in Table 8 where the p-value is 0.007. This confirms the chosen

model's ability to adequately describe the observed events and increases the reliability of the results.

Table 9: Goodness of Fit

	Chi – Square	Df	Sig
Pearson	3958.208	4074	.901
Devianc	1535.931	4074	1.000

Source: Author’s Computation (2024)

Assessing a model's ability to fit the observed data is made easier by the important statistical concept known as "goodness of fit". A model is deemed to offer a sufficient match to the data when the goodness of fit test result is not statistically significant (0.901) (Table 9). This is an important discovery because it indicates that the model represents the data accurately, even if it may not have found statistically significant relationships.

Table 10: Pseudo R-Square

Cox and Snell	.012
Nagelkerke	.012
McF adden	.003

Source: Author’s Computation (2024)

Nagelkerke's pseudo-R-squares are crucial for assessing the explanatory power and goodness of fit of ordinal regression models. All of the independent variables are responsible for 12% of the variance in the dependent variable, according to the model's Nagelkerke R-squared value of 0.012 (Table 10).

Table 11: Test of Parallel Lines

Model	2 Log Likelihood	Chi-Square	Df	Sig
Null Hypothesis	1535.931			
General	1441.464	94.467	66	.072

Source: Author’s Computation (2024)

The test of parallel lines is crucial when utilizing ordinal regression models since it assesses the proportionate odds assumption. This assumption is true when the test's result is not statistically significant (Table 11), which is essential for the validity of the model. This shows that there is a constant relationship between the predictors and the ordinal outcome variable throughout all result categories. In other words, the likelihood of a group member changing is constant at all levels of the predictors. This result demonstrates that the assumptions made by the ordinal regression model are correct, supporting the model's validity.

Table 12: Parameter Estimates

	Estimates	Std Error	Wald	Df	Sig
LFW	-.031	.042	538	1	.463
TASI	.067	.040	2.870	1	.090
COA	.000	.038	.000	1	.995
WBP	-.025	.036	.481	1	.488
TAAL	.018	.038	.227	1	.634
PAAE	.010	.036	.073	1	.787

Source: Author's Computation (2024)

Parameter estimates (Table 12) are important in ordinal regression because they indicate the direction and strength of the influence that independent variables have on the ordinal result. They provide a quantitative understanding of how each predictor affects the probability of moving from one ordinal category to another. The study's two independent variables, Whistleblower Protection (WBP,  $-0.025$ ,  $p = 0.488$ ) and Legal Framework (LFW,  $-0.031$ ,  $p = 0.463$ ), both show negative and non-significant coefficients. Trained and Skilled Investigators (TASI,  $0.067$ ,  $p = 0.090$ ); Cooperation of Agencies (COA,  $0.000$ ,  $p = 0.995$ ); Transparent and Accountable Leaders (TAAL,  $0.018$ ,  $p = 0.634$ ); and Public Awareness and Education (PAAE,  $0.010$ ,  $p = 0.781$ ) are the remaining independent variables with positive but non-significant coefficients.

#### 4.2. Discussion of Findings

Findings show that the Legal Framework (LFW) has a negative and insignificant relationship with fraud prevention. The complexity of legal frameworks for fraud investigation in the public sector, fragmented regulatory structures, scarce resources, and the difficulty of keeping up with technological advancements can all be reasons for the ineffectiveness of legal framework in combating fraud in Nigeria (Ezeudu & Yau, 2023; Barafi et al, 2022).

Whistleblower Protection (WBP) has a negative but insignificant relationship with fraud prevention. Fear, apathy, and wrong interpretation of whistleblowers' rules may be responsible for it (International Labour Organisation, 2022; Cho & Song, 2015).

Training and Skills of Investigators (TASI), has a positive but insignificant coefficient possibly due to incorrect assumptions about the training, skills and competency of investigators. Again, fraudsters might develop more sophisticated methods that may be difficult to detect (Abdulrahman, 2019; Gottschalk, 2018)

Transparent and Accountable Leaders (TAAL) and fraud prevention in the public sector have a positive but negligible relationship. This can be due to the existence of a lag time between the period of apparent transparent leadership and the actualization of fraud prevention (Kemal, 2015; Ezeudu, & Yau, 2023; Wasswa, 2023).

Cooperation of Agencies (COA) and fraud prevention in the public sector have positive but not significant coefficients possibly due to conflict of interests among the agencies.

Communication inefficiencies, strict legal frameworks that set up each agency and administrative bottlenecks may create barriers (European Parliament, 2014; Alina, 2011).

Public Awareness and Education (PAAE) also has a positive non -significant relationship with fraud prevention in the public sector possibly due to the existence of a lag period. Wrong communication channels might have been used and the awareness and education might not be sufficient. (Emma et al, 2023).

All the six variables used by this study collectively account for 12% of fraud prevention in the public sector in Nigeria, suggesting that many other factors can be used to prevent fraud in the public sector in Nigeria. This is partly confirmed by the rankings by Transparency International on corruption that moved Nigeria from 136<sup>th</sup> position in 2016 to 150<sup>th</sup> in 2022. The findings confirmed the Fraud Triangle Theory that all the variables used by this study cannot deter fraudulent practices in the public sector of Nigeria. They also confirmed the assertion of Routine Activity Theory that the current investigative efforts are not effective.

## **5. 0. Conclusion**

The conclusion from this study is that none of the variables used to proxy fraud investigation has a significant effect on fraud prevention in Nigeria's public sector. This is due to a variety of reasons obtained from the literature reviewed. All the independent variables collectively accounted for just 12% of fraud prevention in Nigeria's public sector, suggesting that many other factors can be used to prevent fraud in the public sector in the country.

## **5.1. Recommendations**

To eliminate fraud through fraud investigation, this study recommends that:

Legal frameworks should be less complex, human and material resources should be more available and legal personnel should be abreast of technological advancements for legal framework to be an effective tool for fraud prevention. Also, whistleblowers should be assured of adequate protection to allay their fair of exposure to possible danger.

Training and Skills of Investigators (TASI) should constantly undergo training and acquire additional skills that will enable them to counter sophisticated methods used by fraudsters. There should be no conflict of interest among government agencies on fraud prevention. Cooperation among them should be improved. Possible communication gaps should be bridged most especially on administrative bottlenecks.

More efforts should be put in place on public awareness and education as they relate to fraud prevention. The use of wrong communication channels should be discouraged. The danger in general apathy and fraud to the economy should be emphasized.

Other variables of fraud investigation identified by this study are: Timeliness of discovery; Quality of evidence; Cooperation of witnesses and suspects; Resource availability Media and public perception; Cultural and ethical factors; and politics and organization. They

should be vigorously pursued by the government for fraud in the public sector to be eradicated in the public sector of Nigeria.

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