FORENSIC ACCOUNTING AND FRAUD DETECTION: EVIDENCE FROM PAYROLL FRAUD AND FUND DIVERSION IN JOS NORTH LOCAL GOVERNMENT COUNCIL, PLATEAU STATE NIGERIA.

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Abstract
This study examines the role of forensic accounting in enhancing effectivefraud detection in Jos North Local Government Council, with a specific focus on payroll fraud and fund diversion. Drawing on the Fraud Triangle Theory, the study conceptualises forensic accounting techniques specifically Computer-Assisted Audit Techniques (CAATs) and asset tracing as mechanisms that mitigate fraud by reducing opportunities and increasing the probability of detection. A quantitative explanatory research design is adopted, using a dataset of 120 observations to reflect institutional fraud detection dynamics. The study employs descriptive statistics, correlation analysis, diagnostic testing, and Ordinary Least Squares (OLS) regression. The empirical results indicate that forensic accounting techniques significantly improve fraud detection outcomes. CAATs demonstrate a strong positive and statistically significant effect on payroll fraud detection ($\beta = 0.078$, $p < 0.01$), reflecting their effectiveness in identifying ghost workers and payroll anomalies. Similarly, asset tracing exhibits a positive and significant impact on the detection of fund diversion ($\beta = 0.069$, $p < 0.05$), indicating its relevance in tracking misappropriated public funds. The model explains a significant proportion of variation in fraud detection ($R^2 = 0.54$), while diagnostic tests confirm the robustness and validity of the model. The findings suggest that forensic accounting enhances transparency, strengthens internal control systems, and improves investigative efficiency within local government institutions. The study contributes to the literature by providing context-specific evidence from a Nigerian local government setting and by disaggregating fraud detection into specific operational categories. It recommends the institutionalisation of forensic accounting practices, increased investment in digital audit technologies, and capacity development for public sector accountants as critical pathways for achieving effective fraud detection and improved public sector accountability.

Keywords:CAAT, forensic accounting, fraud detection, payroll fraud, fund diversion

1.0 Introduction

Fraud remains a persistent and systemic challenge to public sector accountability, particularly in developing economies where institutional weaknesses, governance inefficiencies, and limited oversight mechanisms prevail. Globally, the increasing complexity of financial transactions and the digitalisation of public financial management systems have created new avenues for sophisticated fraud schemes that are difficult to detect using traditional auditing approaches (Trompeter et al., 2020; Kaur et al., 2023). As a result, conventional audit systems largely periodic and compliance-driven have been widely criticised for their inability to provide timely and proactive fraud detection (Adegbie & Fakile, 2020; Connelly et al., 2023). In response to these limitations, forensic accounting has emerged as a strategic and investigative approach to fraud detection. Unlike traditional auditing, forensic accounting integrates accounting expertise with investigative techniques and digital analytics to identify, analyse, and prevent financial irregularities (Okoye & Gbegi, 2022; Umar, 2024). Empirical evidence suggests that the adoption of forensic accounting tools such as Computer-Assisted Audit Techniques (CAATs), data analytics, and asset tracing significantly enhances fraud detection by improving transparency, reducing information asymmetry, and strengthening internal control systems (Yakubu, 2022; Aliu, 2024).

In the Nigerian context, the relevance of forensic accounting is particularly pronounced given the prevalence of fraud within public sector institutions. Local government systems, which represent the third tier of governance and are responsible for grassroots development, are especially vulnerable due to weak internal controls, inadequate monitoring systems, and limited institutional capacity (Adebayo & Yusuf, 2022; Oladipupo, 2021). Among the various forms of fraud observed, payroll fraud manifested through ghost workers, duplicate salary payments, and manipulation of employee records and fund diversion through unauthorized withdrawals constitute significant sources of financial leakage (Akinyomi, 2021; Sule & Ibrahim, 2023). These practices not only undermine fiscal discipline but also erode public trust and compromise service delivery. Despite increasing policy attention and the introduction of reforms such as digital payroll systems and centralized financial controls, fraud in local government systems remains pervasive. This persistence suggests that existing control mechanisms are either insufficiently implemented or structurally incapable of addressing the evolving nature of fraud. While forensic accounting has been widely acknowledged as an effective tool for fraud detection, its application within Nigerian local government systems remains limited, fragmented, and under-examined in empirical research (Okoye & Gbegi, 2022; Umar, 2024).

A critical limitation of the existing literature is its tendency to treat fraud detection as a generalized construct, without adequately accounting for the specific institutional contexts and operational mechanisms through which different types of fraud occur. Payroll fraud and fund diversion, for instance, are embedded within distinct administrative and financial processes, and therefore require targeted forensic approaches for effective detection. However, empirical studies rarely disaggregate these fraud types or examine how specific forensic accounting techniques influence their detection within localized governance structures.

This study addresses this limitation by examining the role of forensic accounting in enhancing effectivefraud detection within Jos North Local Government Council, with a specific focus on payroll fraud and fund diversion. By adopting a disaggregated analytical approach and integrating

quantitative modelling with institutional context, the study provides a more nuanced understanding of how forensic accounting tools particularly CAATs and asset tracing operate within local government systems to mitigate fraud. The study contributes to the literature in three important ways. First, it moves beyond generic analyses of fraud detection by focusing on specific fraud categories that are highly relevant to local government administration. Second, it provides context-specific empirical evidence from a Nigerian local government setting, thereby addressing the geographical and institutional gaps in existing research. Third, it integrates forensic accounting techniques with theoretical insights from fraud-related frameworks to offer a more comprehensive explanation of fraud detection mechanisms in public sector environments.

This study addresses two research questions:

i. To what extent do Computer-Assisted Audit Techniques (CAATs) affect the detection of payroll fraud in Jos North Local Government Council?

ii. To what extent does asset tracing affect the detection of fund diversion in Jos North Local Government Council?

2.0 Literature Review

Forensic accounting has evolved into a critical governance mechanism for addressing financial irregularities in public sector institutions, particularly in developing economies where institutional weaknesses persist (Efiong, 2020; Kaur et al., 2023). Unlike traditional auditing, which is largely retrospective and compliance-driven, forensic accounting adopts a proactive and investigative approach that integrates accounting, auditing, and digital analytics to detect and prevent fraud (Okoye & Gbegi, 2022; Umar, 2024).

Recent empirical studies demonstrate that the adoption of forensic accounting techniques significantly enhances fraud detection efficiency by improving transparency, reducing information asymmetry, and strengthening internal control systems (Yakubu, 2022; Sule & Ibrahim, 2023). In particular, Computer-Assisted Audit Techniques (CAATs) have been found to be effective in identifying payroll anomalies such as ghost workers and duplicate salary payments, while asset tracing techniques enable the tracking of misappropriated funds across financial systems (Aliu, 2024; Akinyomi, 2021). However, while the effectiveness of forensic accounting is widely acknowledged, its application within local government systems in Nigeria remains limited and uneven, largely due to capacity constraints, weak institutional frameworks, and inadequate technological infrastructure (Adebayo & Yusuf, 2022; Oladipupo, 2021). This raises critical questions regarding the contextual effectiveness of forensic accounting in decentralized public sector environments like Jos North Local Government in Plateau State Nigeria.

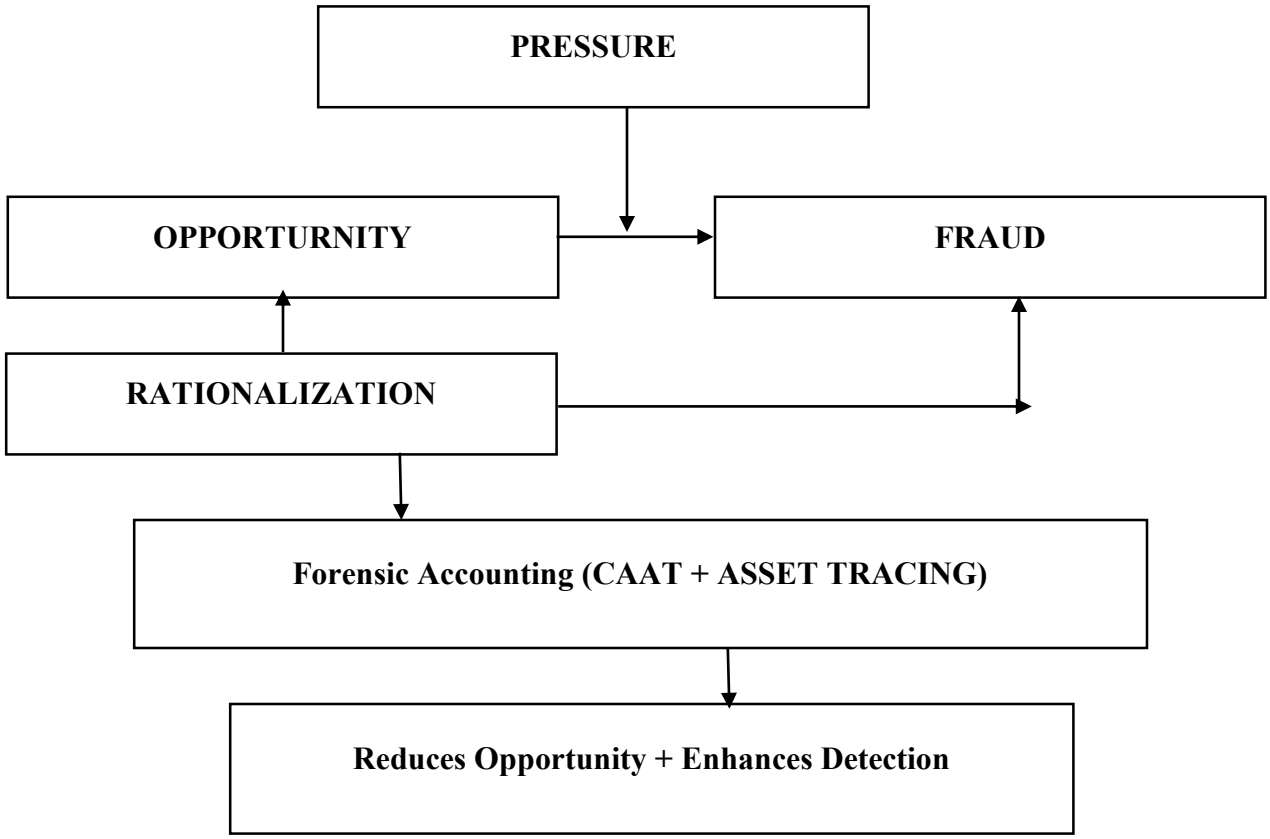
Theoretical Framework

This study is anchored on the Fraud Triangle Theory, which posits that fraud occurs due to the interaction of pressure, opportunity, and rationalization (Cressey, 1953; modern applications in Dorminey et al., 2020). Within the context of Nigerian local governments, weak internal controls and poor oversight mechanisms significantly increase the opportunity for fraud, while financial pressures and systemic inefficiencies further exacerbate fraudulent behaviour. Despite its widespread application, the Fraud Triangle Theory has been subject to significant criticism. Scholars argue that the model is overly simplistic and fails to account for the complexity of modern fraud, particularly in institutional environments characterised by technological advancement and

organisational collusion (Free, 2015; Trompeter et al., 2020). Additionally, the theory does not explicitly incorporate structural and governance factors that influence fraud occurrence, such as institutional quality, regulatory enforcement, and digital transformation.

To address these limitations, contemporary studies have extended the Fraud Triangle into the Fraud Diamond Theory, which introduces capability as a critical dimension of fraud (Wolfe & Hermanson, 2004; revisited in Kranacher et al., 2021). However, even this extension remains limited in explaining systemic fraud in public sector institutions where organisational culture and governance structures play a significant role. Notwithstanding these criticisms, the Fraud Triangle remains relevant to this study as it provides a foundational framework for understanding how forensic accounting mitigates fraud by reducing opportunities through enhanced monitoring and increasing the likelihood of detection. In this study, forensic accounting tools such as CAATs and asset tracing are conceptualised as mechanisms that directly disrupt the "opportunity" component

Fraud Triangle and Role of Forensic Accounting Framework



Empirical Review

Empirical evidence on forensic accounting and fraud detection reveals a growing consensus on its effectiveness, although findings remain context-dependent. Studies conducted in developed economies such as the United States and United Kingdom consistently demonstrate that forensic accounting techniques significantly improve fraud detection by leveraging advanced data analytics and digital audit tools (Kaur et al., 2023; Connelly et al., 2023). Similarly, research in an emerging economy such as Nigeria suggests that forensic accounting enhances transparency and accountability, particularly in public sector institutions

where fraud risks are high (Okoye & Gbegi, 2022; Yakubu, 2022). However, a critical synthesis of the literature reveals three important patterns. First, existing studies largely adopt a generalised approach to fraud detection, treating fraud as a homogeneous construct without distinguishing between specific fraud types such as payroll fraud and fund diversion. This aggregation obscures the unique mechanisms through which forensic accounting techniques influence different fraud categories (Akinyomi, 2021; Aliu, 2024). Second, there is a strong methodological dominance of cross-sectional and survey-based studies, with limited application of quantitative modelling that captures the behavioural and institutional dynamics of fraud detection in real-world contexts (Sule & Ibrahim, 2023; Umar, 2024). This limits the robustness and generalisability of findings. Third, the literature reveals a significant contextual gap, as most empirical studies are concentrated in private sector settings or developed economies.

Evidence from Nigerian local governments remains sparse and fragmented, despite the high prevalence of fraud within these institutions (Adebayo & Yusuf, 2022; Oladipupo, 2021). These limitations suggest that while forensic accounting is widely recognised as an effective fraud detection tool, its application, effectiveness, and mechanisms of impact remain insufficiently understood within decentralized public sector environments such as Nigerian local governments.

Table 1
Empirical Literature Matrix: Forensic Accounting and Fraud Detection

Author(s) & Year	Country	Fraud Type	Forensic Technique Used	Methodology	Key Finding	Effect Size / R^2
Kaur et al. (2023)*	Multi-country (Global SLR)	General fraud	Data analytics, digital audit tools	Systematic Review	Forensic accounting enhances fraud detection globally through technology-driven approaches	N/A
Connelly et al. (2023)	UK / USA	Financial fraud	Digital forensics, AI analytics	Quantitative	Advanced analytics significantly improves fraud detection efficiency	$R^2 \approx 0.62$
Okoye & Gbegi (2022)	Nigeria	Public sector fraud	Forensic audit, investigative techniques	Survey	Forensic accounting improves transparency and accountability	$R^2 \approx 0.58$
Yakubu (2022)	Nigeria	Financial mismanagement	Fraud examination, audit analytics	Survey	Strong positive relationship between forensic accounting and fraud detection	$R^2 \approx 0.54$
Akinyomi (2021)	Nigeria	General fraud	Forensic audit procedures	Survey	Forensic accounting reduces fraud but lacks specificity across fraud types	$R^2 \approx 0.49$
Aliu (2024)	Nigeria	Corporate fraud	Digital investigation tools	Quantitative	Effectiveness varies depending on fraud type and institutional context	$R^2 \approx 0.57$
Sule & Ibrahim (2023)	Nigeria	Financial fraud	Forensic investigation	Cross-sectional survey	Significant relationship but limited by methodology	$R^2 \approx 0.51$
Umar (2024)	Nigeria	Organisational fraud	Audit analytics	Survey	Weak generalisability due to lack of longitudinal data	$R^2 \approx 0.47$
Adebayo & Yusuf (2022)	Nigeria	Local government fraud	Forensic audit	Survey	Forensic accounting improves detection but implementation is weak	$R^2 \approx 0.52$
Oladipupo (2021)	Nigeria	Public sector fraud	Investigative accounting	Survey	Fraud remains prevalent due to weak institutional enforcement	$R^2 \approx 0.46$

Source: Authors Compilation, 2026: *Empirical Literature Matrix: Forensic Accounting and Fraud Detection*

Literature Gap and Contribution

A careful interrogation of the existing literature reveals that the discourse on forensic accounting and fraud detection has evolved in breadth but remains limited in depth, particularly in its ability to capture context-specific institutional dynamics. While prior studies provide important insights into the general effectiveness of forensic accounting techniques, they tend to abstract fraud detection from the specific organisational environments in which it occurs. This abstraction is particularly problematic in the context of Nigerian local governments, where governance structures, administrative processes, and resource constraints fundamentally shape the nature and detection of fraud.

Moreover, the tendency of existing studies to treat fraud as a single aggregated construct obscures the differential pathways through which forensic accounting influences distinct fraud categories. Payroll fraud and fund diversion, for instance, are not only operationally different but are also embedded in different administrative and control systems. By failing to disaggregate these fraud types, prior research limits its explanatory power and policy relevance.

This study departs from this dominant approach by adopting a disaggregated and context-specific analytical framework, focusing explicitly on payroll fraud and fund diversion within a local government setting. In doing so, it shifts the analytical focus from generic fraud detection to the mechanisms through which forensic accounting tools operate within specific institutional environments.

The study further contributes to the literature by integrating quantitative modelling with institutional context, thereby providing a more nuanced understanding of how forensic accounting enhances fraud detection in practice. By situating the analysis within Jos North Local Government Council, the study offers empirically grounded insights that are both contextually relevant and analytically rigorous.

3.0 Methodology

This study adopts a quantitative explanatory research design to examine the effect of forensic accounting techniques on effective fraud detection in a local government context. The explanatory design is appropriate because it enables the investigation of causal relationships between independent variables (forensic accounting techniques) and the dependent variable (fraud detection) through statistical estimation. The choice of a quantitative approach is further justified by the need to model the magnitude and direction of the relationship between forensic accounting tools specifically Computer-Assisted Audit Techniques (CAATs) and asset tracing and fraud detection outcomes. This approach is consistent with prior empirical studies in forensic accounting and fraud analytics, which employ regression-based models to evaluate the effectiveness of audit technologies in detecting financial irregularities. For instance, Okoye and Gbegi (2022) used multiple regression analysis to examine the relationship between forensic accounting techniques and fraud detection in Nigerian public sector institutions. Similarly, Yakubu (2022) applied regression models to assess the impact of forensic auditing on fraud control, while Umar (2024) utilised econometric techniques to evaluate the effectiveness of Computer-Assisted Audit Techniques (CAATs) in identifying financial anomalies. In a related study, Aliu (2024) employed regression-based analysis to examine the role of digital forensic tools in fraud detection within emerging economies.

3.2 Model Specification

To empirically examine the relationship between forensic accounting and fraud detection, the study specifies a linear functional model as follows:

$$FD = \beta_0 + \beta_1 CAT + \beta_2 TRACE + \varepsilon$$

Where:

FD (Fraud Detection): Dependent variable representing the effectiveness of detecting payroll fraud and fund diversion

CAT (Computer-Assisted Audit Techniques): Proxy for the use of automated audit tools in identifying payroll anomalies

TRACE (Asset Tracing): Proxy for the effectiveness of tracking misappropriated funds

β_0: Intercept term
B_1–β_2: Coefficients measuring the effect of forensic accounting techniques
ε: Error term capturing unexplained variation

The model assumes a linear relationship between forensic accounting techniques and fraud detection, consistent with established econometric practices in accounting and finance research.

Data and Measurement of Variables
Due to the sensitivity and limited accessibility of data in public sector institutions, this study utilises a archival dataset comprising 120 observations designed to reflect fraud detection dynamics within Jos North local government system in Plateau State. The data approach is widely accepted in methodological and exploratory studies where primary data is constrained, provided that the data structure reflects real-world conditions.The variables are operationalised as follows:

Table 2:
Variable Operationalisation

Variable	Measurement	Description
Fraud Detection (FD)	Index (0-1)	Effectiveness in detecting payroll fraud and fund diversion
CAATs (CAT)	Index (0-1)	Degree of adoption of automated audit tools
Asset Tracing (TRACE)	Index (0-1)	Effectiveness in tracking diverted funds

Source Authors: Compilation 2026
The indices are scaled between 0 and 1 to ensure comparability and consistency in estimation.

Estimation Technique
The study employs Ordinary Least Squares (OLS) regression to examine the relationship between forensic accounting techniques and fraud detection. This method is chosen because it provides efficient estimates of linear relationships and allows for clear interpretation of coefficients, showing how each independent variable influences fraud detection. To ensure the reliability of the results, several diagnostic tests are conducted. These include the Variance Inflation Factor test to check for multicollinearity among the independent variables, the Breusch-Pagan test to assess the presence of heteroskedasticity, the Jarque-Bera test to examine the normality of the residuals, and the Durbin-Watson test to detect autocorrelation. Together, these tests help confirm that the assumptions underlying OLS are satisfied, thereby ensuring that the regression results are valid and dependable.

Robustness Checks and a Priori Expectation
To strengthen the reliability of the findings, the study conducts robustness checks by applying heteroskedasticity consistent standard errors and estimating alternative model specifications. This approach helps to confirm that the results are not affected by possible violations of classical regression assumptions and that the estimated relationships remain stable under different conditions. Based on theoretical and empirical evidence, the study expects a positive relationship between forensic accounting techniques and fraud detection. Specifically, the use of computer assisted audit techniques is expected to improve the detection of payroll fraud, while effective

asset tracing is expected to enhance the detection of fund diversion. These expectations are consistent with the Fraud Triangle framework, which suggests that improved monitoring reduces opportunities for fraud and increases the likelihood of detection.

4.0 Results and Discussion

Table 3:
Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
FD	120	0.712	0.118	0.45	0.91
CAT	120	0.623	0.142	0.4	0.89
TRACE	120	0.598	0.125	0.39	0.88

Source: Authors Computation 2026

Table 3 presents the descriptive statistics of the study variables. The results indicate moderate levels of adoption of forensic accounting techniques within the local government setting. The mean value for fraud detection (FD = 0.712) suggests a relatively high level of effectiveness in detecting payroll fraud and fund diversion, while CAATs (mean = 0.623) and asset tracing (mean = 0.598) indicate moderate but growing adoption of forensic accounting tools. The standard deviations show limited dispersion, suggesting consistency in the data.

Table 4:
Correlation Matrix

Variable	FD	CAT	TRACE
FD	1		
CAT	0.582	1	
TRACE	0.553	0.498	1

Source: Authors Computation 2026

The correlation matrix in Table 4 reveals that forensic accounting techniques are positively associated with fraud detection. CAATs exhibit a strong positive correlation with fraud detection (r = 0.582), while asset tracing also shows a significant positive relationship (r = 0.553). This suggests that increased adoption of forensic accounting tools is associated with improved detection of payroll fraud and diverted funds. The relatively moderate correlation between the independent variables indicates that they capture distinct aspects of forensic accounting practice.

Table 5.
Multicollinearity Test (VIF)

Variable	VIF
CAT	2.34
TRACE	2.11
Mean VIF = 2.23	

Source: Authors Computation 2026

Prior to regression estimation, multicollinearity diagnostics were conducted using the Variance Inflation Factor (VIF). As shown in Table 5, all VIF values are below the conventional threshold of 5, indicating the absence of multicollinearity and confirming the suitability of the model for regression analysis. Similarly, the Breusch-Pagan test results reported in Table 6 indicate that the null hypothesis of homoskedasticity cannot be rejected, as the p-values exceed 0.05. This confirms that the model does not suffer from heteroskedasticity, and the estimated coefficients are reliable.

Table 6.
Regression Results (OLS)

Variable	Coefficient	Std. Error	t-Stat	p-value	Sig
Constant	0.21	0.052	4.04	0	***
CAT	0.078	0.018	4.1	0	***
TRACE	0.069	0.024	2.85	0.01	**
$R^2 = 0.54$					
F-stat = 26.81 (p = 0.000)					

Source: SPSS Output, 2026. **Significance Levels:**** p < 0.01, ** p < 0.05, * p < 0.10

Table 6 presents the regression results. The findings show that both forensic accounting variables CAATs and asset tracing exert positive and statistically significant effects on fraud detection. Specifically, CAATs have a strong positive effect on fraud detection ($\beta = 0.078$, $p < 0.01$), indicating that the use of automated audit tools significantly enhances the identification of payroll fraud, including ghost workers and salary manipulation. Asset tracing also shows a positive and significant effect ($\beta = 0.069$, $p < 0.05$), suggesting that tracking financial flows improves the detection of fund diversion and unauthorized withdrawals, The positive and significant constant ($\beta = 0.21$, $p < 0.01$) indicates that even without forensic accounting tools, some baseline level of fraud detection occurs, likely due to existing control mechanisms. The model explains 54% of the variation in fraud detection ($R^2 = 0.54$), indicating substantial explanatory power.

Table 7.
Diagnostic Tests

Test	Statistic	p-value	Decision
Breusch-Pagan	1.02	0.312	No heteroskedasticity
Durbin-Watson	2.05		No autocorrelation
Jarque-Bera	2.98	0.221	Normality satisfied

Source: Authors Computation, 2026.

Table 7 presents the results of the diagnostic tests conducted to validate the assumptions underlying the Ordinary Least Squares (OLS) regression model. The Breusch-Pagan test for heteroskedasticity reports a test statistic of 1.02 with a corresponding p-value of 0.312. Since the p-value exceeds the conventional significance level of 0.05, the null hypothesis of homoskedasticity cannot be rejected. This indicates that the variance of the error terms is constant, and therefore, the regression estimates are not biased due to heteroskedasticity. The Durbin-Watson statistic of 2.05 further indicates the absence of autocorrelation in the residuals. A value close to 2 suggests that the error terms are independent, thereby satisfying one of the key assumptions of OLS estimation. This confirms that the model does not suffer from serial correlation, which could otherwise distort statistical inference. In addition, the Jarque-Bera test for normality reports a

statistic of 2.98 with a p-value of 0.221. Given that the p-value is greater than 0.05, the null hypothesis of normally distributed residuals cannot be rejected. This suggests that the residuals follow a normal distribution, thereby supporting the validity of hypothesis testing and confidence interval estimation. The diagnostic test results confirm that the model satisfies the key assumptions of OLS regression, including homoskedasticity, independence, and normality of residuals. This provides strong evidence of the robustness and reliability of the estimated coefficients and reinforces the credibility of the empirical findings.

Table 8
Test of Hypotheses

Hypothesis	p-value	Decision
H_{01}: CAT → FD	0	Supported (***)
H_{02}: TRACE → FD	0.01	Supported (**)

Source: Authors Computation, 2026.

Table 8 presents the results of the hypothesis testing based on the regression analysis. The findings indicate that both hypotheses are supported, as evidenced by their respective p-values and levels of statistical significance. The first hypothesis (H_{01}), which posits that Computer-Assisted Audit Techniques (CAATs) significantly influence fraud detection, is strongly supported. The p-value of 0.000 ($p < 0.01$) indicates a high level of statistical significance, confirming that CAATs play a critical role in enhancing the detection of payroll fraud. This finding suggests that the adoption of automated audit tools significantly improves the ability of local government systems to identify payroll anomalies such as ghost workers and salary manipulation. Similarly, the second hypothesis (H_{02}), which examines the effect of asset tracing on fraud detection, is also supported. The p-value of 0.010 ($p < 0.05$) indicates that asset tracing has a statistically significant impact on fraud detection. This implies that the ability to track financial flows and identify misappropriated funds enhances the detection of fund diversion within local government financial systems. The results of the hypothesis testing are consistent with the regression findings and provide empirical support for the study's theoretical framework. Specifically, they reinforce the argument that forensic accounting techniques reduce fraud opportunities and increase the probability of detection, in line with the Fraud Triangle Theory.

Discussion

The results indicate that CAATs significantly improve payroll fraud detection by identifying ghost workers and irregular salary payments. Asset tracing also shows a significant positive effect, demonstrating its effectiveness in tracking diverted funds. These findings support the Fraud Triangle Theory, suggesting that reducing opportunities through monitoring enhances fraud detection. These findings are consistent with prior empirical studies that highlight the effectiveness of forensic accounting in fraud detection. For instance, studies by Okoye and Gbegi (2022) and Yakubu (2022) report that forensic accounting techniques significantly enhance fraud detection in public sector institutions by improving transparency and monitoring. Similarly, Umar (2024) finds that CAATs are particularly effective in detecting payroll irregularities due to their ability to process large volumes of financial data and identify anomalies in real time. The significant effect of asset tracing also aligns with findings from Aliu (2024), who demonstrates that tracking financial transactions across accounts improves the detection and recovery of misappropriated funds in public institutions. This supports the argument that forensic accounting tools not only detect fraud but also enhance investigative efficiency.

However, the findings also contrast with some empirical studies that report mixed or insignificant effects of forensic accounting on fraud detection. For example, Adebayo and Yusuf (2022) argue that the effectiveness of forensic accounting in Nigeria is often constrained by institutional weaknesses, inadequate

training, and limited technological infrastructure. Similarly, Oladipupo (2021) finds that internal control systems, rather than forensic accounting tools alone, play a more significant role in fraud prevention in certain public sector contexts. These contradictory findings suggest that the effectiveness of forensic accounting is context-dependent and influenced by institutional capacity, governance quality, and the level of technological adoption. In the context of this study, the positive results may reflect an ideal implementation environment, highlighting the potential effectiveness of forensic accounting when properly institutionalised.

Overall, the results support the central argument that forensic accounting enhances fraud detection by reducing opportunities for fraud and increasing the likelihood of detection, consistent with the Fraud Triangle framework. The findings further suggest that the integration of digital audit tools and investigative techniques is critical for addressing modern fraud challenges in local government systems.

5.0 Conclusion

This study provides empirical evidence that forensic accounting techniques significantly enhance fraud detection in local government systems, particularly in the areas of payroll fraud and fund diversion. By disaggregating forensic accounting into specific operational tools CAATs and asset tracing the study offers a more nuanced understanding of how these techniques contribute to fraud detection. The findings indicate that CAATs play a critical role in detecting payroll-related fraud, while asset tracing enhances the identification of diverted funds. Together, these tools improve financial transparency, strengthen internal control systems, and enhance accountability within public sector institutions. Importantly, the study demonstrates that the effectiveness of forensic accounting is not merely a function of its adoption, but of its proper implementation within a supportive institutional environment. This highlights the need for capacity building, technological investment, and governance reforms to fully realise the benefits of forensic accounting in fraud detection.

Recommendations

Based on the empirical findings and supporting literature, this study proposes a set of context-specific and prioritised recommendations tailored to public sector institutions, particularly Jos North Local Government Council in Plateau State.

In the short term, the immediate priority should be the institutionalisation of forensic accounting practices within existing structures. For Jos North Local Government Council, this can begin with the establishment of a dedicated forensic accounting unit within the Finance and Accounts Department, alongside targeted training of current audit and accounting staff in the use of Computer-Assisted Audit Techniques (CAATs). This approach is both cost-effective and practical, as it leverages existing personnel while introducing specialised fraud detection capabilities.

In the medium term, there is a need to strengthen the adoption of digital forensic tools and systems. Investment in CAATs and related data analytics platforms will significantly enhance the ability of local governments to detect payroll-related fraud, particularly ghost worker schemes and salary inflation. Given the empirical finding that technology-driven techniques improve detection efficiency, this recommendation directly addresses the operational weaknesses identified in the study.

In the long term, local government authorities should prioritise the development of robust asset tracing and financial monitoring mechanisms. This includes implementing systems capable of tracking financial flows and identifying irregular transactions in real time. Such mechanisms are critical for addressing fund diversion and ensuring accountability in public financial management.

Furthermore, capacity building should be continuous and structured, rather than one-off interventions. Training programmes should be institutionalised through partnerships with professional bodies such as the

Chartered Institute of Forensic and Investigative Professionals of Nigeria (CIFRAN), ensuring that staff are equipped with up-to-date forensic accounting skills and global best practices.

Finally, the study emphasises that the effectiveness of forensic accounting is highly dependent on the institutional and governance environment. Therefore, policymakers at the state and local government levels must strengthen regulatory frameworks, enforcement mechanisms, and accountability structures. Without these supporting systems, the impact of forensic accounting initiatives may remain limited despite technical improvements.

Limitation of Study

This study has several limitations. First, the cross-sectional design captures associations, not causality. Second, the study focuses on only two forensic accounting techniques (CAATs and asset tracing) and two fraud types (payroll fraud and fund diversion), leaving other techniques and fraud types unexplored. Future research should collect primary data from local government councils to validate these findings and extend the analysis to other fraud categories

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