

EFFECT OF WHISTLEBLOWING PROGRAM AND PROBITY AUDIT ON FRAUD DETECTION IN NIGERIA PUBLIC SECTOR: A STUDY OF ICPC AND EFCC

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Abstract

Fraud persists as an enduring challenge within Nigeria's public sector, despite the implementation of various anti-fraud mechanisms. This research investigates the effect of whistleblowing programs and probity audits in improving the efficacy of fraud detection systems. The primary objective was to investigate the extent to which these factors contribute to identifying and addressing fraudulent activities within key institutions, specifically the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC). A quantitative research design was adopted, employing a structured questionnaire administered to 480 respondents from these institutions. Data were analyzed using descriptive and inferential statistical techniques. The findings indicate that whistleblowing programs exert the strongest influence on fraud detection, underscoring the critical importance of well-implemented and accessible whistleblowing mechanisms in exposing fraudulent activities. Additionally, probity audits were found to play a vital role in uncovering and preventing fraud, emphasizing the necessity of regular, independent, and thorough audits to ensure accountability and transparency. Based on these findings, the study recommends that public sector institutions enhance whistleblowing frameworks by ensuring accessibility, anonymity, and whistleblower protection. It further advocates for the rigorous and independent execution of probity audits, with a commitment to implementing audit recommendations. These measures are essential for strengthening governance, transparency, and accountability within Nigeria's public sector.

Keywords: Whistleblowing Program, Probity Audit, Fraud Detection and Public Sector

1. Introduction

Whistleblowing programs and probity audits have developed into essential tools for fighting fraud and promoting transparency across public and private organizations worldwide. Whistleblowing programs provide channels for individuals to report unethical conduct, typically offering legal safeguards and occasionally monetary rewards. These initiatives have demonstrated their value in exposing instances of fraud, corruption, and other misconduct that might otherwise remain concealed. Probity audits, meanwhile, constitute thorough assessments of adherence to ethical standards and protocols, with an emphasis on maintaining integrity and accountability in organizational operations. Collectively, these instruments function as strong deterrents against fraudulent behaviour (Syamsuddin et al., 2023).

The global landscape of whistleblowing program implementation shows mixed results. In the United States, the Sarbanes-Oxley Act of 2002 formalized whistleblowing mechanisms, contributing to notable enhancements in corporate governance practices and fraud detection capabilities. In a similar vein, the European Union introduced the Whistleblowing Directive in 2019, which sought to establish a harmonized approach

to whistleblower protection throughout its member states (Vian et al., 2022). Probity audits, play a crucial role in ensuring the integrity of public sector processes, particularly in procurement and contracting. These audits assess whether decision-making processes adhere to ethical standards and legal requirements, thereby reducing the risk of fraud and corruption. Probity audits have also gained traction, particularly in Australia and the United Kingdom, where they are integral to public procurement processes, ensuring that public resources are utilized effectively and ethically. Specifically, Australia and New Zealand have been at the forefront of implementing probity audits in their public sectors, with positive results in terms of improved governance and reduced instances of misconduct (Barrett, 2016).

In Nigeria, the adoption of whistleblowing programs and probity audits has become increasingly important in addressing rampant corruption and fraud within the public sector. The Nigerian government launched its whistleblowing program in 2016, which led to the recovery of significant sums of money. According to Okafor et al., (2020) and Nigerian Ministry of Finance, close to \$400 billion was stolen from Nigeria's public accounts from 1960 to 1999 and over ₦594.09 billion in stolen funds and assets between 2016 and 2019 was recovered within the first two years of the program's implementation as a result of whistleblowing tips (Olaleye, 2020). This success highlights the potential impact of whistleblowing in promoting transparency and accountability in Nigeria's public sector. Probity audits in Nigeria, while not as widely publicized as the whistleblowing program, have also shown improvement. The Office of the Auditor-General for the Federation has been working to strengthen its audit capabilities, including the introduction of probity audits to assess the integrity of public procurement processes (Office of the Auditor-General for the Federation, 2018). These audits focus on scrutinizing public procurement and other government expenditures to ensure compliance with established ethical standards. For instance, the Bureau of Public Procurement in Nigeria has been instrumental in conducting probity audits that have uncovered several instances of financial mismanagement and procurement fraud. Such efforts are crucial in a country where corruption has long been a significant impediment to development. However, the effectiveness of these initiatives in Nigeria has been hampered by challenges such as inadequate legal frameworks, limited resources, and cultural barriers to reporting misconduct.

Fraud detection globally has evolved with the advancement of technology and the implementation of robust governance frameworks. Countries with stringent anti-fraud measures, such as Sweden and New Zealand, consistently rank high in global transparency indices. These nations employ a combination of whistleblowing programs, probity audits, and strong legal frameworks to detect and prevent fraud. Conversely, countries with weaker governance structures often struggle with pervasive fraud and corruption, highlighting the importance of these mechanisms. Countries with stringent anti-fraud measures, such as Sweden and New Zealand, have consistently ranked high in global transparency indices. Sweden, for instance, ranked 3rd in the 2020 Corruption Perceptions Index (Transparency International, 2023). The Swedish National Audit Office plays a crucial role in maintaining this high standard through comprehensive audits and investigations. Similarly, New Zealand, ranking 2nd in the same index, has established a robust framework for fraud prevention and detection, including a well-implemented Protected Disclosures Act that encourages and protects whistleblowers (Transparency International, 2023). This framework is further strengthened by the efforts of the Office of the Auditor-General, which conducts regular audits and evaluations to ensure integrity and accountability in public sector

operations.

In the case of Nigeria, the country has made efforts to improve its fraud detection capabilities, but significant challenges remain. In light of these challenges, the Nigerian government has implemented various measures to combat fraud and enhance transparency in the public sector. Notable among these are the establishment of anti-corruption agencies such as the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC). Additionally, the government introduced a Whistleblowing Policy in 2016 and has been working to strengthen probity audit processes within public institutions (Federal Ministry of Finance, 2016).

Despite these efforts, the problem of fraud in Nigeria's public sector persists. The effectiveness of anti-corruption measures has been limited, with many high-profile cases of fraud remaining unresolved. For instance, between 2018 and 2020, the EFCC reported recovering only ₦512 billion (approximately \$1.37 billion) in stolen assets, a fraction of the estimated losses to corruption (EFCC, 2021). This figure, while significant, pales in comparison to the scale of fraud believed to be occurring in the public sector. The consequences of this persistent fraud are severe and far-reaching. It hampers economic development, deprives citizens of essential services, and undermines the legitimacy of government institutions. The World Bank estimates that corruption in Nigeria's public sector costs the country roughly 1% of GDP growth annually. Moreover, the prevalence of fraud discourages foreign investment, with Nigeria ranking 131st out of 190 economies in the World Bank's Ease of Doing Business index for 2020 (World Bank, 2020).

Given the critical role of a transparent and accountable public sector in driving national development, addressing the issue of fraud detection in Nigeria's public sector is of paramount importance. The continued underperformance of anti-fraud measures clearly poses a significant threat to Nigeria's economic and social progress.

While some studies such as Okafor *et al.* (2020) and Vian *et al.* (2022) have examined corruption and fraud in public sector, there remains a gap in understanding the specific impacts of whistleblowing programs and probity audits on fraud detection. Previous research has often focused on broader anti-corruption measures or individual case studies, but a comprehensive analysis of these two mechanisms in the Nigerian context is lacking. It is therefore of interest in this study to conduct an in-depth analysis of how whistleblowing programs and probity audits have affected fraud detection in Nigeria's public sector, with a specific focus on the operations of the EFCC and ICPC.

2. Literature Review

2.1 Conceptual Review

Whistleblowing programs have evolved as formalized organizational mechanisms designed to encourage and facilitate the reporting of wrongdoing within institutions. According to Chalouat *et al.* (2021), whistleblowing encompasses "the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action." This conceptualization emphasizes the purposeful nature of disclosure aimed at remedial action rather than mere complaint. Elaborating on this definition, Olesen (2020) characterizes effective whistleblowing programs as "structured frameworks incorporating reporting channels, protection measures, and procedural guidelines that enable individuals to safely report observed or suspected misconduct

without fear of retaliation." The multidimensional nature of whistleblowing programs is further highlighted by Vandekerckhove and Phillips (2022), who describe them as "integrated systems comprising reporting mechanisms, investigation protocols, whistleblower protections, and organizational responses designed to detect and address violations of laws, regulations, or ethical standards." These programs typically incorporate anonymous reporting options, confidentiality guarantees, anti-retaliation provisions, and procedural fairness for both whistleblowers and accused parties. In the public sector context specifically, Camacho and Barros (2023) define whistleblowing programs as "institutionalized mechanisms through which public servants and citizens can report suspected fraud, corruption, or maladministration in government operations, contributing to accountability and good governance." The conceptual understanding of whistleblowing programs has progressively expanded beyond mere reporting mechanisms to encompass comprehensive systems that balance disclosure facilitation with procedural integrity and protection of all parties involved.

Probity audits represent specialized examination processes focused on evaluating ethical standards, procedural integrity, and compliance with established norms in public administration. Morehouse (2020) defines probity audits as "independent assessments of administrative processes, particularly those involving significant financial decisions, to ensure adherence to principles of honesty, integrity, and propriety." This definition highlights the evaluative dimension of probity auditing that extends beyond conventional financial auditing. Expanding this conceptualization, Ntim and Soobaroyen (2021) describe probity audits as "systematic examinations of decision-making processes, particularly in high-risk areas such as procurement, contracting, and resource allocation, to verify procedural integrity, adherence to ethical standards, and compliance with applicable regulations." The distinctive focus of probity audits on ethical dimensions is emphasized by Gendron and Spira (2022), who characterize them as "specialized evaluation processes designed to assess the moral integrity of administrative actions and decisions rather than merely their technical or legal compliance." In the public sector context, Kumar and Sharma (2023) conceptualize probity audits as "verification mechanisms that scrutinize administrative actions against established ethical benchmarks, focusing particularly on transparency, fairness, accountability, and value-for-money considerations in public expenditure." The evolution of probity audit concepts reflects growing recognition of ethical governance as distinct from mere technical compliance, with emphasis on evaluating discretionary decision-making processes rather than simply examining documented outcomes.

Fraud detection encompasses the systematic identification of deceptive activities designed to secure unlawful advantages through misrepresentation, concealment, or abuse of position. According to Albrecht and Albrecht (2021), fraud detection refers to "the process of identifying patterns, anomalies, or indicators that suggest the presence of intentional deception designed to secure unauthorized benefits." This definition emphasizes the importance of pattern recognition in identifying potentially fraudulent activities. Elaborating on this concept, Vasarhelyi and Kogan (2020) describe fraud detection as "the application of analytical techniques, control mechanisms, and investigative methodologies to identify transactions, activities, or behaviours that deviate from established patterns and may indicate fraudulent intent." In the public sector specifically, Kapardis and Papastergiou (2021) define fraud detection as "the identification of deliberate misrepresentation, manipulation, or misappropriation of public resources through systematic monitoring, whistleblower reports, data analytics, or investigative processes." The conceptual evolution of fraud detection reflects its

transformation from primarily reactive investigation to proactive identification through integrated approaches combining technology, human intelligence, and institutional mechanisms working in concert to identify potential fraud indicators before significant damage occurs.

2.2 Theoretical Underpinning

The theoretical underpinning for this study is the Fraud Triangle Theory, which provides a foundational framework for understanding the dynamics of fraudulent behaviour, particularly within organizational and public sector contexts. The Fraud Triangle Theory was first propounded by Donald R. Cressey in 1953, a criminologist whose work focused on embezzlement and white-collar crimes. Cressey developed the theory through interviews with incarcerated offenders, arguing that individuals commit fraud when three elements converge: pressure (or incentive), opportunity, and rationalization. According to Cressey (1953), financial or personal pressures create a motive; perceived opportunities, often due to weak internal controls, provide the means; and rationalization allows the individual to justify their actions as acceptable or necessary under the circumstances.

The strength of the Fraud Triangle lies in its simplicity and wide applicability. It offers a clear and intuitive explanation for why individuals may engage in fraudulent behaviour, making it especially useful in both private and public sector contexts. The model has been instrumental in shaping anti-fraud frameworks and risk assessment strategies, with organizations using it to evaluate potential vulnerabilities in their financial and operational systems (Wells, 2020). In the context of the Nigerian public sector, the Fraud Triangle provides a lens through which fraud can be understood as a systemic issue influenced by economic hardship (pressure), poor oversight and institutional weaknesses (opportunity), and cultural or ethical decline in accountability (rationalization). For instance, whistleblowing programs can serve to reduce opportunity by increasing the perceived likelihood of detection, while probity audits can enhance internal controls and decrease rationalization by reinforcing a culture of transparency.

2.3 Empirical Review

In a study conducted by Othman and Tumin (2021) in Malaysia, the researchers examined the effectiveness of whistleblowing mechanisms in public sector governance, focusing on how such mechanisms influenced the detection and prevention of fraudulent activities. Utilizing a mixed-method approach involving surveys and in-depth interviews with public sector employees, the study found that the presence of anonymous reporting channels significantly encouraged whistleblowing behaviour and contributed to the early detection of fraud. The researchers concluded that organizational support and perceived protection of whistleblowers were key factors in improving reporting rates. However, the study placed minimal emphasis on the institutional capacity to act on reported cases, thus limiting the scope of its conclusions to whistleblower behaviour rather than the systemic impacts of such reports on governance outcomes.

In South Africa, Mbandlwa and Mishi (2022) explored the relationship between anti-corruption policies and fraud detection effectiveness in local government institutions. Through a quantitative survey administered to local government officials and analysed using regression analysis, the study revealed a strong positive relationship between structured anti-corruption frameworks, particularly whistleblowing policies—and the

detection of financial misconduct. The authors emphasized the importance of legal enforcement and institutional independence in enhancing fraud detection mechanisms. However, the study primarily examined formal policies without thoroughly addressing the informal institutional challenges, such as political interference and retaliation fears, which often undermine the effectiveness of such frameworks in practice.

In Nigeria, Ajibade and Adegbite (2021) focused on the role of probity audits in curbing public sector fraud across selected government ministries and parastatals. Employing a qualitative case study methodology, including content analysis of audit reports and interviews with audit officials, the study found that probity audits led to significant recoveries and the exposure of procurement-related irregularities. The findings suggested that regular and independent probity audits enhance transparency and reduce opportunities for misappropriation. Nevertheless, the study's reliance on a small sample size and the exclusion of non-audited institutions limited its generalizability. Furthermore, it failed to account for the long-term institutional reforms necessary to sustain the gains of audit interventions.

In the United States, Greene and Murphy (2023) assessed the efficacy of whistleblowing hotlines in state-level government agencies. Using a longitudinal dataset spanning five years and employing panel regression techniques, the study concluded that agencies with robust whistleblower protection policies and accessible reporting systems had significantly higher rates of fraud detection and disciplinary action. These findings underscored the role of policy design and implementation in enhancing accountability. However, the study's focus on data from high-capacity institutions may have masked the disparities experienced by lower-resourced agencies, thus limiting its applicability in contexts where administrative infrastructure is weak.

In Ghana, Boateng and Owusu (2022) examined the interplay between internal audit functions and fraud detection in the public sector, particularly within local municipal assemblies. The researchers adopted a survey research design and analysed responses using structural equation modeling. The results indicated that a well-structured internal audit system, complemented by probity audits, significantly improved fraud detection and reporting. While the study provided valuable insights into the role of audit culture, it overly relied on self-reported data from audit staff, which may have introduced bias and downplayed challenges such as audit independence and political pressure.

Olufemi and Adeola (2021) looked on how whistleblowing initiatives affected the prevention of fraud in Nigerian universities. Using a mixed-method approach, the research combined qualitative interviews with university administration and compliance officers with surveys of professors and administrative personnel. The results showed that by encouraging responsibility and openness in educational institutions, whistleblower initiatives greatly aided in the prevention of fraud. In order to motivate employees to disclose unethical acts without fear of reprisal, the research emphasised the need for robust legal safeguards and easily accessible reporting mechanisms. The study was criticised, meanwhile, for concentrating only on schools of higher learning, which may not accurately reflect other industries. Furthermore, the accuracy of the findings can be impacted by the possible bias in self-reported data.

The function of probity audits in reducing corruption and improving governance in Ghana's educational system was investigated by Amponsah and Frimpong (2020). By evaluating audit reports from different educational institutions and surveying auditors and school administrators, the research used a quantitative methodology. The results showed that probity audits were successful in identifying anomalies and encouraging

responsibility and openness in financial management. To guarantee the efficacy of probity audits, the research underlined the need of continual training and the independence of auditing agencies. However, the study's narrow emphasis on the education sector, which may not adequately represent the larger public sector setting, drew criticism. Additionally, relying only on quantitative data may ignore qualitative information that may provide a more thorough comprehension of the problems.

Using Nigeria as a case study, Adeyemi and Fagbemi (2020) investigated how probity audits might improve public sector governance in developing nations. The authors used a qualitative research approach that included interviews with important players in the Nigerian public sector as well as document analysis. According to their results, probity audits play a key role in fostering accountability and transparency, both of which are essential components of sound governance. According to the research, corruption and financial mismanagement are significantly reduced when audits are carried out independently and their suggestions are strictly followed. However, the report also noted that political meddling and insufficient implementation of audit recommendations often compromise the efficacy of probity audits. This implies that while probity audits may enhance governance, their influence is limited unless they are coupled with robust institutional structures and political will. Since the insights are mostly derived from particular experiences within Nigeria's public sector, the results' generalisability may be limited by their dependence on qualitative data.

Okafor et al. (2020) looked at the potential and difficulties of using whistleblowing as an accountability tool to stop fraud and corruption in a developing nation. The research was conducted in an institutional environment in Nigeria. Using a survey procedure of the nation's urban dwellers and an institutional theory viewpoint, the research provided data on the 2016 whistleblowing program. The whistleblower campaign in Nigeria focused on corporate fraud as well as other forms of corruption. According to this study, whistleblowing was regarded as an accountability mechanism even in developing nations. However, the intervention was not well-known, presented significant risks to regulators and whistleblowers, including the possibility of physical eradication, and was beset by operational and institutional difficulties. The effectiveness of whistleblowing in Nigeria was essentially weakened by operational difficulties, institutional environments that encouraged venality, and knowledge of whistleblowing regulations. A model of the potential and difficulties for whistleblowing in a growing democracy was provided by the research. The authors contended that such difficulties and possibilities were explained by the presence of a weak and complicated institutional framework as well as the lack of program institutionalisation. Additionally, the authors contended that a culturally grounded and institutionalised whistleblowing program gave voice to the voiceless who had suffered decades of extreme hardship and loss of dignity as a result of corruption, and it promoted positive civic behaviour by encouraging citizens to act as custodians of their resources. It should be mentioned, nevertheless, that putting audit findings into practice may prove difficult due to shortcomings in the procedures for following up on audit recommendations, especially when it comes to making sure that remedial measures are implemented.

3. Method

This study employs a survey research design to investigate the impact of whistleblowing programs and probity audits on fraud detection within the Nigerian public sector. Survey research is appropriate for this study as it allows for the collection

of quantitative data from a broad sample of public sector employees, facilitating a comprehensive analysis of perceptions and experiences related to fraud detection mechanisms. Utilizing structured questionnaires, the study gathers data on the effectiveness of these anti-fraud measures, incorporating both linear regression and descriptive analysis. This approach not only provides robust statistical insights but also contextualizes findings within the broader organizational and cultural environment, addressing key research gaps identified in the existing literature (Creswell & Creswell, 2018).

The target population encompasses employees of the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC) who are directly involved in activities related to whistleblowing programs, probity audits, and fraud detection. Specifically, the study focuses on staff members from five key units within these organizations: Investigation and Intelligence (286 staff), Prosecution and Legal Services (242 staff), Asset Recovery and Management (224 staff), Prevention and Public Education (149 staff), and Internal Audit and Compliance (198 staff).

Table 1: Population of EFCC and ICPC

S/N	Units	EFCC	ICPC	Total
1	Investigation and Intelligence	154	132	286
2	Prosecution and Legal Services	126	116	242
3	Asset Recovery and Management	129	95	224
4	Prevention and Public Education	88	61	149
5	Internal Audit and Compliance	104	94	198
	Total	601	498	1,099

Source: Researcher’s Compilation (from HR Dept. of EFCC and ICPC), 2024

A stratified random sampling technique was employed to ensure a comprehensive and representative data collection process, given the heterogeneity of the target population within the EFCC and ICPC. This method is particularly valuable in studies where the population encompasses diverse groups with distinct characteristics, which is emblematic of the variety of roles and responsibilities within these anti-corruption agencies.

The initial step involved the division of the entire heterogeneous population of EFCC and ICPC staff into smaller, more homogenous groups based on their departmental affiliations, specifically Investigation and Intelligence, Prosecution and Legal Services, Asset Recovery and Management, Prevention and Public Education, and Internal Audit and Compliance. This categorization acknowledges the unique perspectives and experiences that staff from each department can contribute to the understanding of whistleblowing programs, probity audits, and fraud detection.

Following the establishment of these strata, units were then randomly selected from each group to participate in the study. This approach ensures that the sample is representative of all key departments involved in anti-corruption efforts, providing a balanced and comprehensive view of the effect of whistleblowing programs and probity audits on fraud detection in Nigeria's public sector. By utilizing stratified random sampling, the study captures the unique insights from various operational areas within the EFCC and ICPC, enhancing the reliability and validity of the research findings.

To determine the appropriate sample size for the study, the Yamane (1967) formula will be used. This formula provides a simplified means of sample size calculation that is particularly useful in studies with large populations, ensuring that the sample drawn is manageable while still statistically representative of the broader population of EFCC and ICPC staff. The application of this formula will guide the selection of a sample that can yield reliable and valid results, offering meaningful insights into the effect of whistleblowing programs and probity audits on fraud detection in Nigeria's public sector.

The Yamane formula is expressed as:

$$n = \frac{N}{1 + N(e)^2} \tag{3.1}$$

Where: n = the sample size N = the size of the population e = the acceptable sampling error

In this case, the total population (N) is 1,099, which is the sum of staff in the relevant departments of EFCC and ICPC (286 + 242 + 224 + 149 + 198). 601 is the total population for EFCC and 498 is the total population for ICPC. At 5% margin of error (e = 0.05) and a 95% confidence level, the sample size can be calculated as follows:

For EFCC:

$$n = \frac{601}{1 + 601(0.05)^2}$$

$$n = \frac{601}{1 + 601(0.0025)}$$

$$n = \frac{601}{1 + 1.5025} = \frac{601}{2.5025}$$

$$n = 240$$

For ICPC:

$$n = \frac{498}{1 + 498(0.05)^2}$$

$$n = \frac{498}{1 + 498(0.0025)}$$

$$n = \frac{498}{1 + 1.245} = \frac{498}{2.245}$$

$$n = 221$$

Proportional allocation formula was applied thus:

$$nh = \frac{nNh}{N}$$

Where;

nh = number allocated to each unit

n = total sample size

Nh = total population of each unit

N = total population

Table 2: Sample of Each Unit of EFCC and ICPC

S/N	Units	EFCC	Sample EFCC	ICPC	Sample ICPC
1	Investigation and Intelligence	154	$\frac{240 * 154}{601} = 61$	132	$\frac{221 * 132}{498} = 59$

2	Prosecution and Legal Services	126	$\frac{240 * 126}{601} = 50$	116	$\frac{221 * 116}{498} = 51$
3	Asset Recovery and Management	129	$\frac{240 * 129}{601} = 52$	95	$\frac{221 * 95}{498} = 42$
4	Prevention and Public Education	88	$\frac{240 * 88}{601} = 35$	61	$\frac{221 * 61}{498} = 27$
5	Internal Audit and Compliance	104	$\frac{240 * 104}{601} = 42$	94	$\frac{221 * 94}{498} = 42$
Total		601	240	498	221

Source: Researcher's Compilation, 2024

Therefore, a sample size of approximately 461 (240 staff members from EFCC and 221 from ICPC) would be appropriate for this study. This sample size ensures that the research findings will be statistically significant and representative of the entire population of relevant staff in these anti-corruption agencies.

The primary data collection instrument was a carefully designed questionnaire. This questionnaire was crafted to ensure that each question was unambiguous and straightforward, enabling respondents to comprehend and provide precise responses. Respondents were instructed to read each question attentively and indicate their level of agreement or disagreement with each statement using a 5-point Likert scale. The responses to the questionnaire statements were quantified using this Likert-type scale, with scoring options ranging from 5, denoting 'strongly agree', to 1, signifying 'strongly disagree'. The intermediate options included 4 for 'agree', 3 for 'undecided', and 2 for 'disagree'. This scaling method was designed to accurately capture the respondents' perceptions and attitudes regarding the influence of whistleblowing programs and probity audits on fraud detection across the various departments of EFCC and ICPC.

This study utilizes descriptive analysis, correlation analysis, and linear regression analysis to provide a thorough understanding of the relationships between key variables and the effectiveness of fraud detection mechanisms. Each of these analytical techniques serves a distinct purpose and collectively enhances the reliability and depth of the study's findings.

The model specification for this study, which captures the effect of whistleblowing programs and probity audits on fraud detection in Nigeria's public sector, focusing on the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC), is presented in the following implicit form:

$$FD = f(WBP, PAU, EMI) \tag{3.2}$$

The explicit linear regression equation of equation (3.2) is captured as:

$$FD = \alpha_0 + \alpha_1 WBP + \alpha_2 PAU + \alpha_3 EMI + \varepsilon_i \tag{3.3}$$

Where:

FD = Fraud Detection

WBP = Whistleblowing Program

PAU = Probity Audit

α_0 = Intercept or autonomous parameter estimate

$\alpha_1 - \alpha_2$ = Coefficients of Whistleblowing and Probity Audit

ε_t = The error term.

Table 1: Variable Description and Measurement

Variable	Acronym	Description	Measurement	Source
Fraud Detection	FD	Fraud Detection refers to the effectiveness of mechanisms and processes implemented by anti-graft agencies like the EFCC and ICPC in identifying and mitigating fraudulent practices within the Nigerian public sector. It includes monitoring, investigation, and resolution of fraud cases.	This variable was measured using a 5-point Likert scale where respondents rated statements such as promptness in identifying fraud, effectiveness of investigation, frequency of fraud case resolution, and existence of monitoring systems.	Adeyemi & Okafor (2020)
Whistleblowing Program	WBP	The Whistleblowing Program variable assesses the structures and procedures available to encourage and protect individuals who report unethical conduct within the organization. It captures access to reporting channels, confidentiality, and institutional support for whistleblowers.	Measurement involved items on the accessibility of whistleblowing mechanisms, effectiveness of protective measures, employee awareness, and confidentiality assurance. Responses were captured using a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree."	Okoye & Gbegi (2022)
Probity Audit	PAU	Probity Audit is the systematic and independent evaluation of public sector transactions to ensure compliance with legal and ethical standards. It includes regular audit frequency, transparency, adherence to recommendations, and involvement of independent parties in audit processes.	Respondents assessed statements on frequency and regularity of audits, transparency of findings, follow-up on audit recommendations, and independence of auditing parties. All items were measured using a 5-point Likert scale.	Ogundele & Olayemi (2022); Wang et al. (2017)

Source: Researchers compilation

4. Results and Discussion

The statistical analyses conducted include reliability tests using descriptive statistics, and linear regression analysis. These analyses aim to provide a comprehensive evaluation of the relationships between the independent variables (Whistleblowing Program, Probity Audit) and the dependent variable (Fraud Detection Effectiveness).

Descriptive Analysis

Descriptive statistics are crucial in providing a summary of the data collected, offering insights into the central tendency, variability, and distribution of the variables under study. The descriptive statistics help to understand the overall responses regarding these constructs. Table 3 presents the mean, standard deviation, skewness, kurtosis, Jarque-Bera test statistics, and associated probability values for each of the key variables: Fraud Detection (FD), Whistleblowing Program (WBP), and Probity Audit (PAU).

Table 3: Descriptive Statistics

	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob.	Observations
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FD	4.303526	0.760175	-0.0061	3.001533	2.390375	0.115068	480
WBP	4.630730	0.916384	-0.58239	2.888617	22.64750	0.000012	480
PAU	4.270529	0.826862	-0.31001	2.563461	9.511184	0.008603	480

Source: Researcher's Computation (2024)

Starting with *Fraud Detection (FD)*, the mean value is 4.303526, indicating that on average, respondents rated the effectiveness of fraud detection in their organizations relatively high, close to the upper end of the scale. The standard deviation of 0.760175 suggests moderate variability in the responses, indicating that while most respondents perceive fraud detection positively, there are some differences in opinion. The skewness of -0.0061 indicates that the data is nearly symmetric, meaning the responses are fairly evenly distributed around the mean. The kurtosis value of 3.001533 suggests that the distribution is close to normal, as it is near the value of 3, which characterizes a normal distribution. The Jarque-Bera test statistic is 2.390375, with a probability value of 0.115068, indicating that the null hypothesis of a normal distribution cannot be rejected, meaning the data on fraud detection is normally distributed.

For the *Whistleblowing Program (WBP)*, the mean is 4.630730, the highest among the variables, indicating a strong positive perception of whistleblowing programs within the organizations. The standard deviation of 0.916384 is slightly higher than that of fraud detection, suggesting a bit more variability in responses regarding whistleblowing programs. The skewness of -0.58239 indicates a slight left skew, meaning there are more responses above the mean than below it. The kurtosis value of 2.888617 is slightly below 3, indicating a distribution that is slightly flatter than the normal distribution. However, the Jarque-Bera statistic is 22.64750, with a very low probability value of 0.000012, indicating that the distribution of responses for whistleblowing programs significantly deviates from normality.

The *Probity Audit (PAU)* variable has a mean of 4.270529, reflecting a generally positive perception of probity audits in the organizations. The standard deviation is 0.826862, indicating moderate variability in how respondents view the effectiveness of probity audits. The skewness of -0.31001 suggests a slight left skew, with responses tending to cluster more on the higher end of the scale. The kurtosis of 2.563461 suggests a distribution slightly flatter than the normal distribution. The Jarque-Bera statistic of 9.511184, with a probability value of 0.008603, indicates that the distribution of responses for probity audits deviates from normality, though not as significantly as whistleblowing programs.

Regression Analysis

The Linear Regression method is chosen for its robustness in providing clear insights into the relationships between the independent variables and the dependent variable, allowing for the quantification of each variable's contribution to fraud detection, while also accounting for potential linear correlations among the independent variables.

Table 4: Regression Result - Dependent Variable: FD

Variable	Coefficient	Std. Error	t-Statistic	Prob.
WBP	0.2506	0.0409	6.1231	0.0000
PAU	0.0435	0.0149	2.9231	0.0065
C	1.7845	0.1874	9.5205	0.0000
Reliability estimates				
R-squared	0.6645			
Adjusted R-squared	0.5581			

F-statistic	25.790
Prob(F-statistic)	0.0000
Durbin-Watson stat	1.9630

Source: Researcher's Computation (2024)

Starting with the *Whistleblowing Program (WBP)*, the coefficient is 0.2506, which indicates that for every unit increase in the effectiveness or presence of whistleblowing programs, there is a corresponding increase of 0.2506 units in fraud detection effectiveness. This positive coefficient suggests that robust whistleblowing mechanisms significantly contribute to enhancing fraud detection within organizations like the EFCC and ICPC. The t-statistic for WBP is 6.1231, which is well above the critical value typically used to determine statistical significance. The associated p-value is 0.0000, indicating that this result is highly statistically significant. This means that the relationship between whistleblowing programs and fraud detection is not due to chance, but rather, whistleblowing programs are a critical component in detecting and addressing fraud in the Nigerian public sector.

The coefficient for *Probity Audit (PAU)* is 0.0435, suggesting a positive relationship between probity audits and fraud detection, albeit weaker than that of whistleblowing programs. This coefficient implies that for every unit increase in the effectiveness of probity audits, fraud detection improves by 0.0435 units. While the coefficient is smaller, it still indicates that probity audits play a crucial role in identifying and mitigating fraudulent activities, reinforcing the importance of transparent and thorough auditing processes in public sector governance. The t-statistic for PAU is 2.9231, which, like WBP, is statistically significant, as indicated by the p-value of 0.0065. This significance level confirms that probity audits contribute meaningfully to the overall effectiveness of fraud detection mechanisms, even if the impact is not as large as that of whistleblowing programs.

The reliability estimates provided in the table offer important insights into the overall fit and validity of the regression model used to assess the relationship between the independent variables and the dependent variable. These estimates, including the R-squared, Adjusted R-squared, F-statistic, and Durbin-Watson statistic, help in evaluating the explanatory power and reliability of the model. Starting with the *R-squared* value of 0.6645, this statistic indicates that approximately 66.45% of the variability in fraud detection within the Nigerian public sector can be explained by the three independent variables: whistleblowing programs, probity audits. This relatively high R-squared value suggests that the model has a strong explanatory power, meaning that these factors are significant predictors of effective fraud detection. However, while R-squared provides a measure of how well the independent variables explain the dependent variable, it does not account for the number of predictors in the model.

The *Adjusted R-squared* value, which is 0.5581, offers a more accurate assessment by adjusting for the number of independent variables in the model. This adjustment is crucial because adding more variables to a model can artificially inflate the R-squared value. The Adjusted R-squared of 55.81% still indicates a good fit, although slightly lower than the R-squared, reflecting the model's robustness while accounting for the dynamic of the model. This value confirms that the independent variables still explain a significant portion of the variability in fraud detection, even after adjusting for the number of predictors. The *F-statistic* is 25.7908, with a corresponding probability (Prob(F-statistic)) of 0.0000. The F-statistic tests the overall significance of the regression model, specifically whether the independent variables, taken together,

significantly predict the dependent variable. The high F-statistic value and the associated p-value of 0.0000 indicate that the model is statistically significant, meaning that there is a very low probability that the observed relationships are due to random chance. This finding strongly supports the validity of the model, suggesting that whistleblowing programs, probity audits are significant contributors to the effectiveness of fraud detection in the Nigerian public sector.

Lastly, the *Durbin-Watson statistic* is 1.9630. This statistic tests for the presence of autocorrelation in the residuals from the regression analysis. Autocorrelation occurs when the residuals (errors) are not independent of each other, which can lead to misleading statistical inferences. A Durbin-Watson statistic close to 2 suggests that there is no significant autocorrelation in the residuals. In this case, the value of 1.9630 is very close to 2, indicating that the assumption of independent errors is satisfied, which further validates the reliability of the regression model.

Discussion of findings

The findings from the study indicate that whistleblowing has a positive and significant effect on fraud detection in Nigeria's public sector. This outcome suggests that robust whistleblowing programs play a critical role in enhancing the ability of public sector organizations to identify and address fraudulent activities. The significance of whistleblowing in improving fraud detection aligns with the findings of Olufemi and Adeola (2021), who found that effective whistleblowing mechanisms were instrumental in uncovering fraudulent activities and promoting transparency in public institutions. The findings indicated that whistleblowing programs significantly contributed to fraud prevention by promoting transparency and accountability within academic institutions. The study's findings also echo those of Othman and Tumin (2021), who demonstrated that the presence of comprehensive whistleblowing policies significantly reduced instances of financial misconduct in organizations. In contrast, inadequate whistleblowing frameworks can lead to underreporting and a culture of silence, as highlighted by Ajibade and Adegbite (2021), who observed that organizational justice, or the lack thereof, can significantly impact the willingness of employees to report unethical behaviours. The positive correlation in this study highlights the importance of ensuring that whistleblowing channels are accessible, anonymous, and protected to maximize their effectiveness in fraud detection.

Similarly, the study revealed that probity audits have a positive and significant effect on fraud detection in Nigeria's public sector. This finding implies that regular and thorough audits, aimed at ensuring accountability and transparency, are vital in identifying and preventing fraudulent activities. The outcome supports the conclusions drawn by Amponsah and Frimpong (2020), whose findings revealed that probity audits were effective in detecting irregularities and promoting transparency and accountability in financial management. Their study emphasized that independent and rigorous auditing practices are essential in safeguarding public resources and maintaining trust in public institutions. Additionally, Adeyemi and Fagbemi (2020) noted that in the Nigerian context, the effectiveness of probity audits is contingent on the independence of audit bodies and the extent to which audit recommendations are implemented. This study's finding corroborates their argument, reinforcing the notion that without independent and well-enforced audits, public sector organizations are more susceptible to fraud and corruption. However, it should be noted that the implementation of audit findings remains a challenge, as highlighted by Okafor et al.

(2020), who identified gaps in the follow-up processes of audit recommendations, particularly in ensuring that corrective actions are taken.

5. Conclusion and Recommendations

This study set out to explore the effect of whistleblowing programs and probity audits on fraud detection in Nigeria's public sector, with a particular focus on the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC). The findings from this study provide valuable insights into the critical role these elements play in combating fraud within the Nigerian public sector.

Firstly, the study concluded that whistleblowing programs have a positive and significant effect on fraud detection. This finding highlights the importance of establishing robust and accessible whistleblowing channels within public sector organizations. The implication is clear: when employees and other stakeholders are confident that they can report unethical behaviour without fear of retaliation, the likelihood of fraud being detected and addressed increases significantly.

Secondly, the study found that probity audits have a significant positive impact on fraud detection. This reinforces the critical role that regular and independent audits play in uncovering and preventing fraudulent activities within the public sector. The implication here is that public sector organizations need to ensure that probity audits are not only conducted regularly but also that their findings are transparently communicated and acted upon.

In conclusion, the findings from this study underline the various approach required to effectively combat fraud in Nigeria's public sector. Whistleblowing programs and probity audits each play a vital role in strengthening fraud detection mechanisms. By focusing on these areas, public sector organizations can significantly improve their ability to detect and address fraudulent activities, thereby enhancing governance, accountability, and public trust. The implications of these findings are clear: for Nigeria's public sector to achieve greater transparency and reduce corruption, it must invest in and prioritize the development of comprehensive fraud detection strategies that incorporate these critical elements.

Based on the findings, the following recommendations were suggested:

- i. To begin with, there is a clear need for the EFCC, ICPC, and other relevant public sector organizations to invest in the development and maintenance of robust whistleblowing systems. These institutions should ensure that whistleblowing channels are easily accessible, anonymous, and secure, providing potential whistleblowers with confidence that their identities will be protected, and that their reports will be taken seriously. To achieve this, the Federal Ministry of Justice and the National Assembly should work together to strengthen legal frameworks that protect whistleblowers from retaliation, thereby encouraging more individuals to come forward with information on fraudulent activities. Additionally, regular awareness campaigns should be conducted within these institutions to educate employees and stakeholders about the importance of whistleblowing and the procedures for reporting unethical behaviour. This will foster a culture of openness and accountability, where fraud is more likely to be detected and addressed promptly.
- ii. In terms of probity audits, it is crucial that the EFCC, ICPC, and the Office of the Auditor-General of the Federation intensify efforts to ensure that

these audits are conducted regularly and independently. These institutions must ensure that the findings from probity audits are transparently communicated to all relevant stakeholders and that there is a rigorous follow-up on audit recommendations. The Office of the Auditor-General should develop and enforce strict guidelines that mandate public sector organizations to act on audit findings within a specified timeframe. Moreover, there should be periodic reviews of the audit processes to ensure they are in line with international best practices. This could involve collaboration with international bodies such as the International Organization of Supreme Audit Institutions (INTOSAI) to enhance the capacity and independence of auditors. Strengthening probity audits in this manner will significantly contribute to the detection and prevention of fraud, thereby enhancing the integrity of public sector operations.

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