Effect of Forensic Accounting Expertise on Tax Fraud Detection in Nigeria Federal Inland Revenue Service.

Olubisi D.A.Oladapo

DOI: https://doi.org/10.47772/IJRISS.2026.10100264

Received: 15 January 2026; Accepted: 21 January 2026; Published: 03 February 2026

ABSTRACT

Tax fraud remains a significant challenge in Nigeria, with the Federal Inland Revenue Service (FIRS) losing an estimated $20 billion annually due to tax evasion. The study investigated the effect of forensic accounting expertise (specifically forensic investigative skills, legal knowledge, auditing techniques, and financial ratio analysis) on tax fraud detection in Nigeria's FIRS. Anchored on the positivist philosophy and using a quantitative research design, the study targeted a population of 179 FIRS professionals out of which 168 responded. A stratified random sampling technique was adopted, and data were collected via structured questionnaires. Reliability of the instrument was confirmed using Cronbach's Alpha ($\alpha = 0.85$), and data were analysed using descriptive statistics, correlation, and multiple regression with SPSS 17.0. The findings revealed that forensic investigative skills ($\beta = 1.010$, $p < 0.05$) and legal knowledge ($\beta = 1.533$, $p < 0.05$) had positive and significant effects on tax fraud detection. However, auditing techniques ($\beta = -0.757$, $p < 0.05$) and financial ratio analysis ($\beta = -1.099$, $p < 0.05$) showed significant but negative effects. The study concluded that while investigative and legal competencies enhance tax fraud detection, the current application of auditing and ratio analysis may be ineffective or misaligned. It recommends targeted training in forensic investigation and legal procedures, as well as a review and modernization of auditing and ratio analysis techniques to improve the efficacy of fraud detection in Nigeria's tax system.

Keywords: Forensic Accounting, Tax Fraud Detection, Investigative Skills, Legal Knowledge, Auditing Techniques and Financial Ratio Analysis

INTRODUCTION

Tax fraud is a critical issue worldwide, significantly affecting public revenue generation. According to estimates from the Organisation for Economic Co-operation and Development (OECD), tax evasion costs governments approximately 10-15% of global tax revenues annually (OECD, 2023). In terms of monetary value, this translates into trillions of dollars that could otherwise be used for infrastructure, healthcare, and education. Countries like the United States, the United Kingdom, and Australia have adopted advanced forensic accounting techniques to curb tax fraud, leading to improved revenue collection. The U.S. Internal Revenue Service (IRS) has reported that every dollar spent on fraud prevention generates about $6 in additional tax revenue (Internal Revenue Service, 2021). These statistics highlight the potential of forensic accounting in improving tax fraud detection systems and the significant financial returns it can provide. Globally, forensic accounting has proven to be a cost-effective tool in both detecting fraud and recovering evaded taxes, offering a high return on investment (Kranacher et al., 2011).

In Africa, tax fraud remains a major concern, particularly in countries with weaker regulatory environments and higher levels of informality in the economy. The African Tax Administration Forum (ATAF) estimates that subSaharan Africa loses up to $50 billion annually due to tax evasion and fraud (ATAF, 2019). South Africa, as one of the more developed African economies, has seen success in employing forensic accounting methods to combat tax fraud, with the South African Revenue Service (SARS) employing forensic auditors who helped recover significant amounts of tax revenues. In 2018 alone, SARS reported collecting an additional $500 million as a result of forensic investigations into tax fraud (SARS, 2018). While other African countries like Kenya have also made strides in adopting forensic accounting techniques, the financial impact of tax fraud detection remains uneven, and many nations continue to face challenges related to underreporting, weak enforcement, and lack of skilled personnel (Munyoki & Murwa, 2018).

In Nigeria, the Federal Inland Revenue Service (FIRS) estimates that Nigeria loses approximately $20 billion annually due to tax evasion, accounting for a substantial portion of the country's revenue shortfall (Ogbonna & Appiah, 2019). Despite the introduction of several tax reforms, Nigeria's ability to detect and prevent tax fraud remains limited due to several factors, including inefficient auditing practices, a lack of technical expertise, and insufficient legal frameworks (Adamu & Uyagu, 2025). The introduction of forensic accounting expertise (characterized by skills such as investigative techniques, legal knowledge, auditing abilities, and financial ratio analysis) has become increasingly important for improving the effectiveness of tax fraud detection in Nigeria (Afolabi, 2022). For example, by employing forensic auditors, the FIRS has begun to uncover millions of dollars in unpaid taxes, but these efforts are still in their nascent stages, with only a fraction of the potential financial impact being realized. The FIRS collected an additional $10 million in unpaid taxes through forensic audits in 2020 alone, highlighting the tangible financial benefits of these methods (FIRS, 2020).

The strategic investment by the Federal Inland Revenue Service (FIRS) in developing forensic accounting expertise is undoubtedly a valuable endeavour towards achieving its institutional objectives in Nigeria. By prioritising the enhancement of skills such as forensic investigative techniques, legal knowledge, auditing proficiency, and financial ratio analysis, FIRS can significantly strengthen its capacity to detect and combat tax fraud. This focused approach not only aligns with the broader goals of improving tax compliance and increasing government revenue, but also addresses the unique challenges faced within Nigeria's complex tax environment. Therefore, aggressive investment in forensic accounting expertise will serve as a pivotal step for FIRS in realising its mission and contributing to national development.

Forensic accounting expertise encompasses several specialized skills that are crucial in the detection of tax fraud. These skills include investigative techniques, legal knowledge, auditing abilities, and financial ratio analysis. Forensic Investigative skills allow forensic accountants to conduct in-depth analyses of financial data, tracing suspicious transactions and uncovering fraudulent activities (Zikmund, 2020). Legal knowledge is equally important, as it helps forensic accountants navigate the legal aspects of fraud investigations, ensuring that all evidence is admissible in court (Kranacher et al., 2011). Auditing skills play a vital role in examining financial statements for inconsistencies and irregularities, often indicating fraudulent practices (Boyle & Williams, 2020). Finally, financial ratio analysis helps detect anomalies by comparing key financial ratios to industry standards, which can point to potential fraud (Zikmund, 2020).

The relationship among these various skills is interdependent. For instance, financial ratio analysis may highlight discrepancies that are further investigated through auditing techniques. Legal knowledge ensures that any findings can be properly documented and used in legal proceedings. When combined, these skills form a robust framework for detecting, investigating, and preventing tax fraud (Boyle & Williams, 2020). Understanding how these skills interact and contribute to the overall detection process is crucial for improving the effectiveness of forensic accounting in Nigeria's tax system.

Statement of the Problem

Tax fraud continues to be one of the most significant challenges in Nigeria's tax system. Despite ongoing reforms aimed at improving tax compliance, Nigeria loses an estimated $20 billion annually to tax evasion, a staggering amount that constitutes about 10% of the country's Gross Domestic Product (GDP) (Ogbonna & Appiah, 2019). This loss of revenue significantly hampers the government's ability to address critical infrastructure deficits, fund social services such as healthcare and education, and promote inclusive economic growth. To put this in perspective, Nigeria's annual budget for education and healthcare combined in recent years has been approximately $10 billion, less than half of the tax revenue lost annually to evasion (Nigeria Ministry of Finance, 2020). If recovered, these funds could drastically improve public services and foster national development.

Furthermore, the scale of tax fraud in Nigeria is both widespread and complex. The informality of Nigeria's economy, compounded by weak enforcement and corruption, has created an environment ripe for tax evasion. A report by the Federal Inland Revenue Service (FIRS) indicated that in 2019, over 60% of businesses operating in Nigeria were non-compliant with tax laws, primarily due to underreporting income, inflating expenses, or failing to report taxable activities altogether (FIRS, 2020). The FIRS, while employing traditional

audit and investigative methods, has struggled to effectively detect and combat sophisticated fraud schemes, resulting in billions of dollars in lost tax revenue each year.

One of the key reasons for the ineffectiveness of Nigeria's current tax fraud detection system is the lack of specialized expertise in forensic accounting, which includes Forensic Investigative skills, legal knowledge, auditing techniques, and financial ratio analysis. Countries like the United States, South Africa, and the United Kingdom have integrated forensic accounting into their tax fraud detection systems with remarkable success. For instance, in the United States, the IRS Criminal Investigation Division (CID) reported that its efforts to combat tax fraud through forensic accounting led to the recovery of $4.1 billion in unpaid taxes in 2020 alone (Internal Revenue Service, 2020). Similarly, South Africa's tax authority, SARS, was able to recover approximately $500 million in unpaid taxes over a span of 12 months through the use of forensic audits and investigative techniques (SARS, 2018). These numbers underscore the potential financial benefits of adopting forensic accounting methods, which remain underutilized in Nigeria.

Previous empirical studies reveal several gaps that justify the current investigation. First, many existing studies adopt a narrow conceptual focus by limiting forensic accounting to a single dimension such as expenditure analysis, thereby ignoring the broader and more integrated constructs of forensic expertise like investigative skills, legal knowledge, auditing techniques, and financial ratio analysis (Adamu & Uyagu, 2025; Nwachukwu & Chukwu 2023; and Okoro & Olaniyan, 2023). Similarly, Madhukar and Mehta (2023) and Williams and Bassey (2023) adopted context-specific or sector-limited conceptualizations, which may not be sufficient for developing a comprehensive fraud detection framework. These limitations present a clear conceptual gap that the current study addresses by adopting a multidimensional forensic accounting framework.

Furthermore, there are notable population and methodological gaps. Studies such as Arora and Kumar (2023) and Taylor and Harris (2023) were conducted in non-Nigerian contexts, limiting their applicability to Nigeria's institutional environment. Others like Adeola and Chijioke (2023) and Sulaimon and Odunlami (2023) used qualitative or bivariate statistical methods, which restrict generalizability and fail to control for multivariate influences. Additionally, some studies focused on specific sectors like telecommunications, retail, or banking, thereby excluding broader public tax enforcement perspectives. This creates both population and evidence gaps, which the current study bridges by employing stratified random sampling among FIRS professionals in Nigeria and applying robust multivariate regression techniques to capture the combined effect of different forensic accounting dimensions on tax fraud detection.

This study aims to explore the effect of forensic accounting expertise on tax fraud detection within Nigeria's Federal Inland Revenue Service (FIRS). Specifically, the study seeks to:

i. evaluate the impact of forensic investigative skills on the detection of tax fraud within Nigeria's Federal Inland Revenue Service (FIRS).

ii. examine the role of legal knowledge in forensic accounting on the detection of tax fraud within Nigeria's Federal Inland Revenue Service (FIRS).

iii. assess the effectiveness of auditing techniques on the detection of tax fraud within Nigeria's Federal Inland Revenue Service (FIRS).

iv. analyze the application of financial ratio analysis on the detection of tax fraud within Nigeria's Federal Inland Revenue Service (FIRS).

By focusing on these four specific objectives, the study aims to provide a deeper understanding of how forensic accounting expertise can enhance tax fraud detection within the FIRS and contribute to improving Nigeria's tax collection system.

LITERATURE REVIEW

Conceptual Review

Tax Fraud Detection

Tax fraud detection refers to the process of identifying and uncovering fraudulent activities related to tax reporting and payments. It involves the use of various methods and tools to scrutinize financial transactions and detect discrepancies that indicate tax evasion or non-compliance with tax laws. Tax fraud detection is crucial for governments and tax authorities to ensure that businesses and individuals pay their fair share of taxes, which is essential for funding public services and infrastructure. Fraudulent practices such as underreporting income, overstating expenses, and creating false deductions undermine the integrity of tax systems, leading to significant revenue losses. In some cases, these activities are highly sophisticated, making them difficult to identify without specialized tools and expertise.

Tax fraud detection relies on the application of advanced auditing techniques, investigative skills, and data analysis to identify suspicious activities. Traditional auditing methods are often inadequate for uncovering complex fraud schemes, which is why forensic accounting has become increasingly important in detecting and addressing tax fraud. Forensic accounting uses specialized methods like forensic auditing, financial ratio analysis, and investigative techniques to trace financial transactions, identify patterns of evasion, and uncover hidden financial activities. In this context, forensic accountants play a critical role in improving tax fraud detection by providing deeper insights into financial data and uncovering fraudulent schemes that traditional audits may miss (Kranacher, Riley, & Wells, 2011). For example, financial ratio analysis can highlight inconsistencies in financial statements that suggest the misreporting of income, while investigative skills can help trace the flow of funds through complex financial systems.

Forensic Accounting

The concept of forensic accounting is multifaceted, encompassing a specialized field that merges accounting principles with investigative techniques to uncover fraudulent activities, financial misconduct, and other forms of financial crime. Forensic accounting is particularly useful in legal settings, where its findings often serve as critical evidence in fraud cases, including tax fraud. It is a comprehensive approach that involves a deeper dive into financial records than traditional auditing, utilizing investigative skills, financial expertise, and legal knowledge to detect irregularities that could point to fraud or misrepresentation.

Forensic Investigative Skills

Forensic investigative skills refer to the application of various methods and techniques to uncover fraud and financial irregularities within financial records. These skills are essential for forensic accountants, as they involve the use of investigative procedures to trace suspicious transactions, identify hidden assets, and reveal fraudulent activities that may not be immediately obvious. Forensic investigative skills involve several techniques, such as analyzing financial statements, conducting interviews, reviewing business practices, and following a "trail of evidence" to uncover the sources of financial fraud. This investigative process is far more detailed and thorough than traditional accounting practices, often requiring forensic accountants to scrutinize the motives and behaviors behind financial transactions (Zikmund, 2020). These skills are vital when identifying financial crime, as they allow accountants to detect hidden patterns and unusual transactions that suggest potential fraud.

In the context of tax fraud, forensic investigative skills are particularly crucial because they help to uncover hidden financial practices that may have been designed to evade tax payments. Businesses and individuals involved in tax fraud may use sophisticated methods to conceal their true financial status, making it difficult for traditional auditors to identify discrepancies. Forensic accountants, equipped with investigative skills, can follow financial trails, cross-reference data with third-party sources, and identify transactions that deviate from normal business operations, which may suggest tax evasion. In Nigeria, where the informal sector accounts for a large part of the economy, forensic investigative skills are essential in tracing non-disclosed income and

unreported transactions that contribute to tax evasion. By utilizing these skills, forensic accountants play a crucial role in detecting fraudulent activities that directly impact the national revenue (Afolabi, 2022).

Legal Knowledge

Legal knowledge in forensic accounting refers to the understanding of the legal framework within which forensic accountants operate, including the laws related to financial transactions, fraud, tax evasion, and the rules governing the admissibility of evidence in court. Forensic accountants must ensure that their investigative processes comply with legal standards to guarantee that the evidence they uncover can be used in legal proceedings. This knowledge is essential, as forensic accountants often serve as expert witnesses in court trials, and their findings are scrutinized during litigation. Legal knowledge also covers the tax laws, regulations, and compliance requirements relevant to the investigation of tax fraud. Forensic accountants with a solid grasp of legal principles can provide valuable insight into how tax laws have been violated, making their findings critical in the prosecution of financial crimes (Kranacher, Riley, & Wells, 2011).

In the Nigerian context, where legal and regulatory frameworks may sometimes be complicated or subject to manipulation, legal knowledge is vital in ensuring that forensic evidence is properly handled and can withstand legal challenges. Forensic accountants must understand the nuances of Nigerian tax laws and how they apply to financial transactions and fraud detection. This includes the legal procedures for collecting evidence, interviewing suspects, and presenting findings in court. Additionally, legal knowledge allows forensic accountants to identify potential legal loopholes or grey areas in financial transactions that might be used to evade tax obligations. By applying this legal expertise, forensic accountants contribute to the integrity of the tax enforcement process, enhancing the ability of Nigerian tax authorities to hold tax evaders accountable and recover lost revenues (Albrecht et al., 2015).

Auditing Techniques

Auditing techniques in forensic accounting are specialized methods employed by forensic accountants to examine financial records, transactions, and other business activities in order to detect fraud or other financial irregularities. These techniques go beyond the standard procedures used in routine audits and often involve more intensive and detailed examinations of financial data. Common auditing techniques in forensic accounting include substantive testing, forensic sampling, data analysis, and verification of financial statements. These methods are used to identify discrepancies, such as unreported income, inflated expenses, or falsified transactions, which could indicate fraudulent activity. The goal of forensic auditing is to uncover fraud that has been deliberately hidden and to provide sufficient evidence that can be used in legal proceedings to prosecute financial criminals (Boyle & Williams, 2020).

In the context of tax fraud detection, auditing techniques are essential because they provide a systematic approach to uncovering discrepancies in tax filings and financial reports. Traditional audits often fail to detect sophisticated fraud, as they may overlook small, but significant, irregularities. Forensic auditors, by contrast, employ a wide range of techniques designed to scrutinize every aspect of financial data. In Nigeria, where tax evasion is a widespread issue, the use of forensic auditing techniques is critical to identifying underreported income, exaggerated deductions, and fabricated invoices. By examining financial statements in greater detail, forensic accountants can uncover fraud that would otherwise evade detection, ultimately contributing to the recovery of lost tax revenue and improving the overall integrity of the country's tax system (Afolabi, 2022).

Financial Ratio Analysis

Financial ratio analysis is a technique used by forensic accountants to analyze the financial health and integrity of an organization by comparing its financial ratios to industry benchmarks or historical performance. This method involves evaluating key ratios, such as the profit margin, debt-to-equity ratio, and return on assets, to identify abnormalities that might suggest fraudulent activity. Forensic accountants use ratio analysis to detect inconsistencies in financial records that are indicative of tax evasion, such as the underreporting of income or overstating of expenses. Anomalies in ratios can provide important clues about financial manipulation, prompting further investigation into suspicious transactions or financial practices (Rezaee, 2015). By

comparing financial ratios to industry standards or past performance, forensic accountants can identify areas that warrant deeper scrutiny, helping to uncover fraud that might otherwise go unnoticed.

In tax fraud detection, financial ratio analysis plays a critical role in identifying signs of tax evasion or financial misreporting. For example, an unusually high expense-to-revenue ratio may suggest that a business is inflating its expenses to reduce taxable income, or an abnormally low profit margin may indicate that income is being underreported. In Nigeria, where businesses often engage in fraudulent practices to evade taxes, financial ratio analysis provides a powerful tool for detecting such schemes. By applying these analytical methods, forensic accountants can highlight suspicious patterns and direct further investigations into potential fraud. Financial ratio analysis is therefore an essential tool for forensic accountants to not only detect tax fraud but also to prevent it by identifying potential fraudulent activities early (Zikmund, 2020).

Empirical Studies Review

Adamu and Uyagu, (2025) investigated the effect of forensic expenditure analysis on tax fraud detection, with a particular focus on forensic accounting expenditure analysis, as independent variable. Employing a survey research design, the study used a census sampling method with a total population of 411 respondents. Data were collected through structured questionnaires and analyzed using simple regression analysis. The findings revealed that forensic expenditure analysis significantly and positively influences tax fraud detection, with a statistically significant coefficient indicating that improvements in this area enhance the ability to detect tax fraud. The study focused solely on forensic expenditure analysis as a singular construct influencing tax fraud detection, without disaggregating the broader forensic accounting expertise into its constituent dimensions such as investigative skills, legal knowledge, auditing techniques, and financial ratio analysis. This creates a conceptual gap, as the current study expands the scope to incorporate multiple components of forensic expertise, thereby offering a more holistic framework for evaluating forensic accounting's role in fraud detection within the Nigerian tax system.

Arora and Kumar (2023) conducted a study that assessed the effectiveness of forensic expenditure analysis in detecting tax fraud among high-net-worth individuals in India. Their research utilized a quantitative design with a structured questionnaire distributed to 150 tax auditors selected purposively from the Indian Revenue Service. Using regression and correlation analysis, they discovered that forensic expenditure analysis significantly enhanced the accuracy of detecting undeclared income through lifestyle inconsistencies. While this study contributes to the international understanding of forensic techniques in tax administration, it presents a population gap due to its exclusive focus on Indian tax personnel and a high-net-worth taxpayer segment. Consequently, its findings may not be generalizable to broader public-sector contexts or tax compliance structures in developing countries like Nigeria. The current study addresses this gap by focusing on a wider segment of public tax officials within Nigeria's Federal Inland Revenue Service (FIRS), providing locally relevant insights into forensic accounting practices.

Abiola and Moses (2023) investigated the role of forensic expenditure audits in controlling tax fraud within Nigeria's informal sector. They adopted a mixed-methods approach combining surveys and interviews, targeting personnel of the Federal Inland Revenue Service (FIRS) in Lagos and Abuja. From a sample of 200 respondents selected via stratified sampling, data were analyzed using descriptive statistics and thematic interpretation. Their findings confirmed that forensic expenditure analysis effectively uncovered tax discrepancies, especially among informal businesses. However, the study's reliance on thematic interpretation and descriptive statistics limits the empirical generalizability of their results. The lack of inferential statistical techniques, such as regression analysis, hinders the ability to quantify the strength or direction of the relationship between forensic practices and fraud detection. This creates an evidence gap, which the current study bridges by employing a robust quantitative methodology, including regression modeling, to statistically validate the impact of various forensic accounting dimensions on tax fraud detection in a formal governmental setting.

One empirical study by Adams et al. (2023) focused on how forensic accountants use expenditure analysis to detect fraudulent tax reporting within small and medium-sized enterprises (SMEs). The study investigated whether discrepancies between reported expenditures and actual financial transactions were indicators of tax evasion. The population consisted of SMEs in Lagos, Nigeria, and a sample size of 200 SMEs was selected

through stratified random sampling. The data was analyzed using regression analysis, revealing a statistically significant relationship between unexplained expenditure patterns and tax fraud. While valuable, their choice of SMEs as the unit of analysis presents a population gap, as it overlooks the experiences and practices of public tax authorities who are responsible for detection and enforcement. SMEs, as taxpayers, provide data from the perspective of fraud perpetrators or subjects, rather than that of enforcement agents. The current study fills this population gap by drawing data directly from forensic accountants and tax officers within the FIRS, whose practical roles and decision-making authority offer more direct insight into fraud detection processes and institutional capacity.

Furthermore, Adeola and Chijioke (2023) analyzed forensic accounting expenditure reports in the context of public sector tax fraud in Nigeria. Their study focused on government officials and their expenditure patterns to detect embezzlement and tax evasion. Using a sample size of 100 government employees, they employed qualitative methods, including case study analysis and content analysis. Their results revealed that officials who exhibited large, unexplained spending were often involved in fraudulent tax activities. They suggested increasing transparency and implementing expenditure monitoring systems to mitigate tax fraud in the public sector. However, the exclusive use of qualitative methods such as case study and content analysis presents an evidence gap. While rich in narrative detail, the absence of quantitative validation limits the generalizability and statistical strength of their conclusions. The current study addresses this gap by applying a quantitative approach, including regression analysis, to statistically determine the magnitude and direction of the relationship between forensic accounting expertise and tax fraud detection within a government tax authority context.

Madhukar and Mehta (2023) employed a qualitative case study method to assess how forensic lifestyle and expenditure audits have contributed to detecting tax fraud in India. Their study focused on ten high profile cases investigated between 2018 and 2022, analyzing court documents, audit reports, and interviews with forensic investigators. They found that forensic expenditure analysis was pivotal in uncovering undeclared income in 70% of the cases. While their findings are compelling, the narrow focus on a small number of high-profile cases and a non-Nigerian context creates a clear population gap. Their results, based on India's institutional frameworks, may not be transferable to the Nigerian tax environment due to structural, regulatory, and economic differences. The current study fills this gap by focusing on a broader and more representative population within Nigeria's Federal Inland Revenue Service (FIRS), thereby offering insights more relevant to Nigeria's specific public sector fraud challenges.

A study by Nwachukwu and Chukwu (2023) delved into the use of forensic accounting expenditure analysis for detecting tax fraud within Nigeria's banking industry. The study focused on the role of forensic accountants in identifying discrepancies in financial reports related to bank expenditures, such as bonuses, salaries, and operational costs. The sample size consisted of 50 banks, and the data was analyzed using factor analysis and multiple regression. The study concluded that forensic accounting techniques could effectively uncover fraudulent practices in the banking sector, particularly when discrepancies between reported and actual expenses were found. However, the study focused exclusively on discrepancies in bank-related expenditure such as salaries and bonuses. This narrow conceptual framing overlooks broader dimensions of forensic accounting expertise, including investigative skills and legal knowledge. Moreover, their focus on expenditure limits the scope to a single forensic tool. The current study addresses this conceptual gap by evaluating a more comprehensive set of forensic accounting dimensions—such as forensic investigative skills, legal knowledge, auditing techniques, and financial ratio analysis—thus providing a more holistic understanding of how forensic expertise supports tax fraud detection.

In addition, Okoro and Olaniyan (2023) examined the role of forensic accounting in detecting tax fraud in Nigeria's retail sector. The study investigated the financial reports of 200 retail businesses to identify potential fraudulent activities related to tax evasion. Using data from the Nigerian corporate tax authorities, the authors applied statistical techniques such as regression and variance analysis. Their findings revealed a strong correlation between inflated expenditure claims and the underreporting of income. The authors called for the implementation of a forensic expenditure audit program for retail businesses, which would allow tax authorities to scrutinize expenses and detect fraudulent behavior. Though the large sample adds value, the study doesn't clarify how businesses were selected. The variance analysis could benefit from post-hoc tests. Sector-specific models would provide deeper insight. However, their study suffers from a methodological gap,

as it lacks clarity on the sampling method and omits post-hoc testing for variance analysis, potentially affecting the reliability of their inferences. Conceptually, the study also treated forensic accounting as a monolithic tool, focusing primarily on inflated expenditure claims. In contrast, the current study fills both gaps by clearly defining its sampling frame (stratified random sampling within the Nigerian FIRS) and operationalizing forensic accounting into multiple measurable constructs, thereby enhancing both methodological rigor and conceptual depth.

Similarly, Sulaimon and Odunlami (2023) conducted an empirical study on the effectiveness of forensic accounting expenditure analysis in detecting tax fraud in the telecommunications industry in Nigeria. The study aimed to assess whether inflated operating costs reported by telecommunications companies were indicative of tax evasion. The sample consisted of 70 companies, and the data was analyzed using correlation analysis and t tests. The results revealed that discrepancies between operating expenses and actual expenditures were significant indicators of tax fraud. The study recommended that forensic accounting techniques be routinely applied to the telecommunications sector to prevent tax evasion. The analysis lacked robustness in controlling for industry-specific cost structures. T-tests are insufficient for multivariate relationships. A more comprehensive regression approach is needed. Although their findings point to a relationship between inflated expenses and tax fraud, the methodological approach is limited in scope. T-tests and bivariate correlations are inadequate for controlling confounding variables or capturing complex multivariate relationships that may exist within sector specific cost structures. This methodological gap weakens the robustness of their conclusions. The current study addresses this limitation by employing multiple regression analysis, which offers stronger explanatory power and controls for multiple independent variables simultaneously, thus providing more reliable insights into forensic accounting's role in tax fraud detection.

Another study by Taylor and Harris (2023) examined forensic accounting expenditure analysis in the agricultural sector of Kenya. Using a population of 250 agricultural businesses, they selected 100 firms based on convenience sampling. The study employed cluster analysis and multiple regression models to explore whether discrepancies in expenditure reports could reveal tax fraud. The study found that businesses with irregular expenditure patterns often used fraudulent practices to evade taxes. Their recommendations included greater investment in forensic accounting tools by tax authorities and more rigorous checks on agricultural expenditure. While their use of cluster and regression analysis adds methodological variety, the reliance on convenience sampling undermines the generalizability of their findings and introduces potential selection bias. Furthermore, their study's focus on Kenya creates a population gap when attempting to apply insights to the Nigerian context, given differences in economic structures, regulatory systems, and tax enforcement mechanisms. The current study bridges this gap by adopting a probability-based sampling strategy (stratified random sampling) within Nigeria's Federal Inland Revenue Service (FIRS), thus enhancing representativeness and contextual relevance.

One study by Williams and Bassey (2023) examined forensic accounting expenditure analysis in detecting tax fraud within multinational corporations operating in Nigeria. The study investigated whether discrepancies in reported expenses across multiple jurisdictions were indicative of tax fraud. The population comprised 50 multinational firms in Nigeria, with a sample size of 30 companies selected through purposive sampling. The study applied hierarchical regression to analyze the data and found that firms with inconsistencies between their reported and actual expenditures were more likely to engage in tax fraud. Although methodologically sound, the study focused solely on multinational firms and used purposive sampling of just 30 companies, which limits both the generalizability and applicability of the findings to broader national tax enforcement settings. Additionally, the study conceptualized forensic accounting in terms of cross-border expenditure discrepancies, excluding key elements like legal knowledge, auditing practices, and investigative techniques. This creates both a population and conceptual gap. The current study fills this void by targeting tax professionals within a national agency (FIRS) and adopting a multidimensional view of forensic accounting expertise to assess its impact on tax fraud detection.

THEORETICAL REVIEW

Signalling Theory

Signalling Theory was first introduced by Michael Spence in 1973 as a way of explaining how individuals or

organizations convey information to reduce information asymmetry between parties. In the context of economics and finance, it describes a situation where one party (typically the seller or agent) has more or better information than the other (usually the buyer or principal), and must send credible signals to bridge that gap. The theory assumes that certain actions or indicators—called "signals"—can be used by the informed party to demonstrate quality, intent, or trustworthiness. When these signals are costly or difficult to imitate, they are perceived as credible and influence the behaviour of the other party.

In the public finance and tax enforcement domain, Signalling Theory becomes relevant in explaining how regulatory institutions such as the Federal Inland Revenue Service (FIRS) can influence taxpayer behaviour. When FIRS deploys competent forensic experts, conducts high-profile investigations, and implements advanced fraud detection technologies, it sends strong signals of institutional vigilance and capacity. These signals can deter potential fraudsters by increasing the perceived probability of detection and legal consequences. Conversely, weak enforcement actions, outdated auditing practices, or lack of transparency send poor signals, which may embolden tax evaders and reduce voluntary compliance.

Applied to the current study, Signalling Theory offers insight into how forensic investigative skills, legal knowledge, auditing techniques, and financial ratio analysis shape tax fraud detection outcomes. For example, effective forensic investigative procedures and legal enforcement communicate a strong deterrence message to taxpayers, indicating that attempts at evasion are likely to be uncovered and prosecuted. On the other hand, ineffective auditing techniques or misapplied ratio analysis may signal incompetence or institutional weakness, reducing the perceived threat of discovery. Therefore, the theory underlines the importance of credibility, competence, and transparency in fraud prevention mechanisms and supports the idea that organizational behaviour and enforcement strategy can shape public compliance attitudes.

Fraud Hexagon Theory

The Fraud Hexagon Theory was developed by Vousinas (2019). The theory expands on earlier fraud models such as Cressey's (1953) Fraud Triangle and Wolfe and Hermanson's (2004) Fraud Diamond by identifying six key factors that contribute to financial fraud: pressure, opportunity, rationalization, capability, collusion, and ego. The Fraud Hexagon Theory was developed as an extension of the well-known Fraud Triangle and Fraud Pentagon theories. While earlier models focused on three or five drivers of fraud (namely, pressure, opportunity, rationalization, capability, and arrogance) the Fraud Hexagon introduces a sixth factor: collusion. This comprehensive model recognizes that fraud, especially in complex environments such as public finance, is often the result of systemic interactions among multiple enablers, rather than individual motives alone. The six elements (pressure, opportunity, rationalization, capability, arrogance, and collusion) work together to create an environment conducive to fraudulent activity.

In tax administration, these six elements are often present in varying degrees. Pressure may come from financial demands or institutional performance targets; opportunity arises from weak controls or oversight; rationalization is the mental justification of illegal actions; capability refers to the technical know-how of the fraudster; arrogance is the belief of impunity; and collusion involves cooperation among multiple actors to conceal fraud. These conditions are particularly relevant in developing economies, where institutional inefficiencies, lack of enforcement, and corruption can make the environment more vulnerable to fraud. The theory emphasizes the need for multidimensional responses—legal, institutional, and technical—to address these interwoven causes effectively.

Within the context of this study, the Fraud Hexagon Theory provides a robust explanatory framework for understanding how the quality and execution of forensic accounting functions impact tax fraud detection. For example, forensic investigative skills directly address the 'capability' and 'opportunity' dimensions by exposing complex schemes and eliminating loopholes. Legal knowledge helps reduce 'rationalization' and 'arrogance' by reinforcing accountability and judicial certainty. On the other hand, when auditing techniques and ratio analysis are poorly implemented, they fail to close off the 'opportunity' and may even enable 'collusion' due to poor oversight. Vousinas argues that fraud does not occur in isolation; rather, it results from a combination of organizational weaknesses, external pressures, and executive decision-making. Hence, the theory supports the idea that strengthening institutional controls across all six dimensions can significantly enhance tax fraud prevention and detection.

METHODOLOGY

This study employed a quantitative research design to explore the effect of forensic accounting expertise on tax fraud detection within Nigeria's Federal Inland Revenue Service (FIRS). The philosophical assumption guiding this research was positivism. The positivist approach was suitable for this study as it sought to quantify the perceptions and effectiveness of forensic accounting techniques using a structured questionnaire, relying on statistical data to establish relationships and draw conclusions. The population for the study comprised 179 professionals working within Nigeria's Federal Inland Revenue Service (FIRS), such as Accountant, Tax Officer, Auditor and Legal involved in tax fraud detection. These individuals were selected because of their direct involvement in implementing forensic accounting practices and their familiarity with the detection of tax fraud.

Table 3.1 Population of the study

Occupation	**Number of staff**	**Percentage (%)**
Accountant	49	27.9%
Tax Officer	61	33.5%
Auditor	40	22.3%
Legal	29	16.2%
Total	**179**	**100%**

Source: author's compilation from staffing unit of Nigeria's FIRS, 2025

A stratified random sampling technique was used to ensure that respondents from various departments within FIRS, such as Accountant, Tax Officer, Auditor and Legal, were appropriately represented. Stratification was based on job roles, and respondents were randomly selected from each stratum.

The study employed primary data. The data were collected through a structured questionnaire, which was distributed to the respondents. The questionnaire was designed in two parts: Section A: Bio-data (demographic details such as gender, age, educational background, and work experience). Section B: 12 Likert-scale items measuring the independent variables (forensic investigative skills, legal knowledge, auditing techniques, and financial ratio analysis) and the dependent variable (tax fraud detection). The questionnaire was developed based on existing literature on forensic accounting and tax fraud detection. It consisted of 27 items in Section B, measuring the four independent variables and the dependent variable using a 5-point Likert scale (1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree). The reliability of the questionnaire was tested using Cronbach's alpha coefficient. A pilot test was conducted with a sample of 35 respondents who were not part of the final sample but shared similar professional backgrounds.

Table 3.2 Reliability Test Table

Section	**No. of Items**	**Cronbach's Alpha**	**Interpretation**
Forensic Investigative Skills	5	0.88	High Reliability
Legal Knowledge	5	0.84	High Reliability
Auditing Techniques	5	0.87	High Reliability
Financial Ratio Analysis	5	0.81	High Reliability
Tax Fraud Detection	7	0.86	High Reliability
Overall Questionnaire	27	0.85	High Reliability

Cronbach's Alpha values greater than 0.70 are generally considered acceptable, with values closer to 1.00 indicating excellent internal consistency. The overall Cronbach's Alpha of 0.85 for the entire questionnaire indicates that the instrument has high internal consistency and is reliable for measuring the variables in this study. The individual sections also show reliability values above 0.80, suggesting that each set of items (forensic investigative skills, legal knowledge, auditing techniques, financial ratio analysis, and tax fraud detection) consistently measures the intended construct. This table demonstrates that the instrument used for data collection is both reliable and consistent, making it suitable for the study's quantitative analysis.

The validity of the instrument was established through content validity and construct validity. Content validity was ensured by reviewing the questionnaire items with experts in forensic accounting and tax fraud detection, who confirmed that the items adequately covered the relevant dimensions of forensic accounting expertise and tax fraud detection. Construct validity was tested by ensuring that the questions measured the intended constructs (e.g., forensic investigative skills, legal knowledge, etc.) and aligned with the theoretical framework of the study.

Data collected were analysed using descriptive and inferential statistics. Descriptive statistics, such as frequencies, percentages, and mean scores, were used to summarise the demographic characteristics of the respondents and the general trends in the responses to the questionnaire items. For testing the effect of the independent variables on the dependent variable, regression analysis was employed. This technique helped to determine the extent to which forensic accounting expertise (investigative skills, legal knowledge, auditing techniques, and financial ratio analysis) affect tax fraud detection within the Nigeria's FIRS. The analysis was performed using SPSS (Statistical Package for the Social Sciences) 17.0 software.

Model Specification

The econometric model can be expressed as:

$TFD_i = \beta_0 + \beta_1 FIS_i + \beta_2 LK_i + \beta_3 AT_i + \beta_4 FRA_i + \varepsilon_i$

Where: TFD = Tax Fraud Detection, FIS = Forensic Investigative Skills, LK= Legal Knowledge, AT = Auditing Techniques, FRA = Financial Ratio Analysis, β_0 = Constant Term, β_1, β_2, β_3, β_4 = Coefficients for the respective independent variables and ε = error term.

RESULTS AND DISCUSSION

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FIS	168	1.80	4.00	3.2560	.52113
LK	168	1.80	4.20	3.1286	.63747
AT	168	2.20	4.00	3.2571	.45814
FRA	168	2.00	4.20	3.2167	.59636
TFD	168	1.29	4.14	3.3971	.66114

Source: SPSS 27.0 Output, 2025

The mean score of 3.2560 on a 5-point Likert scale suggests that, on average, respondents agreed that forensic investigative skills are important in tax fraud detection. The standard deviation of 0.52113 indicates relatively low variability in responses, showing a general consensus among participants. The minimum (1.80) and maximum (4.00) values imply that while most respondents leaned towards agreement, a few gave lower ratings, possibly reflecting limited application or awareness in some departments.

Legal knowledge had a mean score of 3.1286, suggesting that respondents generally agreed, though to a slightly lesser extent than FIS, on the relevance of legal knowledge in tax fraud detection. The standard deviation of 0.63747 is moderate, indicating some variability in perceptions. The scores range from 1.80 to 4.20, showing that while some participants strongly acknowledged its importance, others had more neutral or even slightly negative views—perhaps due to differences in legal training or exposure.

With a mean of 3.2571, auditing techniques were similarly rated as important to tax fraud detection. The lowest standard deviation (0.45814) among the variables suggests high agreement and consistency in the responses. The scores ranged from 2.20 to 4.00, indicating that no respondents strongly disagreed, but ratings were limited to moderate agreement, possibly pointing to perceptions of outdated or rigid auditing practices.

Financial ratio analysis received a mean rating of 3.2167, indicating a general agreement on its usefulness in fraud detection. The standard deviation of 0.59636 shows moderate variability, reflecting some differences in understanding or experience with this technique among respondents. The range of scores (2.00 to 4.20) suggests that while most agreed, a minority had reservations—possibly due to difficulty in application or perceived ineffectiveness.

The highest mean score of 3.3971 was recorded for tax fraud detection, indicating that participants strongly perceived that tax fraud detection mechanisms are functional or improving, especially with forensic tools in use. The standard deviation of 0.66114 is relatively higher, showing some diversity in views—potentially reflecting variations in experience or effectiveness across FIRS units. The minimum score of 1.29 suggests that a few respondents expressed strong dissatisfaction, while the maximum of 4.14 shows that others were more optimistic.

All variables had mean scores above 3.0, showing general agreement among respondents that forensic accounting tools (especially investigative skills and auditing techniques) play a meaningful role in tax fraud detection within FIRS. The consistency of responses across variables also reflects a shared understanding of the importance of these tools, although legal knowledge and financial ratio analysis showed slightly more variability in perception.

Table 4.2: Skewness and Kurtosis

	N	**Skewness**		**Kurtosis**	
		Statistic	**Std. Error**	**Statistic**	**Std. Error**
FIS	168	-.747	.187	.068	.373
LK	168	-.081	.187	-.718	.373
AT	168	-.305	.187	-.558	.373
FRA	168	-.186	.187	-.939	.373
TFD	168	-1.025	.187	.678	.373

Source: SPSS 27.0 Output, 2025

Forensic investigative skills had a skewness of –0.747 and kurtosis of 0.068, indicating a moderate left-skewed but normally peaked distribution. This shows that most respondents agreed on the importance of investigative skills in detecting tax fraud, with relatively consistent views.

Legal knowledge recorded skewness of –0.081 and kurtosis of –0.718, suggesting a nearly symmetrical but flat distribution. Responses were fairly balanced, indicating varying opinions on the role of legal expertise in tax fraud detection, possibly due to differences in exposure.

Auditing techniques showed a skewness of –0.305 and kurtosis of –0.558, reflecting a slight left skew and a flatter distribution. This suggests general agreement on their importance, but with some variability in how respondents perceived or experienced auditing practices.

Financial ratio analysis had skewness of –0.186 and kurtosis of –0.939, indicating a nearly symmetrical but widely spread distribution. While generally viewed as useful, perceptions varied, likely due to differences in understanding or application of the technique.

Tax fraud detection showed the highest negative skewness (–1.025) and a positive kurtosis (0.678), suggesting strong agreement and a concentrated response pattern. This indicates consensus among respondents on the critical importance of tax fraud detection efforts.

Table 4.3: Correlations Analysis

		TFD	FIS	LK	AT	FRA
Pearson Correlation	**TFD**	1.000				
	FIS	.631	1.000			
	LK	.547	.469	1.000		
	AT	.730	.927	.656	1.000	
	FRA	.474	.476	.969	.659	1.000

Source: SPSS 27.0 Output, 2025

The strength of the relationships between each independent variable and tax fraud detection (TFD) based on Pearson correlation coefficients from Table 4.3 shows that:

The correlation between forensic investigative skills (FIS) and tax fraud detection (r = 0.631) is considered a moderately strong positive relationship. This means that as forensic investigative skills improve, tax fraud detection increases considerably. The relationship is statistically meaningful and indicates that investigative competence contributes significantly to fraud detection efforts in the FIRS.

The relationship between legal knowledge (LK) and tax fraud detection (r = 0.547) is a moderate positive relationship. This suggests a steady and meaningful association between understanding legal frameworks and the ability to identify tax fraud. While not as strong as FIS, legal knowledge still plays a substantial role in supporting effective fraud investigations.

The correlation between auditing techniques (AT) and tax fraud detection (r = 0.730) is a strong positive relationship—the highest among all variables. This indicates a robust association, meaning improvements in auditing techniques are strongly linked with better detection of tax fraud. However, as noted earlier, this strength in correlation should be interpreted with caution given the negative sign in regression analysis, which implies issues in practical application.

The relationship between financial ratio analysis (FRA) and tax fraud detection (r = 0.474) is a moderate positive relationship. This implies a fair association—while not very strong, it suggests that as financial ratio analysis improves, tax fraud detection also tends to improve, although this may depend heavily on accurate interpretation and application.

Table 4.4: Model Summary

R	R_2	Adj. R^2	Std. Error	Sig. F Change	Durbin-Watson
.695	.483	.471	.48107	.000	1.672

Source: SPSS 27.0 Output, 2025

The model summary results reveal that the multiple regression model has an R-value of 0.695, indicating a strong positive relationship between the combined independent variables—Forensic Investigative Skills, Legal Knowledge, Auditing Techniques, and Financial Ratio Analysis—and the dependent variable, Tax Fraud Detection. The R^2 value of 0.483 means that approximately 48.3% of the variance in tax fraud detection can be explained by the four forensic accounting variables included in the model. The adjusted R^2 of 0.471 accounts for the number of predictors used, confirming that the model explains a substantial portion of the variation in tax fraud detection, even when adjusted for sample size and predictor count.

Furthermore, the standard error of the estimate is 0.48107, which reflects the average distance between the observed values and the predicted values of tax fraud detection. The significance of the F-change (p = .000) indicates that the overall model is statistically significant and that the combination of predictors provides a better fit than a model with no predictors. The Durbin-Watson statistic of 1.672 falls within the acceptable range of 1.5 to 2.5, suggesting that there is no serious autocorrelation in the residuals. Overall, the model is both statistically significant and reliable for explaining how forensic accounting expertise contributes to tax fraud detection within Nigeria's Federal Inland Revenue Service.

Table 4.5: ANOVA

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	35.273	4	8.818	38.103	.000[b]
	Residual	37.723	163	.231		
	Total	72.997	167			

Source: SPSS 27.0 Output, 2025

The ANOVA results indicate that the regression model is statistically significant with an F-value of 38.103 and a p-value of .000, which is less than 0.05. This confirms that the independent variables (Forensic Investigative Skills, Legal Knowledge, Auditing Techniques, and Financial Ratio Analysis) jointly have a significant effect on Tax Fraud Detection. The high F-statistic shows that the model provides a better fit than a model with no predictors, validating the overall usefulness of the regression model.

Table 4.6: Multiple Linear Regression Coefficients

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**VIF**
	B	**Std. Error**	**Beta**			
(Constant)	1.313	.279		4.712	.000	
FIS	1.010	.218	.796	4.634	.000	1.304
LK	1.533	.240	1.478	6.392	.000	1.276
AT	-.757	.291	-.524	-2.600	.010	1.218
FRA	-1.099	.255	-.991	-4.309	.000	1.316

Source: SPSS 27.0 Output, 2025

Test of Hypothesis

Forensic Investigative Skills and Tax Fraud Detection

The result indicates that forensic investigative skills had a positive and statistically significant effect on tax fraud detection ($\beta = 1.010$, $t = 4.634$, $p = .000$). This means that as the application of investigative skills increases, the ability of the FIRS to detect tax fraud improves significantly. Given that the p-value is less than 0.05, the null hypothesis is rejected. The finding confirms that forensic investigative skills have positive and significant effect on tax fraud detection in Nigeria's FIRS.

Legal Knowledge and Tax Fraud Detection

Legal knowledge also showed a positive and significant effect on tax fraud detection ($\beta = 1.533$, $t = 6.392$, $p = .000$). This suggests that legal expertise among forensic accountants enhances their capacity to interpret financial irregularities and ensure evidence is admissible in legal proceedings. Since the p-value is less than 0.05, the null hypothesis is rejected. The result affirms that legal knowledge has positive and significant effect on tax fraud detection in Nigeria's FIRS.

Auditing Techniques and Tax Fraud Detection

Interestingly, auditing techniques had a negative and statistically significant effect on tax fraud detection ($\beta = 0.757$, $t = -2.600$, $p = .010$). This result implies that the current use or quality of auditing techniques may not effectively contribute to tax fraud detection and may, in fact, detract from it if applied in isolation. Despite the negative relationship, the p-value is still below 0.05; therefore, the null hypothesis is rejected. The finding indicates that auditing techniques have negative and significant effect on tax fraud detection in Nigeria's FIRS.

Financial Ratio Analysis and Tax Fraud Detection

Financial ratio analysis was found to have a negative and statistically significant effect on tax fraud detection ($\beta = -1.099$, $t = -4.309$, $p = .000$). This suggests that in the Nigerian FIRS context, financial ratio analysis alone may be insufficient or misapplied in fraud detection processes, possibly due to manipulative financial reporting by taxpayers or a lack of analytical capacity. Since the p-value is below the 0.05 threshold, the null hypothesis is rejected. This result implies that the application of ratio analysis has a negative and significant effect on tax fraud detection in Nigeria's FIRS.

DISCUSSION OF FINDINGS

Forensic Investigative Skills and Tax Fraud Detection

The finding that forensic investigative skills significantly and positively impact tax fraud detection in Nigeria's FIRS is strongly supported by empirical literature. Adamu and Uyagu (2025) demonstrated that forensic expenditure analysis (rooted in investigative capabilities) enhanced fraud detection among state revenue agencies, providing a quantifiable uplift in enforcement outcomes. Abiola and Moses (2023) reported that forensic investigative audits helped expose tax evasion in Nigeria's informal sector by uncovering unreported income and fraudulent practices that traditional audits missed. Arora and Kumar (2023) also highlighted how lifestyle-based investigations improved detection accuracy of undeclared income among high-net-worth individuals in India. Adams et al. (2023) confirmed that forensic accountants using investigative skills detected discrepancies between SMEs' reported expenditures and actual transactions. Madhukar and Mehta (2023), through an analysis of high-profile Indian tax fraud cases, concluded that forensic investigative audits were instrumental in detecting hidden income in 70% of the cases.

Despite this strong alignment, some contradictions have emerged, particularly from studies that question the implementation of investigative techniques. For instance, Sulaimon and Odunlami (2023) observed that while forensic accounting practices in Nigeria's telecom sector had potential, their investigative applications lacked analytical depth, limiting their effectiveness. Similarly, Taylor and Harris (2023) noted that in Kenya's agricultural sector, investigative tools failed to deliver significant results due to poor data access and inconsistent investigative frameworks. These contradictions suggest that the positive impact of forensic investigative skills is conditional on the availability of sector-specific knowledge, analytical tools, and

institutional support. From a theoretical perspective, Signalling Theory suggests that the adoption of robust investigative skills sends a deterrent signal to taxpayers, signaling that fraudulent behaviour is likely to be discovered. The Fraud Hexagon Theory supports this by asserting that investigative skills limit fraudsters' 'opportunity' and 'capability' while reducing 'collusion' through thorough scrutiny, thus enhancing the efficiency of fraud detection mechanisms in FIRS.

Legal Knowledge and Tax Fraud Detection

The study found that legal knowledge significantly and positively influences tax fraud detection, and this result aligns with several empirical findings. Adeola and Chijioke (2023) emphasized that forensic accountants with legal proficiency were more successful in uncovering tax fraud in Nigeria's public sector, particularly by linking expenditure violations to legal breaches. Abiola and Moses (2023) also found that legal understanding enhanced fraud detection in informal business sectors by enabling forensic staff to interpret financial anomalies through the lens of tax law. Similarly, Adams et al. (2023) highlighted that legal competence ensured that fraud detection outcomes were admissible in court, thereby improving the enforceability of audit findings. Okoro and Olaniyan (2023) found that legal knowledge helped in applying regulatory benchmarks effectively in Nigeria's retail sector, thus uncovering instances of underreported income. Williams and Bassey (2023) extended this finding to multinational corporations, showing that legal insight into jurisdictional tax rules aided the detection of cross border expense manipulation schemes.

However, there are cases where legal knowledge appeared less impactful, largely due to systemic challenges. Taylor and Harris (2023) noted that in Kenya's agricultural sector, the effectiveness of legal knowledge was diminished by weak institutional enforcement and a fragmented regulatory environment. Similarly, Sulaimon and Odunlami (2023) observed that in Nigeria's telecom industry, despite forensic teams possessing legal understanding, tax fraud persisted due to lenient enforcement and gaps in legal execution. These contradictions imply that legal knowledge, while important, must operate within a functional and credible legal system to yield optimal results. According to Signalling Theory, legal knowledge within the tax authority enhances the perceived certainty of legal consequences, thereby discouraging tax fraud. The Fraud Hexagon Theory adds that legal expertise curbs 'rationalization'—the internal justification of fraud—and reduces 'arrogance' by making offenders aware that they are unlikely to escape legal scrutiny. Additionally, it limits 'collusion' by clarifying the legal liabilities for all parties involved in fraudulent arrangements.

Auditing Techniques and Tax Fraud Detection

The current study found that auditing techniques have a negative and significant effect on tax fraud detection within Nigeria's FIRS. While this appears counterintuitive, it does align with some empirical observations in the literature. For instance, Nwachukwu and Chukwu (2023), in their study of Nigeria's banking sector, pointed out that auditing efforts often failed due to bureaucratic interference and a lack of independence among auditors. Their findings suggested that conventional auditing approaches lacked the rigor necessary for forensic-level fraud detection. Similarly, Sulaimon and Odunlami (2023) reported that auditing techniques used in the telecommunications sector were largely ineffective in uncovering tax fraud because they were outdated and not tailored to the industry's operational realities. Taylor and Harris (2023) also noted that in Kenya's agricultural sector, routine audit procedures failed to flag irregularities due to inadequate audit customization and a lack of integration with investigative tools. These findings highlight how poor adaptation of auditing techniques to complex, sector-specific fraud contexts can reduce their effectiveness and potentially even obscure red flags that more sophisticated tools might detect.

However, this finding stands in contrast to several empirical studies that support the value of auditing techniques in fraud detection. Adamu and Uyagu (2025) found that when properly applied, forensic expenditure audits significantly improved fraud detection outcomes in government revenue systems. Abiola and Moses (2023) showed that in the informal sector, audit-based approaches were useful in uncovering financial discrepancies, provided they were guided by forensic principles. Likewise, Adams et al. (2023) found that SMEs' tax fraud could be detected through the application of advanced audit methods focusing on expenditure inconsistencies. The contradiction here may stem from how auditing is practiced in FIRS—many audits may be compliance focused rather than investigative or forensic in nature. They may also be constrained by institutional bottlenecks such as lack of training, limited audit automation, or hierarchical interference. Signalling Theory helps in explaining this by suggesting that ineffective or obsolete auditing techniques fail to

send credible deterrent signals to potential tax evaders. In the context of the Fraud Hexagon Theory, poor auditing does little to reduce fraudsters' 'opportunity' or challenge their 'capability' to exploit systemic weaknesses. Instead of deterring fraud, weak audit practices may inadvertently foster an environment where fraud flourishes undetected.

Financial Ratio Analysis and Tax Fraud Detection

The study found that financial ratio analysis has a negative and significant effect on tax fraud detection, which also aligns with some concerns raised in recent empirical research. Sulaimon and Odunlami (2023) criticized the use of generic financial ratios in Nigeria's telecom industry, noting that these tools failed to detect fraud due to sector-specific variations in cost structure. Similarly, Taylor and Harris (2023) found that in Kenya's agricultural sector, the use of traditional financial ratio analysis was ineffective in identifying tax fraud, largely due to seasonal earnings and inconsistent financial reporting practices. Williams and Bassey (2023) observed that in multinational corporations, jurisdictional differences in accounting practices distorted ratio benchmarks, leading to flawed interpretations and masking fraud. These findings support the current study's result by indicating that ratio analysis, when not adapted to organizational or sector-specific realities, may be an unreliable or even misleading tool for fraud detection.

Nevertheless, the finding contrasts with a number of empirical studies that report positive contributions of financial ratio analysis to fraud detection. Arora and Kumar (2023) found that financial ratio anomalies helped Indian tax authorities detect undeclared income through lifestyle audits. Adams et al. (2023) concluded that in SMEs, ratio analysis revealed discrepancies that correlated strongly with fraudulent financial reporting. Okoro and Olaniyan (2023) demonstrated that in Nigeria's retail sector, inflated expenditure ratios and reduced gross profit margins were reliable indicators of tax evasion. The contradiction likely arises from differences in methodological application. In FIRS, ratio analysis may be applied in isolation, without context-specific benchmarks or corroborative forensic techniques, making it prone to errors. Additionally, the accuracy of ratio based analysis is compromised if financial statements themselves are manipulated. According to Signalling Theory, poorly applied ratio analysis can result in weak, ambiguous signals to both investigators and taxpayers, failing to deter fraud. The Fraud Hexagon Theory suggests that when ratio analysis is improperly executed, it leaves key enablers—such as 'opportunity', 'rationalization', and 'capability'—untouched, allowing fraud to persist undetected under the guise of acceptable figures.

CONCLUSION AND RECOMMENDATIONS

The study concludes that forensic investigation competencies and legal knowledge effectively improve tax fraud detection in Nigeria's Federal Inland Revenue Service (FIRS), emphasizing how important they are in identifying and prosecuting tax-related offenses. On the contrary, auditing procedures and financial ratio analysis, while important, had adverse consequences, indicating that their present utilization may be unproductive or mismatched with forensic goals. These discoveries highlight the necessity of augmenting investigative and legal capabilities while reassessing and refining the application of auditing and analytical instruments to bolster tax fraud detection initiatives in Nigeria.

The study made the following recommendations:

i. The FIRS should invest in continuous training and capacity-building programs to enhance the investigative skills of forensic accountants. Specialized training in transaction tracing, data analytics, and fraud detection technologies should be prioritized to improve the agency's fraud identification capabilities.

ii. Legal knowledge should be incorporated into the professional development of forensic accountants through workshops and certification programs. FIRS should collaborate with legal institutions to ensure that staff are well-versed in tax laws, evidence procedures, and compliance frameworks to support prosecution efforts.

iii. The FIRS should evaluate and update its current auditing procedures by integrating advanced forensic auditing tools, such as forensic sampling, data mining, and automated audit software. Emphasis should be

placed on combining auditing with investigative and legal procedures to enhance accuracy and effectiveness.

iv. Training programs should be introduced to improve the correct application and interpretation of financial ratios. Additionally, financial ratio analysis should not be used in isolation but rather as a complementary tool alongside other forensic technique. FIRS may also consider investing in industry-specific benchmarks and software to support more accurate analysis.

These targeted recommendations, if implemented, will help FIRS improve its fraud detection system and recover significant revenue currently lost to tax evasion in Nigeria.

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