UKR Journal of Economics, Business and Management (UKRJEBM)
Homepage: https://ukrpublisher.com/ukrjebm/
Email: submit.ukrpublisher@gmail.com
Volume 1, **Issue** 4, 2025 **ISSN:** 3049-429X (Online)

Impact of Forensic Accounting Skills on Public Sector Fraud Management in Northwestern Nigerian States Finance Ministries

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DOI: *10.5281/zenodo.16746905*

Article History
Original Research Article
Received: 31-07-2025
Accepted: 02-08-2025
Published: 05-08-2025

Citation: Sadiya Ahmed Almustapha, Sulaiman Sabo, Prof Musa Inuwa Fodio, 2025, Impact of Forensic Accounting Skills on Public Sector Fraud Management in Northwestern Nigerian States Finance Ministries, UKR Journal of Economics, Business and Management (UKRJEBM),1(4)125-134

Abstract

Over the past few years, forensic accounting has been widely recognized as an essential tool for combating financial irregularities, detecting and preventing fraud and enhancing financial integrity, transparency and accountability, especially in the public sector. This research investigates how various forensic accounting competencies—including interpersonal communication abilities, technical proficiency, financial auditing expertise, and auditor confidence levels—influence fraud control mechanisms within Northwestern Nigeria's finance departments. The study's main goal is to assess the contribution of these competencies to improving fraudulent activity detection and prevention within government institutions. Data collection involved administering structured survey instruments to finance ministry personnel, encompassing audit professionals, financial specialists, and forensic investigators. Statistical analysis was performed using Stata 13 regression methods, enabling comprehensive exploration of connections between fraud management effectiveness (dependent measure) and the various skill sets (independent measures). Quality assurance procedures, including normality assessment through Shapiro-Wilk testing and multicollinearity evaluation, were implemented to validate the analytical outcomes. The research outcomes demonstrate that interpersonal communication abilities, technical competencies, and financial auditing expertise significantly and positively influence fraud management effectiveness. Conversely, auditor confidence levels exhibited a positive yet statistically non-significant correlation. These discoveries highlight the critical role of both technical expertise and behavioral capabilities in tackling fraudulent activities within government organizations. Drawing from these findings, the research proposes focused educational initiatives to strengthen communication and technical capabilities, financial commitments in sophisticated forensic technologies, and the establishment of guidance programs to enhance auditor self-assurance. These interventions are crucial for reinforcing fraud prevention systems and advancing governmental accountability and transparency standards.

Keywords: *Forensic accounting skills, public sector fraud management, Northwestern Nigeria Finance Ministries.*

1. INTRODUCTION

Fraud remains a significant barrier to the efficient functioning of public sector institutions globally, particularly in Nigeria. Public sector fraud encompasses a wide range of illicit activities including embezzlement, financial misstatement, asset misappropriation, and bribery. These acts erode public confidence and weaken the ability of government ministries, especially the finance ministries, to execute their mandates effectively. Nigeria, like many developing nations, continues to grapple with endemic corruption and fraud that threaten sustainable development and fiscal transparency (Adegbie & Fakile, 2020).

The finance ministries in Nigerian states are tasked with critical roles such as resource allocation, budget implementation, and financial regulation. These ministries,

given the substantial volume of financial transactions they process, are inherently vulnerable to fraudulent practices. The lack of robust internal controls and inefficient audit mechanisms often facilitate the occurrence of fraud. Moreover, traditional audit techniques have proven insufficient in identifying and deterring complex fraud schemes in such environments (Afriyie et al., 2022).

In recent years, forensic accounting has gained traction as an essential tool for combating financial irregularities. Forensic accounting combines investigative and analytical skills to detect, prevent, and prosecute fraud. It goes beyond conventional auditing by incorporating litigation support, evidence gathering, and data analysis to uncover hidden or disguised financial misconduct (Alzahrane, 2024; Gangwani, 2021). This evolution has made forensic accountants vital in enhancing financial integrity, especially in the public sector.

Globally, countries have institutionalized forensic accounting to strengthen fraud prevention mechanisms. Regulatory bodies in developed economies, such as the U.S. Securities and Exchange Commission (SEC) and the European Anti-Fraud Office (OLAF), have adopted forensic methods to mitigate public sector fraud. These practices underscore the importance of specialized accounting skills, including communication, auditing, and technology application, in fraud management frameworks (Awolowo, 2019).

In the Nigerian context, despite the presence of anti-corruption bodies such as the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices Commission (ICPC), fraud continues to plague public institutions. This persistence indicates the need for additional capacity building and the integration of forensic accounting skills to strengthen existing frameworks. Ministries of finance, in particular, require personnel equipped with the technical expertise and analytical acumen to uncover and mitigate fraud effectively (Ewa, 2022).

This study identifies key forensic accounting skills relevant to public sector fraud management, namely communication skills, technological proficiency, accounting and auditing expertise, and auditor self-efficacy. Communication skills are necessary for conveying findings clearly and coordinating with legal and regulatory bodies. Technological skills, including data analytics and software use, enable auditors to detect anomalies within large financial datasets. Accounting and auditing competencies ensure systematic examination of records, while self-efficacy influences an auditor's persistence and confidence in pursuing investigations (Fadilah et al., 2019; Hegazy et al., 2017).

The study focuses on finance ministries in three Northwestern Nigerian states—Jigawa, Kano, and Kaduna—due to their economic importance and high susceptibility to fraud. These states were selected based on reported incidences of fraud and their strategic significance in the region. By evaluating the relationship between forensic accounting skills and fraud management practices in these states, the study provides insights into how public sector institutions can be strengthened through capacity development.

Ultimately, this research contributes to the growing literature on forensic accounting by emphasizing its role in enhancing fraud management in Nigeria's public sector. It aims to provide evidence-based recommendations for policymakers and finance ministry administrators to integrate forensic techniques and training into their internal systems. The findings are expected to influence both policy formulation and professional development initiatives aimed at combating fraud in public financial management.

This study seeks to answer the following questions.

i. What is the Impact of Communication Skills on Public Sector Fraud Management in Northwestern Nigerian States Finance Ministries.
ii. What is the Impact of Technological Skills on Public Sector Fraud Management in Northwestern Nigerian States Finance Ministries.
iii. What is the Impact of Accounting and Auditing Skills on Public Sector Fraud Management in Northwestern Nigerian States Finance Ministries.
iv. What is the Impact of Auditors' Self-Efficacy on Public Sector Fraud Management in Northwestern Nigerian states Finance ministries.

Therefore, the main objective of this study is to examine the impact of forensic accounting skills (CS, TS, AAS, AS) on public sector fraud management in northwestern nigerian states finance ministries. The study tests the following broad hypotheses.
This study will test the following hypotheses.

$H0_1$: Forensic accountant's communication skills have no significant impact on fraud management in the ministries of finance in North-Western Nigeria.

$H0_2$: Forensic accountant's technological skills have no

significant impact on fraud management in the ministries of finance in North-Western Nigeria.

$H0_3$: Forensic accountant's accounting and auditing skills has no significant impact on fraud management in the ministries of finance in North-Western Nigeria.

$H0_4$: Forensic auditors' self-efficacy has no significant impact on fraud management in the ministries of finance in North-Western Nigeria.

2. LITERATURE REVIEW

Concept of Public Sector Fraud Management

Public sector fraud management encompasses a coordinated set of policies, tools, and processes aimed at detecting, preventing, investigating, and responding to fraudulent activities in government institutions. It includes mechanisms such as internal audits, risk assessments, whistleblowing systems, compliance enforcement, and investigative procedures. According to Popoola et al. (2016), effective fraud management not only reduces financial losses but also enhances public trust, operational efficiency, and transparency in public administration. Crumbley (2019) reinforces the view that a proactive and responsive fraud management system can minimize the opportunities for corruption, especially in resource-sensitive areas like public finance.

In Nigeria, managing fraud in the public sector remains a challenge due to systemic weaknesses such as poor governance structures, inadequate monitoring systems, limited data analytics capabilities, and weak enforcement of anti-corruption laws. Ministries of finance, given their strategic role in revenue mobilization and allocation of public funds, are particularly susceptible to fraud. Afriyie et al. (2022) assert that the complexity of financial operations in these ministries makes traditional fraud detection mechanisms insufficient. This situation necessitates the implementation of modern, skill-driven fraud management strategies, particularly those grounded in forensic accounting.

Concept of Forensic Accounting Skills

Forensic accounting skills refer to the specialized set of abilities that combine financial knowledge with investigative acumen to uncover fraud and financial misrepresentation. These skills span a wide range of domains including financial analysis, evidence gathering, litigation support, report writing, and courtroom testimony. Alkhalaileh et al. (2024) describe forensic accounting skills as a multidimensional competency framework that equips accountants to trace, analyze, and explain fraudulent financial activities. Fadilah et al. (2019) add that these skills require knowledge of accounting principles, audit procedures, and legal contexts to effectively uncover fraud.

These competencies are essential in the public sector where accountability is critical. Forensic accounting skills enable practitioners to scrutinize financial transactions and identify inconsistencies that suggest manipulation or misconduct. In ministries of finance, they support the implementation of robust fraud risk management strategies, enhancing the institution's ability to proactively prevent and respond to fraud.

Concept of Communication Skills

Communication skills are crucial for forensic accountants to present their findings in a clear, concise, and persuasive manner. These skills include written and verbal communication, interpersonal communication, and report-writing proficiency. Allan et al. (2018) argue that effective communication allows forensic professionals to engage various stakeholders—including auditors, regulators, legal teams, and law enforcement—ensuring that their findings are comprehensible and actionable.

In finance ministries, communication skills help bridge the technical gap between financial investigations and policy decisions. Dubinina et al. (2018) emphasize that well-articulated reports improve transparency, foster collaboration among departments, and ensure that fraud-related issues are addressed swiftly and effectively. Moreover, forensic accountants often participate in legal proceedings, where their ability to explain complex accounting evidence in layman's terms can influence judicial outcomes.

Concept of Technological Skills

The emergence of complex financial systems and the digitization of transactions have made technological proficiency indispensable for modern forensic accountants. These skills involve the use of software tools, data analytics programs, artificial intelligence (AI), blockchain, and forensic audit applications to detect fraudulent patterns (Kiliç, 2020). Alshurafat et al. (2021) point out that the growing sophistication of fraud requires an equally advanced technological toolkit for effective detection and analysis.

Forensic accountants with technological skills can mine large datasets, perform anomaly detection, trace digital audit trails, and prevent data manipulation. In ministries of finance, these capabilities are vital given the scale and

volume of transactions processed. The use of real-time data monitoring and predictive analytics enhances fraud detection capabilities and allows for early intervention before losses escalate.

Concept of Accounting and Auditing Skills

Accounting and auditing skills are foundational to forensic accounting and central to the success of fraud investigations. These competencies include understanding financial reporting standards, conducting internal and external audits, evaluating internal controls, and reconciling accounts. Botes and Saadeh (2018) note that without a sound grasp of accounting principles and auditing procedures, forensic professionals cannot effectively identify discrepancies.

Gottschalk (2019) explains that these skills enable forensic accountants to uncover anomalies in financial records, reconstruct missing transactions, and assess the effectiveness of control environments. In the public sector, where procurement fraud, budget padding, and asset misappropriation are common, the application of accounting and auditing expertise ensures that ministries are held accountable for their financial management practices.

Concept of Auditors' Self-Efficacy

Auditor self-efficacy refers to an individual auditor's belief in their ability to successfully perform tasks related to fraud detection and investigation. Bandura (1997) conceptualizes self-efficacy as a psychological construct influencing motivation, resilience, and decision-making under uncertainty. In the context of forensic accounting, high self-efficacy translates to persistence in investigations, confidence in judgment, and proactive responses to suspected fraud.

Hegazy et al. (2017) contend that auditors with high self-efficacy are more likely to exercise professional skepticism, identify red flags, and confront fraudulent schemes. In public finance ministries, where institutional resistance and bureaucratic challenges may hinder investigations, self-efficacy is a critical determinant of auditor effectiveness and commitment to anti-fraud objectives.

Empirical Review

Several empirical studies corroborate the impact of forensic accounting skills in enhancing public sector fraud management. Ogah and Olorunsola (2018) conducted a study across various Nigerian government ministries and established that forensic auditors significantly improved fraud detection rates through meticulous examination of financial records and investigative reporting. Their findings reinforced the need for targeted training and institutional support for forensic professionals operating in the public sector.

Afriyie et al. (2022) examined the application of forensic data analytics in Ghana's public financial management system and found a significant correlation between technological skills and the timely detection and resolution of fraud cases. Their study emphasized the role of real-time data analysis tools in identifying irregular patterns that traditional audits might miss. This underscores the growing need for public sector institutions to embrace forensic technologies as part of their anti-fraud infrastructure.

Capraș and Achim (2023) explored the influence of communication skills in enhancing fraud response mechanisms in public agencies within Eastern Europe. Their research demonstrated that forensic accountants who could clearly articulate audit findings and legal implications were more effective in initiating corrective actions. Communication was found to play a crucial role in bridging the gap between technical findings and policy-level decisions.

Dubinina et al. (2018) investigated the relationship between forensic accounting competencies and internal control systems in public organizations. Their results indicated that accounting and auditing skills significantly contributed to the design and implementation of stronger internal controls, leading to reduced vulnerability to fraudulent activities. They also noted that organizations that emphasized continuous training for their auditors reported lower incidences of financial misconduct.

Kimbro and Xu (2016) focused on the psychological dimension of forensic investigations, particularly the effect of auditors' self-efficacy on fraud detection outcomes. Their study found that auditors with high levels of self-efficacy exhibited better judgment, greater persistence in investigations, and a higher likelihood of detecting concealed fraud. This finding affirms the importance of building confidence and competence in public sector audit personnel.

3. THEORETICAL FRAMEWORK

The theoretical foundation of this study is anchored primarily on the Fraud Triangle Theory developed by Donald Cressey in 1953. The theory postulates that three elements—pressure, opportunity, and rationalization—

must simultaneously exist for an individual to commit fraud. In the context of public sector finance ministries, pressure may arise from economic hardship or performance expectations, while opportunity stems from weak internal controls and inadequate oversight. Rationalization, on the other hand, involves justifying unethical actions due to perceived injustices or organizational culture. Forensic accounting skills, such as robust auditing procedures, technological surveillance, and effective communication, play a pivotal role in minimizing the opportunity element by creating a system that discourages fraudulent behavior through enhanced transparency and accountability mechanisms.

Additionally, this study draws on the Professional Skepticism Theory, which emphasizes the importance of a questioning mindset and critical evaluation by auditors and forensic accountants. The theory asserts that professionals should not accept information at face value but must assess the validity of evidence through a lens of objective scrutiny. This aligns with the role of auditors' self-efficacy in fraud detection—those who possess high confidence in their investigative capabilities are more likely to maintain vigilance and resist manipulation. The integration of this theoretical framework supports the argument that enhancing forensic accounting skills can serve as both a deterrent and a tool for uncovering fraud, thereby improving public sector financial governance.

4. METHODOLOGY

The study adopted a quantitative survey design. Primary data were gathered via structured questionnaires from auditors, accountants, and finance officers in Jigawa, Kano, and Kaduna states. The sample was drawn using stratified random sampling. Analytical techniques included descriptive statistics, correlation analysis, and multiple regression using Stata 13. Diagnostic tests such as the Shapiro-Wilk normality test and multicollinearity assessment were conducted to validate results.

Accordingly, the study proposes the following model specifications:

$$FM_i = \alpha_0 + \beta_1 CS_i + \beta_2 TC_i + \beta_3 AAS_i + \beta_4 AS_i + \varepsilon_i$$

Where FM = Fraud management
CS = Communication skills
TC = Technology skills
AAS = Accounting and Auditing Skills
AS = Auditor's Self-Efficacy

Demographic Profile of Respondents

Biodata		Frequency	Percentage
Gender	Male	271	96.4%
	Female	10	3.6%
Age	18 – 30 years	20	7.2%
	31 – 40 years	85	30.2%
	41 – 50 years	176	62.6%
Educational Qualification	Diploma	39	13.9%
	Bachelor's Degree	242	86.1%
Job Role	Forensic Accountants	10	3.6%
	Finance Officers	232	82.6%
	Auditors	39	13.9%
Years of Experience	Less than 5 years	39	13.9%
	5 – 10 years	37	13.2%
	11 – 15 years	185	65.8%
	16 – 20 years	20	7.1%

5. RESULTS AND DISCUSSION

Findings indicate that communication skills, technological skills, and accounting and auditing skills have a significant positive impact on fraud management. Auditor self-efficacy, while positively correlated, showed an insignificant effect statistically. These results highlight the importance of combining technical know-how with interpersonal and analytical abilities for robust fraud mitigation. The insignificant result of self-efficacy suggests

a need for further training and confidence-building among public sector auditors.

Normality Test

The study conducts Normality test using the Shapiro-Wilk test, the results of which are presented as follows:

Table 1

Normality Test

Variable	z	Prob
FM	7.363	0.000
CS	2.661	0.004
TC	3.012	0.001
AAS	3.295	0.000
AS	3.272	0.001

The normality test for all variables was conducted using the Shapiro-Wilk test, which evaluates whether the data distribution deviates significantly from normality. The results indicate that all the variables in this study have probabilities that are significant at the 5% level, suggesting non-normality in the dataset. While normality is often a desirable assumption for certain statistical techniques, the non-normality of the data does not invalidate the regression results in this study, as regression analysis, particularly when using large samples, is robust to deviations from normality.

Non-normality is less critical in regression analysis due to the central limit theorem, which states that the sampling distribution of the regression coefficients approaches normality as the sample size increases, even if the data itself is not normally distributed.

This principle has been well-documented in statistical literature, such as in the work of Lumley et al. (2002), who demonstrated that regression estimates remain consistent and unbiased under non-normal data when using large samples. Furthermore, modern statistical software like Stata employs robust standard errors and diagnostic tests to account for potential issues arising from non-normality, ensuring the reliability of the results.

Additionally, studies like Gujarati and Porter (2009) have emphasized that non-normality in independent variables does not affect the validity of regression models unless it results in severe outliers or multicollinearity. Given that this study conducted diagnostic tests to confirm minimal multicollinearity and addressed heteroscedasticity, the results are statistically sound. The use of Shapiro-Wilk provides transparency in testing data assumptions, and while the data are non-normal, the regression analysis remains robust and interpretable, allowing the findings to contribute meaningfully to the understanding of fraud management in the public sector.

Descriptive Analysis of the Variables

In addition, Table 2 provides information about the descriptive analysis of the study variables. This enables a better understanding of the basic characteristics of the responses and the pattern of information about fraud management and forensic accounting skills.

Table 2

Descriptive Analysis of the Variables

Variable	Mean	Standard Dev.	Minimum	Maximum	Skewness	Kurtosis
FM	2.299	0.873	1	5	1.492	5.511
CS	3.018	1.223	1	5	0.036	1.820
TC	2.861	1.218	1	5	0.255	1.914
AAS	3.025	1.361	1	5	0.151	1.669
AS	3.562	1.284	1	5	-0.342	1.751

The descriptive statistics for the study variables, including the mean, standard deviation, minimum, maximum, skewness, and kurtosis. These metrics provide insights into the central tendencies, variability, and distributional properties of the data, which are essential for understanding the characteristics of the variables used in the study.

The mean value of fraud management (FM), the dependent variable, is 2.299, with a standard deviation of 0.873. This indicates that the average level of fraud management practices reported by respondents is relatively low, given the scale's range of 1 to 5. The standard deviation suggests moderate variability in responses, reflecting some differences in the effectiveness of fraud management across the surveyed ministries. The skewness value of 1.492 and kurtosis value of 5.511 indicate that the distribution of FM is positively skewed and leptokurtic. This suggests that a larger proportion of respondents reported lower levels of fraud management, and the data has more extreme values than a normal distribution.

Communication skills (CS) have a mean value of 3.018, indicating that respondents generally rate their communication skills as moderate to high. The standard deviation of 1.223 shows considerable variability, suggesting that there are both strong and weak communicators within the sample. With a skewness value of 0.036, the data is approximately symmetric, implying that the distribution is not heavily biased toward high or low values. The kurtosis value of 1.820 suggests that the distribution is platykurtic, with fewer extreme values compared to a normal distribution.

The mean value of technological skills (TC) is 2.861, indicating that respondents rate their technological proficiency as slightly below average. The standard deviation of 1.218 reflects moderate variability in technological skill levels among respondents. The skewness of 0.255 indicates a slight positive skew, suggesting that slightly more respondents rated their technological skills lower than the mean. The kurtosis value of 1.914, similar to communication skills, indicates a relatively flat distribution with fewer extreme values.

Accounting and auditing skills (AAS) have a mean value of 3.025, the second-highest among the variables. This suggests that respondents rate their accounting and auditing skills as moderate to high, which aligns with their roles in financial management and fraud detection. The standard deviation of 1.361 indicates the highest variability among all the variables, suggesting significant differences in skill levels among respondents. The skewness of 0.151 shows a slight positive skew, while the kurtosis of 1.669 indicates a flatter-than-normal distribution.

Auditor's self-efficacy (AS) has the highest mean value at 3.562, indicating that respondents generally feel confident in their ability to perform tasks related to fraud management. The standard deviation of 1.284 reflects moderate variability in self-efficacy levels. Interestingly, this variable has a negative skewness value of -0.342, indicating that a greater proportion of respondents rated their self-efficacy above the mean. The kurtosis value of 1.751 suggests a distribution with fewer extreme values.
The descriptive analysis reveals several key patterns. Auditor's self-efficacy (AS) is rated the highest among the variables, suggesting that confidence in task performance is a strength among the respondents. Fraud management (FM) has the lowest mean, highlighting potential gaps in the effectiveness of fraud management practices. Variability in responses is moderate for most variables, with accounting and auditing skills showing the greatest spread. The skewness and kurtosis metrics generally indicate non-normal distributions, with some variables displaying slight positive or negative skews and flatter distributions. These findings provide a nuanced understanding of the variables and set the stage for further statistical analyses to explore their relationships

Correlation Analysis

The correlation analysis tests the relationship between the forensic accounting skills and fraud management. It is also relevant in testing the associations among the pairs of independent variables. The result is presented in Table 3 below.

Table 3

Correlation Analysis

Variable	FM	CS	TP	AAS	AS
FM	1.000				
CS	0.345	1.000			
TC	0.340	-0.058	1.000		
AAS	0.335	0.116	0.123	1.000	
AS	0.157	-0.045	0.183	0.096	1.000

The correlational analysis presented in Table 4.4 provides valuable insights into the relationships between the dependent variable, Fraud Management (FM), and the independent variables—Communication Skills (CS), Technological Skills (TP), Accounting and Auditing Skills (AAS), and Auditor's Self-Efficacy (AS). The correlation coefficients reveal the strength and direction of these relationships, helping to understand how each independent variable contributes to effective fraud management in the public sector.

The correlation between Fraud Management (FM) and Communication Skills (CS) is 0.345, indicating a moderate positive relationship. This result suggests that improved communication skills among public sector employees significantly enhance their ability to manage fraud. Effective communication facilitates collaboration, clear reporting, and the dissemination of critical information, which are vital for fraud detection and prevention. The importance of this finding cannot be overstated, as poor communication could hinder the ability of teams to identify and respond to fraudulent activities efficiently.

Similarly, the correlation between FM and Technological Skills (TC) is 0.340, also reflecting a moderate positive relationship. This underscores the critical role of technology in fraud management. With the increasing sophistication of fraud schemes, technological proficiency allows employees to leverage tools such as data analytics, forensic accounting software, and automated monitoring systems to detect anomalies and prevent fraudulent activities. The strong relationship between technological skills and fraud management highlights the need for continuous training and investment in technological resources to strengthen fraud control mechanisms.

The correlation between FM and Accounting and Auditing Skills (AAS) is 0.335, showing another moderate positive relationship. This finding aligns with the critical role of accounting and auditing expertise in ensuring financial accuracy, compliance, and the implementation of internal controls. Professionals with strong accounting and auditing skills are better equipped to identify irregularities and inconsistencies in financial records, making them essential for effective fraud management. This result emphasizes the importance of fostering these technical skills among public sector employees, particularly those working in finance ministries.

On the other hand, the relationship between FM and Auditor's Self-Efficacy (AS) is weaker, with a correlation coefficient of 0.157. While the positive relationship indicates that higher self-efficacy among auditors contributes to improved fraud management, its weaker strength suggests that self-confidence alone may not be sufficient to address fraud-related challenges. Nevertheless, this finding highlights the importance of boosting auditors' confidence through training, mentoring, and exposure to practical fraud management scenarios to enhance their overall effectiveness.

The relationships among the independent variables are generally weak, with correlation coefficients ranging from -0.058 to 0.183. These low correlations suggest minimal multicollinearity among the predictors, which is advantageous for regression analysis. For example, the negligible negative relationship between CS and TC (-0.058) indicates that these variables operate independently of each other, while the weak positive relationship between TC and AS (0.183) suggests slight overlaps in their contributions to fraud management. This lack of strong interdependence ensures that each variable provides unique insights into fraud management, enhancing the robustness of the regression model.

The correlational analysis reveals that all independent variables have positive relationships with fraud management, with communication skills (CS) showing the strongest correlation. These findings reinforce the theoretical expectations that effective communication, technological proficiency, accounting and auditing skills, and self-efficacy are critical for combating fraud in public finance. Additionally, the weak correlations among independent variables confirm their independence, making them suitable for inclusion in subsequent regression analyses to explore causal relationships.

Regression Analysis

Variable	Coefficient	Standard Error	T- Value	Probability
Constant	0.227	0.236	0.96	0.338
CS	0.241	0.039	6.20	0.000
TC	0.224	0.041	5.43	0.000
AAS	0.159	0.033	4,85	0.000
AS	0.062	0.036	1.74	0.083
R-Squared		0.320		
F		19.16		
Probability		0.000		

The regression analysis in Table 4.5 evaluates the effect of communication skills, technological skills, accounting and auditing skills, and auditor's self-efficacy on fraud management in finance ministries in Northwestern Nigeria. The model's R-squared value is 0.320, indicating that the independent variables collectively explain 32.0% of the variation in fraud management. While this suggests that other factors not included in the model also influence fraud management, the value reflects a reasonable level of explanatory power in social science research. The F-statistic of 19.16, with a p-value of 0.000, confirms that the model is statistically significant. This indicates that the independent variables, when taken together, have a meaningful impact on fraud management practices.

Communication skills show a positive and statistically significant effect on fraud management, with a coefficient of 0.241 and a p-value of 0.000. This means that an improvement in communication skills leads to a corresponding increase in fraud management effectiveness. The importance of this result lies in the role of communication in ensuring accurate reporting, promoting teamwork, and facilitating the timely exchange of information critical to fraud prevention. Finance ministries can benefit from training programs focused on enhancing communication capabilities to bolster fraud detection and mitigation efforts.

Technological skills also exhibit a positive and significant relationship with fraud management, with a coefficient of 0.224 and a p-value of 0.000. This finding underscores the critical role of technology in combating fraud. By leveraging technological tools such as forensic accounting software, data analytics platforms, and automated systems, employees can detect irregularities and prevent fraudulent activities more effectively. This result highlights the importance of continuous investment in technological infrastructure and training for finance ministry personnel to strengthen fraud management practices.

Accounting and auditing skills contribute positively and significantly to fraud management, with a coefficient of 0.159 and a p-value of 0.000. This result aligns with the technical nature of fraud detection, which relies heavily on strong accounting and auditing expertise. Professionals equipped with these skills are better positioned to identify financial discrepancies, ensure compliance with regulatory standards, and implement robust internal controls. Enhancing these competencies among public sector employees can significantly improve the overall integrity of financial operations.

Auditor's self-efficacy has a weaker positive relationship with fraud management, with a coefficient of 0.062 and a p-value of 0.083. While the relationship is not statistically significant at the conventional 5% level, the positive coefficient suggests that higher self-efficacy may still contribute to better fraud management outcomes. This finding highlights the potential value of boosting confidence among auditors through training and mentoring programs, enabling them to approach fraud-related challenges with greater assurance and effectiveness.

The regression results indicate that communication skills, technological skills, and accounting and auditing skills have significant positive effects on fraud management, with communication skills having the strongest impact. Although auditor's self-efficacy shows a weaker and statistically insignificant effect, it may still play a supporting role. Collectively, these findings emphasize the importance of skill development and capacity building in strengthening fraud management in the public sector. The overall model is robust and statistically significant, providing valuable insights into the factors that influence effective fraud prevention and control.

6. CONCLUSIONS AND RECOMMENDATIONS

The study concludes that forensic accounting skills substantially enhance fraud management effectiveness in finance ministries. Communication, technology, and accounting skills are crucial, while self-efficacy needs reinforcement.

Recommendations:

The following recommendations are directed primarily **to government policymakers, finance ministry leadership, public sector audit departments, and regulatory authorities** such as the **Office of the Auditor-General, State Ministries of Finance**, and possibly the **EFCC/ICPC.** These entities are responsible for implementing capacity development, acquiring tools, promoting best practices, and institutionalizing forensic approaches in public financial management.

i. First, implement regular training programs focused on communication and technological tools.
ii. Second, equip ministries with advanced forensic audit software.
iii. Third, introduce mentoring systems to enhance auditor confidence.
iv. Fourth, Encourage integration of forensic practices into public sector auditing frameworks.

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