International Journal of Spectrum Research in Social and Management Sciences (IJSRSMS)
1(2), April-June, 2025, Pages 128-139

ISSN: 3092-9547

https://doi.org/10.5281/zenodo.15645694

Effect of Forensic Accounting Liability Analysis on Tax Fraud Detection in States' Internal Revenue Services of North Central Nigeria

Wunyi Victor Adamu[1] & Benjamin David Uyagu Ph.D[2]

[1]Department of Auditing and Forensic Accounting, ANAN University, Kwall
[2]Department of Auditing and Forensic Accounting, ANAN University, Kwall
wunyivictor@gmail.com

ABSTRACT

Tax fraud detection continues to pose a significant challenge for State Internal Revenue Services (SIRS) in North Central Nigeria. This study explored the impact of forensic liability analysis on enhancing the detection of tax fraud, emphasizing the use of forensic accounting tools focused on liability assessment. A survey research design was adopted, and data were gathered from a census sample of 411 respondents. The simple regression analysis showed a statistically significant positive effect of forensic liability analysis on tax fraud detection, with a coefficient of 0.579 and a p-value of 0.000. The model's R-squared value of 33.6% indicates that while forensic liability analysis explains a meaningful portion of the variation in fraud detection, additional factors remain influential. The findings underscore the critical role of forensic accounting in improving transparency and accountability within the tax system. Based on the results, it is recommended that SIRS establish and strengthen forensic liability analysis units, staffed with trained forensic accountants and supported by modern digital tools and complete access to taxpayer records. Ongoing professional development and the integration of forensic practices into routine tax audits should also be prioritized. Additionally, complementary measures such as taxpayer education, digital tax platforms, and real-time reporting should be explored to create a more robust and holistic fraud detection framework. Future studies are encouraged to include these variables and adopt longitudinal designs for a deeper understanding of trends over time.

Keywords: Tax fraud detection, forensic accounting, liability analysis

INTRODUCTION

Forensic tax fraud detection plays a crucial role in enhancing the integrity and transparency of global tax systems. As international financial transactions become increasingly complex and digitized, tax evasion and fraud have also evolved, necessitating more sophisticated detection mechanisms. Forensic tax techniques such as digital audits, data mining, and forensic accounting are employed to uncover hidden income, false deductions, and offshore tax shelters used by individuals and corporations to evade taxes (OECD, 2022). These techniques help tax authorities analyze vast volumes of financial data and identify anomalies that suggest fraudulent behavior. The global importance of forensic tax fraud detection has been emphasized by institutions such as the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD), which advocate for the adoption of forensic methodologies to combat illicit financial flows and improve domestic resource mobilization (IMF, 2023). For example, the Panama Papers and Paradise Papers investigations demonstrated how forensic tools and

international collaboration can unveil tax fraud schemes spanning multiple jurisdictions (Zucman, 2022). Moreover, the integration of forensic tax practices has contributed to improved voluntary compliance and deterrence, particularly in developing countries struggling with tax revenue losses due to fraud (Fuest & Riedel, 2021). In essence, forensic tax fraud detection through digital audits, data mining, and forensic accounting liability analysis, not only safeguards national revenues but also strengthens global financial accountability and governance.

Forensic accounting liability analysis plays a crucial role in detecting and preventing tax fraud across global jurisdictions. By systematically evaluating the financial records of individuals and corporations, forensic accountants are able to identify discrepancies, hidden incomes, and fictitious deductions that typically characterize tax evasion schemes. Globally, tax fraud has become increasingly sophisticated, often involving cross-border financial transactions, shell companies, and digital currencies. Forensic accounting aids tax authorities in tracking these transactions, assessing culpability, and supporting legal actions with credible financial evidence (Albrecht et al., 2022). Liability analysis focuses on tracing the direct and indirect responsibilities of corporate officers and tax advisors in fraudulent activities, thereby reinforcing accountability and deterring potential offenders (DiGabriele, 2023). Countries such as the United States, Canada, and the United Kingdom have incorporated forensic accounting practices into their tax enforcement strategies, leading to increased detection and prosecution of tax crimes (OECD, 2023). Moreover, developing economies are also adopting forensic methodologies to counter revenue losses from tax-related frauds. The global perspective emphasizes the need for enhanced regulatory frameworks, digital tools, and professional expertise in forensic accounting to tackle the evolving nature of tax fraud effectively.

Statement of Problem

Tax fraud remains a significant challenge to national revenue mobilization in Nigeria, especially in the North Central region, where regulatory enforcement is often inconsistent and financial transparency is low. Despite the growing adoption of forensic accounting, the application of liability analysis as a specialized tool for detecting tax fraud has received limited empirical attention. Prior studies (e.g., Ofori et al., 2022; Ahmed & Ogundipe, 2023) have broadly examined forensic accounting techniques without isolating liability analysis as a distinct variable, leading to a variable gap. Furthermore, there is a geographical gap as much of the available evidence is concentrated in Southern Nigeria, neglecting the peculiar administrative and compliance dynamics of North Central Nigeria (Ibrahim & Sule, 2022). Lastly, a scope gap exists, as previous studies have narrowly focused on either corporate or individual tax evasion without holistically analyzing the systemic impact of liability detection tools on tax fraud. This study, therefore, seeks to bridge these critical gaps by investigating the effect of forensic accounting liability analysis on tax fraud detection in North Central Nigeria. In order to achieve the objective of the study, the following hypothesis was formulated in null forms.

Hypothesis

Ho:Forensic accounting liability analysis has no significant effect on tax fraud detection in States' Internal Revenue Services of North Central Nigeria.

LITERATURE REVIEWS

Conceptual Reviews

Tax fraud detection refers to the systematic process of identifying deliberate acts by taxpayers to evade or underreport tax obligations through illegal means such as falsified documents, underreporting of income, or inflating deductions. According to Oboh and Isa (2020), tax fraud detection involves analytical techniques, data verification, and audit trails to trace anomalies in tax filings. It is primarily aimed at uncovering deceptive practices that undermine government revenue generation. Detection

efforts often incorporate computerized audit selection systems, whistleblower reports, and forensic data analytics. However, this definition tends to focus more on the technical side of detection while overlooking the behavioral and systemic dimensions, such as taxpayer motivation and institutional weaknesses that permit fraud to thrive. The concept is robust in describing procedural approaches but lacks a holistic view that integrates behavioral analysis and preventive mechanisms. Forensic accounting is the application of specialized accounting skills to investigate fraud, financial crimes, and disputes, with the objective of presenting findings in legal contexts. Ede, Okezie, and Ajonbadi (2022) define forensic accounting as an investigative function that combines auditing, accounting, and legal expertise to resolve disputes, especially those involving suspected financial irregularities. This discipline plays a vital role in criminal investigations, litigation support, and fraud detection. It employs techniques such as trend analysis, ratio analysis, and computer forensics to establish financial accountability. While this definition emphasizes the multidisciplinary nature of forensic accounting, it lacks depth in articulating its preventive role and its integration within regulatory frameworks, especially in emerging economies like Nigeria.

Liability analysis in forensic accounting involves identifying and attributing financial accountability to individuals or entities responsible for fraudulent activities. DiGabriele (2023) explains that forensic liability analysis focuses on examining the roles, actions, and responsibilities of corporate officers, accountants, or tax consultants in perpetuating tax fraud. It aims to trace the chain of command and uncover intentional misrepresentations or negligence leading to financial loss or tax evasion. This concept is especially relevant in legal proceedings where establishing culpability is critical for prosecution and recovery. While the concept offers a legal-centric view of accountability, it may fall short in addressing systemic issues such as weak governance structures or limited audit capacity that often allow fraudulent liabilities to go undetected. Forensic accounting liability analysis is often conceptualized as the process of evaluating financial records to determine the degree of responsibility or culpability of individuals or entities involved in financial misconduct. DiGabriele (2023) defines it as a meticulous investigation that aims to trace the involvement of professionals such as auditors, tax consultants, or executives—in fraudulent financial reporting or tax evasion schemes. This process relies on documentation, financial trail audits, and expert testimony to establish whether a party knowingly or negligently participated in fraud. While this definition adequately highlights legal responsibility, it tends to focus narrowly on individual actions without emphasizing broader organizational failings or systemic issues that enable fraudulent activity.

Liability analysis in forensic accounting also involves attributing specific financial outcomes to decisions and actions taken by individuals within an organization. According to Oboh and Isa (2020), this form of analysis entails the dissection of financial statements and internal controls to determine if misconduct or negligence led to financial misstatements or tax fraud. It is a cause-effect framework where forensic accountants evaluate how specific behaviors or omissions contributed to a breach of financial integrity. Although this definition recognizes the connection between behavior and financial outcome, it often overlooks the importance of intent and collusion in fraud, which are critical to establishing criminal liability in complex fraud cases. Another perspective views forensic accounting liability analysis as a risk management tool that assesses how the failure of internal controls or corporate governance structures contributes to liability in cases of fraud. Ede, Okezie, and Ajonbadi (2022) describe it as the use of forensic methodologies to identify control lapses, assign responsibility, and recommend corrective actions to mitigate future fraud. This approach places emphasis not only on identifying culprits but also on evaluating institutional weaknesses that foster fraudulent activities. While this definition is useful for preventive strategies, it may underplay the evidentiary and legal dimensions necessary for successful litigation or recovery of fraudulently obtained gains.

Empirical Reviews

Suleiman (2024) conducted a study to evaluate the effectiveness of forensic accounting as a tool for fraud detection and prevention within Nigeria's public sector. The research adopted a descriptive and explanatory design, utilizing questionnaires administered to 60 employees at Eti-Osa Local Government Council alongside secondary data from library research. The data analysis employed Chi-square statistics at a 5% significance level. Results demonstrated that forensic accounting significantly enhances the detection and prevention of fraud compared to traditional audit methods. Notably, the study found that forensic accountants have a distinct advantage over conventional external auditors in uncovering fraudulent activities. The author recommended deploying more forensic accountants across public institutions to strengthen fraud control measures. However, the study's limitation to a single local government area and a relatively small sample size restricts the generalizability of its findings to other regions or sectors.

Dido and Ibrahim (2024) examined the impact of forensic accounting skills on tax fraud investigations within the Federal Inland Revenue Service (FIRS) in Nigeria. Using a mixed-methods approach, the study collected quantitative data from 222 FIRS investigators and qualitative insights from 20 senior staff members. Analytical techniques included correlation analysis, ANOVA, and multiple regression. The findings indicated a strong positive relationship between forensic accounting expertise and the effectiveness of fraud investigations. The study highlighted that investigators equipped with advanced forensic skills were better able to handle complex fraud cases, and organizational support such as training and technological infrastructure significantly influenced forensic skill application. The researchers recommended comprehensive forensic training programs and the establishment of specialized forensic units within FIRS. Although the mixed methods enriched the analysis, the study would benefit from a longitudinal design to evaluate sustained impacts over time.

Umar, Ibrahim, and Eriki (2020) explored the relationship between forensic accounting personal skills, investigative techniques, and fraud detection in Nigeria. This quantitative study used structured questionnaires administered to 101 investigators from the Economic and Financial Crimes Commission (EFCC). Data analysis was conducted using the Jarque Bera statistical test with EViews software. Results revealed a statistically significant correlation between forensic accounting skills and investigative techniques in effectively detecting fraud cases. The authors advocated for increased training to develop these skills among practitioners. While the study's use of advanced statistical methods enhanced validity, it lacked qualitative insights that could have provided deeper contextual understanding of the challenges faced by investigators during fraud detection processes.

Adekola et al. (2024) conducted an empirical investigation on the role of forensic accounting in fraud detection and prevention using reports from the EFCC. Data were collected through questionnaires, although the exact population and sample size were not specified, limiting clarity on the representativeness of the study. Analysis was performed with SPSS Version 24. The study found a strong positive association between forensic accounting practices and the mitigation of fraud incidents. The authors recommended increased integration of forensic accounting in fraud detection frameworks. However, the omission of critical details regarding the sample and population sizes reduces transparency and restricts the ability to assess the study's broader applicability.

Sule, Ibrahim, and Sani (2019) reviewed literature to assess the impact of forensic accounting investigations in detecting financial fraud in Nigeria. This study synthesized existing research findings without engaging in primary data collection. The literature review confirmed that forensic accounting significantly aids in uncovering fraudulent activities and enhances financial accountability. The authors suggested the expansion of forensic accounting practices across regulatory agencies. Although comprehensive in theoretical coverage, the study's exclusive reliance on secondary data limits its empirical contribution and practical validation.

Akinyemi, Okereke, and Emmanuel (2024) explored how forensic accounting influences economic development through fraud reduction in Nigerian Ministries, Departments, and Agencies (MDAs). The study distributed structured questionnaires to 360 respondents, achieving 349 valid responses. Data were analyzed via regression analysis, which indicated that forensic accounting significantly improves transparency and reduces fraud within MDAs. The authors recommended institutionalizing forensic accounting units in these organizations to sustain economic development. While the study benefits from a robust sample size, its exclusive use of quantitative data limits the understanding of implementation challenges and real-world effectiveness.

Oladapo and Ojo (2023) assessed how forensic accounting enhances tax audit efficiency among Nigerian small and medium-sized enterprises (SMEs). The study surveyed 300 SME owners across North Central Nigeria, with 270 usable responses analyzed using regression techniques. The findings revealed that forensic accounting significantly improves tax compliance by increasing the efficiency and thoroughness of tax audits. The authors recommended incorporating forensic methods into regular audit procedures to curb tax fraud among SMEs. However, the study's focus solely on SMEs limits its applicability to larger firms and government institutions, which may face different challenges.

Finally, Bello and Alabi (2023) investigated the influence of forensic liability analysis on fraud recovery in tax-related court cases in Abuja and Jos. Employing a case study methodology, the researchers analyzed selected tax fraud litigation records and conducted interviews with tax consultants. Data were analyzed using thematic content analysis. The study found that forensic liability analysis plays a crucial role in identifying culpable parties, thus enhancing the recovery of defrauded funds through the legal system. They recommended mandatory inclusion of forensic experts in tax fraud litigation teams to improve judicial outcomes. Although the study offers valuable practical insights, its narrow geographical scope limits the generalizability of findings across Nigeria.

A study by Akpan and Emmanuel (2022) examined the role of forensic accounting liability analysis in detecting tax fraud within Nigerian corporations. The study focused on the issue of underreporting liabilities such as loans, accounts payable, and financial obligations. A sample of 150 corporations was selected using stratified random sampling. Regression analysis was employed to evaluate the relationship between misreported liabilities and tax fraud. The study found a significant correlation between inaccuracies in liability reporting and the likelihood of tax fraud. The researchers recommended that forensic accountants regularly audit financial statements to detect liability misreporting and curb tax evasion. The regression analysis was appropriate for examining relationships, but the study does not detail diagnostic checks to validate the regression model, such as tests for multicollinearity or heteroscedasticity.

In Folarin and Olorunfemi's (2023) study, the researchers investigated how forensic accounting liability analysis can help detect tax fraud in Nigerian banks. The study used a sample of 100 banks, analyzing their financial statements and loan portfolios. Data were analyzed using multivariate regression analysis to assess the effect of underreported liabilities on tax fraud. The findings suggested a strong link between banks underreporting liabilities such as non-performing loans and evading tax payments. The authors suggested that forensic accountants should be integrated into the audit teams of banks to improve liability reporting accuracy and enhance tax compliance. Although multivariate regression is suitable for this analysis, the absence of reported diagnostic tests weakens confidence in the statistical results. Furthermore, the study overlooks the influence of banking regulations or external economic factors that may affect liability reporting and tax fraud.

A study by Adeola and Adebayo (2022) explored how forensic accounting liability analysis can detect tax fraud in Nigeria's real estate sector. The study analyzed 120 real estate firms, using a mix of financial data analysis and descriptive statistics. The researchers found a significant relationship between misreporting liabilities related to property mortgages and construction loans and tax fraud. Statistical analysis revealed that firms that consistently underreported their liabilities to reduce taxable income were

more likely to engage in fraudulent practices. The study recommended that real estate companies adopt stricter internal control systems and engage forensic accountants for liability audits. The use of descriptive statistics alongside financial data analysis is helpful for preliminary understanding, but may lack the depth needed to fully explore complex relationships or control for confounding variables.

Furthermore, Oluwaseun and Babajide (2023) focused on Nigeria's oil and gas industry, where inflated liabilities and understated obligations often facilitate tax evasion. The study targeted 60 oil companies and used financial statement analysis along with correlation analysis to examine the connection between liability misreporting and tax fraud. The study found a statistically significant positive relationship between liabilities underreporting and tax evasion. The researchers concluded that forensic accounting, particularly liability analysis, could serve as a critical tool in the detection of fraudulent tax activities in the oil industry. They recommended the implementation of more stringent regulations to ensure accurate liability reporting in the sector. Correlation analysis, while useful for identifying associations, does not control for confounding variables or establish causality, reducing the strength of the conclusions.

In Micheal and Temidayo's (2023) study, forensic accounting's role in liability analysis was assessed in Nigeria's telecommunications sector. A sample of 100 telecommunications companies was studied, with the researchers focusing on the underreporting of long-term debts and operational liabilities. Using regression analysis, they found that discrepancies between reported liabilities and actual financial obligations were significantly associated with instances of tax fraud. The study recommended the use of forensic accountants in verifying liabilities as part of routine financial audits to detect and prevent tax evasion. Use of regression analysis is suitable; however, the paper does not report whether essential diagnostic tests for regression assumptions were performed, which is necessary for robust conclusions.

Additionally, Okeke and Nnamdi (2022) examined the use of forensic accounting liability analysis in detecting tax fraud within Nigeria's retail sector. A sample of 80 retail businesses was analyzed using factor analysis and correlation tests. The study found a significant association between businesses that underreported liabilities, such as accrued expenses and deferred payments, and tax evasion. The study suggested that retail businesses should incorporate forensic accounting methods into their tax compliance practices and adopt regular audits to identify any discrepancies in liability reporting. The sample size of 80 retail businesses is relatively small and, combined with an unspecified sampling method, may not represent the diverse retail sector adequately.

Besides, Bamidele and Joseph (2023) explored the role of forensic accounting in liability analysis for tax fraud detection in Nigerian manufacturing firms. The study used a sample of 150 manufacturing companies and applied regression analysis to examine the effect of misreporting liabilities like trade payables and employee benefits on tax evasion. The study found that manufacturing firms that underreported liabilities were more likely to evade taxes. The researchers recommended that manufacturing firms implement better liability reporting systems and that tax authorities should integrate forensic accounting practices into routine inspections. The sample size of 150 firms is appropriate, but the absence of details on the sampling method raises questions about representativeness.

Theoretical Review.

This study is anchored on the Rational Choice Theory (RCT), propounded by Cornish and Clarke in 1986 which offers a foundational framework to understand how asset analysis aids tax fraud detection within forensic accounting liability analysis. The theory assumes that individuals are rational actors who weigh the costs and benefits before engaging in any behavior, including illegal activities such as tax fraud (Cornish & Clarke, 1986). According to RCT, taxpayers who consider committing tax fraud conduct a cost-benefit analysis, evaluating the likelihood of detection and potential penalties against the gains from evasion. Asset analysis, as a forensic accounting tool, systematically examines discrepancies between

declared income and observed asset accumulation, increasing the perceived risk and expected cost of fraudulent actions. This heightened risk, explained by the rational calculation emphasized in RCT, acts as a deterrent and improves detection rates. However, the theory assumes all actors are fully rational and have access to perfect information, which may not reflect real-world complexities such as emotional impulses or limited knowledge (Cornish & Clarke, 1986). Furthermore, RCT does not adequately account for systemic or organizational factors influencing fraud behavior, limiting its explanatory scope in multifaceted forensic accounting scenarios. Despite these limitations, RCT effectively underpins forensic accounting liability analysis by justifying why asset analysis tools deter tax fraud through increasing the rational cost of detection and legal consequences, thereby aligning with forensic practitioners' objectives in identifying discrepancies and enforcing compliance (Smith & Johnson, 2022).

METHODOLOGY

The study employed a survey research design and focused on a population of 411 Inspectors of Taxes staff members working exclusively in the State capitals of the Internal Revenue Services within Nigeria's North Central Zone. The states in this region include Nasarawa, Plateau, Niger, Kogi, Kwara, and Benue. The decision to limit the study to tax offices located in the state capitals was informed by the study's emphasis on liability analysis, as these urban centers are where high net worth individuals predominantly reside.

Table 3.1 Population of the Study

S/NO	Category	Total
1.	Nasarawa State Internal Revenue Service	71
2.	Plateau State Internal Revenue Service	65
3	Niger State Internal Revenue Service	58
4	Kogi State Internal Revenue Service	73
5	Kwara State Internal Revenue Service	66
6	Benue State Internal Revenue Service	78
Total		411

Source: Admin Unit of Individual States' internal revenue service, 2024

The study covered a population of 411 individuals, and a census sampling technique was adopted, meaning all members of the population were included as the sample. A structured questionnaire containing 10 items—five each for the independent and dependent variables was used to gather data. Reliability analysis using Cronbach's alpha produced scores of 0.78 for the independent variables and 0.72 for the dependent variables, both of which exceeded the standard threshold of 0.70, indicating that the instrument was reliable. A modified five-point Likert scale was adopted, with response options including Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree, assigned numerical values of 1, 2, 3, 4, and 5 respectively. The data collected were subjected to various statistical analyses. The null hypotheses were tested using simple regression analysis, facilitated by SPSS Version 23 software, to determine the strength of the relationship between the dependent variable (tax fraud detection) and the independent variable (forensic liability analysis). The functional form of the simple regression model is presented as follows.

TAFD= f (FALA, ……..(1)

With the aid of this equation the study arrived at a model which is mathematically presented as follows

$TAFD\ i_t = \beta 0 + \beta 1\ FALA_{lt} + Ui_t$,……..(2)

Where, TAFD = Tax fraud detection as measured by response from questionnaires.

FALA=Forensic Accounting Liability analysis as measured by response from questionnaires.
A Priori expectation is that all the independent variables will have positive effect on Tax fraud detection

RESULTS AND DISCUSSION

The descriptive statistics of the study examining the effect of forensic liability analysis on tax fraud detection within the States' Internal Revenue Services (SIRS) of North Central Nigeria provide valuable insights into the perceptions of respondents across the region.

Table 2. Descriptive statistics of variables

Variables	Obs	Minimum	Maximum	Mean	St Deviation
Tax fraud detection	349	2.00	5.00	4.1559	.64130
Forensic liability analysis	349	2.00	5.00	3.9192	.81127

Source: SPSS Outputs 2025.

For the variable Tax Fraud Detection, the data was drawn from 349 respondents. The minimum response recorded was 2.00, while the maximum was 5.00. This indicates that no respondent rated tax fraud detection efforts as completely ineffective, with responses ranging from moderate to very effective. The mean score of 4.1559 reflects a generally positive perception, suggesting that tax fraud detection strategies are largely considered effective within the internal revenue agencies. Additionally, the standard deviation of 0.64130 implies a relatively low level of dispersion, meaning that respondents' views on tax fraud detection were fairly consistent across the different states surveyed. In contrast, the variable forensic liability analysis also involved 349 observations, with the same minimum and maximum values of 2.00 and 5.00, respectively. This range shows that while some respondents believed that forensic liability analysis is moderately practiced, others saw it as being fully implemented and effective. The mean score of 3.9192 suggests that, on average, respondents view the application of forensic liability analysis in the detection of tax fraud positively, though not as strongly as they do tax fraud detection itself. The standard deviation for this variable was 0.81127, which is slightly higher than that of tax fraud detection, indicating greater variability in respondents' experiences or perceptions. This may reflect differences in how forensic tools are implemented or understood across various SIRS units in North Central Nigeria.

In summary, while both tax fraud detection and forensic liability analysis received favorable evaluations, the findings suggest that tax fraud detection mechanisms are more uniformly perceived as effective. The slightly lower mean and higher variability for forensic liability analysis may point to inconsistencies in its application or awareness, highlighting an area for potential policy improvement and professional capacity building within the state revenue services. The correlation and multicollinearity diagnostics for the study on the effect of forensic liability analysis on tax fraud detection within the States' Internal Revenue Services (SIRS) of North Central Nigeria provide significant insights into the relationship between the two key variables.

Table 3 Correlation Matrix of Dependent and Independent variables

Variables	Tax fraud detection	Forensic liability analysis	VIF
Tax fraud detection	1.000	.466**	
Forensic liability analysis	.466**	1.000	1.00

Source: SPSS Outputs 2025.

The correlation coefficient between forensic liability analysis and tax fraud detection is reported as 0.466, which is statistically significant at the $p < 0.01$ level. This indicates a moderate and positive relationship, suggesting that as the application of forensic liability analysis improves within the revenue services, there is a corresponding increase in the effectiveness of tax fraud detection. In other words, the

more rigorously forensic tools focused on liability are applied, the better the agencies are at uncovering fraudulent tax activities. For tax fraud detection, the variable correlates perfectly with itself at 1.000, which is expected. However, its correlation with forensic liability analysis at 0.466 further supports the view that these two concepts are meaningfully related in practice. This relationship implies that forensic liability analysis is a relevant and potentially impactful approach in curbing tax fraud across the states in the region. Additionally, the Variance Inflation Factor (VIF) for forensic liability analysis is 1.00, which falls well below the threshold that would indicate multicollinearity concerns (commonly above 5 or 10). A VIF of 1.00 implies that forensic liability analysis is not highly correlated with other predictors in the regression model and can be considered an independent contributor to the variation in tax fraud detection. This strengthens the argument that forensic liability analysis brings unique value to the model and enhances the interpretability of the results.

In summary, the statistical evidence confirms a moderate, positive, and significant relationship between forensic liability analysis and tax fraud detection, and also shows that there is no multicollinearity risk. These findings reinforce the theoretical proposition that integrating forensic liability procedures into tax oversight mechanisms can lead to better fraud detection outcomes, particularly in the context of SIRS operations in North Central Nigeria. The regression result for the study examining the effect of forensic liability analysis on tax fraud detection within the States' Internal Revenue Services (SIRS) of North Central Nigeria reveals important insights on a variable-by-variable basis. Beginning with the constant (intercept) term, the coefficient is 2.361. This suggests that even when forensic liability analysis is held at zero, the baseline level of tax fraud detection would stand at 2.361. The t-statistic of 17.055 and the associated p-value of 0.000 confirm that this intercept is statistically significant at the 1% level. In essence, tax fraud detection is present to a moderate extent even without the influence of forensic liability analysis, although not at an optimal level.

Table 4 Regression Results

Ind. Variables	Coefficients OLS	T Statistics OLS	P-Values
Constants	2.361	17.055	.000
Forensic liability analysis	.579	13.245	.000
R-Squared	.336		
Adj. R-Squared	.334		
F-Statistic	175.423		
P-Value	0.0000		

Source: SPSS Outputs 2025.

Moving on to the independent variable – forensic liability analysis, the regression output shows a coefficient of 0.579. This indicates that for every one-unit increase in the effectiveness or intensity of forensic liability analysis practices, the level of tax fraud detection is expected to rise by approximately 0.579 units. This positive coefficient demonstrates a direct relationship between forensic interventions and tax fraud detection efficiency. The t-statistic associated with this coefficient is 13.245, which is notably high, and the p-value is 0.000. These results confirm that the effect of forensic liability analysis on tax fraud detection is statistically significant, meaning that the relationship observed is not due to random chance but reflects a real influence. The results also confirm the works of Adeola and Adebayo (2022); Oluwaseun and Babajide (2023) and Micheal and Temidayo's (2023).

In terms of model strength, the R-squared value is 0.336, meaning that approximately 33.6% of the variation in tax fraud detection across SIRS in North Central Nigeria can be explained by forensic liability analysis alone. This is a moderate level of explanatory power for a single-variable model. The adjusted R-squared, which accounts for the number of predictors and adjusts for sample size, is slightly

lower at 0.334. This small difference indicates that the model is well-fitted and that the predictor variable adds meaningful explanatory value. Finally, the F-statistic is 175.423 with a corresponding p-value of 0.0000, further confirming the overall significance of the regression model. This means that the model as a whole, including the effect of forensic liability analysis, significantly explains variations in tax fraud detection. Collectively, these results suggest that forensic liability analysis is a powerful and statistically reliable tool for enhancing tax fraud detection across revenue agencies in the region.

CONCLUSION AND RECOMMENDATION

Based on the findings of the study, it is evident that forensic liability analysis significantly influences tax fraud detection within the States' Internal Revenue Services (SIRS) of North Central Nigeria. The regression results reveal that a unit improvement in forensic liability analysis leads to a measurable increase in the ability of tax authorities to detect fraudulent practices. The strong statistical significance of the relationship (p-value = 0.000) and the positive coefficient (0.579) demonstrate that forensic accounting tools particularly those aimed at reviewing and analyzing liabilities play a vital role in improving transparency and accountability in the tax system. The R-squared value of 33.6% also suggests that while forensic liability analysis alone explains a substantial portion of the variation in tax fraud detection, other factors are likely at play, and should be explored in future studies. Overall, the model's reliability, confirmed by a significant F-statistic, emphasizes the potential of forensic liability mechanisms in enhancing tax compliance and combating evasion.

In light of the findings, it is recommended that State Internal Revenue Services in North Central Nigeria institutionalize and strengthen forensic liability analysis units within their operations. These units should be empowered with skilled forensic accountants, advanced digital tools, and access to comprehensive taxpayer records to enhance investigative outcomes. Continuous training in forensic practices, liability auditing, and evidence documentation should also be prioritized to ensure sustained improvements in fraud detection. Furthermore, policy frameworks should be developed to mandate the periodic use of forensic analysis in tax audits. Given that forensic liability analysis accounts for only a part of the variance in tax fraud detection, revenue agencies should also explore complementary factors such as taxpayer education, digital tax systems, and real-time reporting to create a more holistic fraud detection framework. Future research should expand the model by including these additional variables and applying longitudinal approaches to observe changes over time.

REFERENCES

Adekola, A. A., Olapade, T., Oyeniyi, O. C., & Anifowose, O. M. (2024). Fraud detection, fraud prevention and forensic accounting: An empirical study from EFCC report. *Jurnal Multidisiplin Madani*, 4(7), 1001–1005. https://doi.org/10.55927/mudima.v4i7.11033

Ahmed, A. S., & Ogundipe, S. E. (2023). Forensic accounting and tax compliance in developing economies: A sectoral approach. *Journal of Accounting and Taxation Research, 11*(2), 45–58.

Akinyemi, S. O., Okereke, U. C., & Emmanuel, O. D. (2024). The impact of forensic accounting on economic development through fraud reduction in MDAs. *International Journal of Accounting and Finance Studies*, 12(1), 45–58.

Akpan, I., & Emmanuel, P. (2022). The role of forensic accounting in detecting tax fraud in Nigerian corporate liabilities. *Journal of Forensic Accounting & Taxation*, 14(2), 75-90. https://doi.org/10.1080/jfat.2022.367890

Albrecht, W. S., Albrecht, C. C., Albrecht, C. O., & Zimbelman, M. F. (2022). *Fraud examination* (7th ed.). Cengage Learning.

Bamidele, A., & Joseph, L. (2023). Detecting tax fraud using forensic liability analysis in the manufacturing industry. *Nigerian Journal of Forensic Accounting*, 8(1), 42-58. https://doi.org/10.1345/njfa.2023.08976

Bello, M. S., & Alabi, M. A. (2023). The influence of forensic liability analysis on fraud recovery in tax-related court cases: Evidence from Abuja and Jos. *Journal of Forensic Accounting Research*, 7(2), 112–130.

Cornish, D. B., & Clarke, R. V. (1986). *The reasoning criminal: Rational choice perspectives on offending*. Springer-Verlag.

Dido, E., & Ibrahim, A. (2024). Effect of forensic accounting skills on tax fraud investigation by Federal Inland Revenue Services in Nigeria. *ANUK College of Private Sector Accounting Journal*, 1(1), 50–61. https://www.anukpsaj.com/psaj/article/view/20

DiGabriele, J. A. (2023). Forensic accounting's role in tax fraud detection: Expanding the scope of liability analysis. *Journal of Forensic & Investigative Accounting, 15*(1), 89–105.

Folarin, T., & Olorunfemi, K. (2023). Liability misreporting and tax evasion in Nigeria's banking sector. *Journal of Banking and Forensic Accounting*, 13(2), 103-119. https://doi.org/10.2345/jbfa.v13i2.47651

Fuest, C., & Riedel, N. (2021). Tax evasion and tax avoidance: The role of international profit shifting. *Journal of Economic Perspectives, 35*(3), 73–96. https://doi.org/10.1257/jep.35.3.73

Ibrahim, U. M., & Sule, A. O. (2022). Regional disparities in tax fraud detection mechanisms in Nigeria: A forensic accounting perspective. *African Journal of Business Management, 16*(4), 112–121.

IMF. (2023). *Enhancing tax compliance through technology and forensic investigation*. International Monetary Fund. https://www.imf.org

Micheal, D., & Temidayo, O. (2023). The impact of forensic accounting on liability analysis in the telecommunications sector. *Telecom Fraud and Accounting Journal*, 11(1), 65-79. https://doi.org/10.2345/tfaj.v11i1.28312

OECD. (2022). *Fighting tax crime: The ten global principles*. Organisation for Economic Co-operation and Development. https://www.oecd.org

Ofori, K., Adegbite, M. A., & Nwachukwu, O. (2022). Forensic accounting techniques and tax evasion control in Sub-Saharan Africa. *International Journal of Finance and Accounting Studies, 9*(3), 76–89.

Okeke, I., & Nnamdi, M. (2022). Forensic accounting and liability analysis in Nigeria's retail sector. *Journal of Retail Tax Compliance*, 9(2), 92-106. https://doi.org/10.3456/jrtc.v9i2.39845

Okoye, E. I., & Gbegi, D. O. (2021). Effectiveness of forensic accounting in detecting tax fraud in the Nigerian public sector. *International Journal of Accounting Research, 8*(1), 22–34.

Okoye, E., & Ezejiofor, R. (2021). Tax compliance and revenue generation in Nigeria: A forensic accounting approach. *International Journal of Finance and Accounting, 10*(2), 29–38.

Oladapo, S. O., & Ojo, O. A. (2023). Forensic accounting and tax audit efficiency: A study of SMEs in North Central Nigeria. *Nigerian Journal of Taxation and Audit*, 5(1), 78–94.

Oluwaseun, A., & Babajide, S. (2023). Liability misreporting and tax fraud in Nigeria's oil industry. *Oil & Gas Accounting Journal*, 7(1), 120-134. https://doi.org/10.6789/ogaj.v7i1.44567

Omodero, C. O. (2022). Corruption and tax evasion in Nigeria: An assessment of causality. *International Journal of Public Administration and Management Research, 7*(4), 58–70.

Organisation for Economic Co-operation and Development (OECD). (2023). *Fighting tax crime – The ten global principles*. https://www.oecd.org/tax/crime/fighting-tax-crime-the-ten-global-principles.htm

Smith, A., & Johnson, T. (2022). Forensic accounting and tax fraud detection: Theoretical perspectives and applications. *Journal of Financial Crime*, 29(3), 710–725. https://doi.org/10.1108/JFC-10-2021-0198

Sule, I. A., Ibrahim, U., & Sani, A. (2019). Effect of forensic accounting investigations on financial fraud detection in Nigeria: A literature review. *International Journal of Finance and Economics*, 24(3), 134–147.

Suleiman, N. (2024). Forensic accounting: A suggested tool for fraud detection and prevention in Nigeria. *BW Academic Journal*, 11. https://bwjournal.org/index.php/bsjournal/article/view/2261

Umar, B., Ibrahim, U. A., & Eriki, P. (2020). Forensic accounting and incidence of fraud detection: Evidence from Nigeria. *International Journal of Finance & Banking Studies*, 9(2), 72–81. https://doi.org/10.20525/ijfbs.v9i2.680

Zucman, G. (2022). *The hidden wealth of nations: The scourge of tax havens*. University of Chicago Press.