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- I. Title page
- II. Abstract (150-250 words)
- III. Keywords (3-5)
- IV. Introduction
- V. Literature Review
- VI. Methodology
- VII. Results and Discussion
- VIII. Conclusion and Recommendations
- IX. References (APA 7th Edition)
- X. Appendices (if necessary)
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## EFFECT OF FORENSIC ACCOUNTING APPROACHES ON FRAUD PREVALENCE AMONG NOT-FOR-PROFIT ORGANIZATIONS IN NORTHERN NIGERIA

GANIYU A. MUSTAPHA and SUNDAY MLANGA

### ABSTRACT

*This study investigates the effect of forensic accounting approaches: Fraud Risk Assessment (FRA), Internal Control Systems (ICS), Fraud Investigation Techniques (FIT), Whistleblowing Mechanisms (WM), and Ethical Climate (EC) on fraud prevalence within not-for-profit organizations (NPOs) in Northern Nigeria. Employing a quantitative survey design, data from 260 professionals were analysed using multiple linear regression. Results show that all five approaches significantly reduce fraud prevalence, collectively explaining 87.5% of the variance ( $R^2 = 0.875$ ). Fraud Investigation Techniques emerged as the most influential predictor ( $\beta = 0.476$ ), followed by Fraud Risk Assessment ( $\beta = 0.402$ ) and Ethical Climate ( $\beta = 0.377$ ). The findings validate forensic accounting as a multidimensional strategy for mitigating fraud in resource-constrained environments. They emphasize the importance of proactive risk controls, ethical reinforcement, and investigative rigor in addressing fraud vulnerabilities. The study advocates for context-specific interventions, including capacity building in forensic investigation, adoption of integrated monitoring systems, regulatory enforcement, and development of localized forensic tools tailored to the nonprofit sector.*

**Keywords:** Forensic accounting, Fraud Investigation Techniques, Risk Assessment, Ethical Climate, Internal Control Systems, Whistleblowing Mechanisms

### 1.0 Introduction

Fraud is a pervasive threat to the integrity and sustainability of Not-for-Profit Organizations (NPOs), eroding donor confidence and diverting scarce resources from social objectives. The Association of Certified Fraud Examiners (ACFE, 2022) estimates median losses at \$639,000 per case, with asset misappropriation comprising 86% of incidents. Vulnerabilities stem from weak controls, scarce resources, and reliance on part-time staff (Buonomo et al., 2020). High-profile cases, such as the mismanagement of \$1.5 million in USAID funds (USAID, 2024), underscore the risk of reputational and operational collapse.

In Africa, NPOs' contributions to poverty alleviation and public health are undermined by corruption, weak governance, and insufficient oversight (Kabonga, 2023). Fraudulent diversions worsen poverty, while fragile institutions enable reactive rather than preventive accountability. Nigeria reflects these issues, particularly in the North, where NPOs face poverty, insecurity, and persistent fraud despite reforms such as the 2016 whistleblowing policy (Okafor et al., 2020). The EFCC's 2024 recovery of ₦32.7 billion and \$445,000 exposed systemic

weaknesses and the inadequacy of traditional detection. Forensic accounting has thus emerged as a proactive approach, combining investigative techniques, auditing, and legal evidence gathering. Key approaches include Fraud Risk Assessment (FRA) (Wilks & Zimbelman, 2004), Internal Control Systems (ICS) (Hamed, 2023), Fraud Investigation Techniques (FIT) (Aboud & Robinson, 2020), Whistleblowing Mechanisms (WM) (Brink et al., 2017), and Ethical Climate (EC) (Teresi et al., 2019).

Barriers limit their effectiveness in Northern Nigerian NPOs: FRA is underused due to low risk analysis capacity (ACFE, 2022); ICS suffers from weak enforcement (World Bank, 2020); FIT adoption is constrained by low technological penetration; WM face cultural resistance and weak protections (Okafor et al., 2020); while EC is undermined by poor governance and leadership gaps. Existing studies focus on single components, overlooking interactions such as how EC enhances WM or how FRA strengthens FIT. Reliance on global models like the Fraud Triangle also neglects Northern Nigeria's unique risk context of poverty, donor dependency, and insecurity (Kabonga, 2023).

This study therefore investigates the combined effect

of FRA, ICS, FIT, WM, and EC on fraud prevalence in Northern Nigerian NPOs. Its objectives are to evaluate the individual and collective effects of these approaches on fraud detection, prevention, and deterrence. Achieving these goals will not only contribute to scholarly debate but also inform policy reforms, strengthen governance, and improve NPO accountability. By safeguarding donor funds and enhancing transparency, these measures can rebuild trust, ensure resource alignment with mission objectives, and improve service delivery in vulnerable communities.

## 2.0 Literature Review and Hypothesis Development

### 2.1 Framework of Forensic Accounting Approaches and Fraud Prevalence

The pictorial conceptual framework illustrating the hypothesized relationships between the study variables is presented here. The framework proposes a direct nexus between forensic accounting approaches and Fraud Prevalence (FP) in not-for-profit organizations (NPOs) operating in Northern Nigeria. The conceptual framework of the study is depicted in figure

#### 2.1.

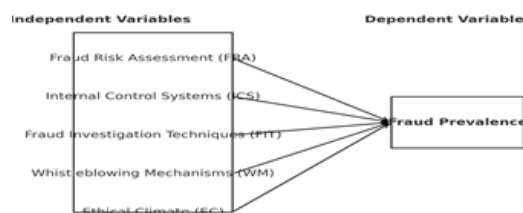


Figure 2.1 Conceptual framework developed by the researcher

This study is anchored on four complementary theories Fraud Triangle (Cressey, 1953), Fraud Diamond (Wolfe & Hermanson, 2004), Agency Theory (Jensen & Meckling, 1976), and Routine Activity Theory (Cohen & Felson, 1979) which collectively explain the psychological, organizational, and situational drivers of fraud in Northern Nigerian NPOs. The Fraud Triangle emphasizes pressure, opportunity, and rationalization, showing how weak controls increase fraud risk (Abdullahi & Mansor, 2018; Chen et al., 2014). Although it neglects offender capability, it underpins the roles of Fraud Risk Assessment (FRA) and Internal Control Systems (ICS). Fraud Diamond extends this by including capability, stressing the need for skilled Fraud Investigation Techniques (FIT) (Rustiarini et al., 2019). Agency Theory highlights principal-agent conflicts between donors/boards and staff, justifying Whistleblowing Mechanisms (WM) as oversight tools (Cantu & Mondragon, 2016), though it may understate non-economic motivations (Plaisance, 2023). Routine Activity Theory explains fraud as the convergence of motivated offenders,

suitable targets, and weak guardianship, supporting FIT and Ethical Climate (EC) as deterrents. Collectively, these theories offer an integrated framework for examining FRA, ICS, FIT, WM, and EC in mitigating fraud risks.

### Fraud Prevalence

Fraud prevalence refers to the extent and frequency of fraudulent practices in organizations and is particularly damaging to NPOs by eroding donor trust, disrupting funding, and weakening service delivery. Globally, ACFE (2008) estimated losses of 7% of annual revenues to fraud, amounting to billions of dollars, with NPOs in health and community development most exposed (Archambeault et al., 2014). In Northern Nigeria, cultural norms, weak oversight, and poor internal controls increase these risks. Within this study, fraud prevalence serves as the dependent variable.

### Fraud Risk Assessment (FRA) and Fraud Prevalence

Fraud Risk Assessment is a structured process of identifying and evaluating fraud vulnerabilities. It involves analytical tools, staff interviews, and risk-based audits (Wilks & Zimbelman, 2004). When embedded into governance, FRA enables early detection and reduces losses (ACFE, 2022). However, Northern Nigerian NPOs often lack staff capacity, resources, and formal protocols to conduct systematic risk assessments. Empirical evidence is mixed: Hamed (2023) found FRA reduces fraud when integrated into culture and oversight, while Kabonga (2023) argued that in weak governance environments, FRA has minimal impact. Accordingly, this study hypothesizes that FRA has no significant effect on fraud prevalence in Northern Nigerian NPOs ( $H_{01}$ ).

### Internal Control Systems (ICS) and Fraud Prevalence

Internal controls safeguard assets, ensure accurate reporting, and improve efficiency. COSO (2013) identifies five components control environment, risk assessment, control activities, information, and monitoring. Mechanisms such as segregation of duties, reconciliations, and approval limits help deter fraud (Hamed, 2023). Yet in Northern Nigerian NPOs, controls are often poorly enforced due to limited technical expertise, resource shortages, and weak governance structures. Yu and Neter (1973) found a strong inverse link between ICS and fraud, while World Bank (2020) reported negligible effects in low-capacity settings. Based on this, the study hypothesizes that ICS have no significant effect on fraud prevalence in Northern Nigerian NPOs ( $H_{02}$ ).

### Fraud Investigation Techniques (FIT) and Fraud Prevalence

Fraud investigation techniques consist of specialized methods to uncover, document, and prosecute fraud,



using admissible evidence and transaction tracing (Kumar et al., 2022). Modern FIT rely heavily on technology, including data analytics, AI, and blockchain tracing (Odeyemi et al., 2024). While these have proven effective in well-resourced organizations (Aboud & Robinson, 2020; Abdullah et al., 2023), Northern Nigerian NPOs face barriers such as poor infrastructure, limited access to forensic tools, and few trained experts (Okafor et al., 2020). Thus, this study hypothesizes that FIT have no significant effect on fraud prevalence in Northern Nigerian NPOs ( $H_{03}$ ).

### Whistleblowing Mechanisms (WM) and Fraud Prevalence

Whistleblowing mechanisms provide secure channels for reporting misconduct through anonymous hotlines, portals, or ethics officers. They act as early-warning systems and deterrents, increasing the perceived risk of detection (Pope & Lee, 2012; Curtis & Taylor, 2009). However, in Northern Nigeria, cultural stigma against whistleblowing, coupled with weak legal protections, limit their effectiveness (Nayir et al., 2016; Adeyemi & Olowookere, 2021). While some studies (Pope & Lee, 2012; Okafor et al., 2020) found that WM significantly reduce fraud, others argue their impact is negligible in unsupportive environments. Accordingly, it is hypothesized that WM have no significant effect on fraud prevalence in Northern Nigerian NPOs ( $H_{04}$ ).

### Ethical Climate (EC) and Fraud Prevalence

Ethical climate refers to shared organizational norms about acceptable conduct (Victor & Cullen, 1988). A strong EC promotes transparency and integrity, discouraging unethical rationalization (Teresi et al., 2019; Martin & Cullen, 2006). By setting behavioural expectations, EC acts as both preventive and deterrent. However, in Northern Nigerian NPOs, weak leadership, poor enforcement, and tolerance of minor misconduct erode ethical culture (Adeyemi & Olowookere, 2021). Empirical findings are mixed: Teresi et al. (2019) and Arnaud & Schminke (2012) found EC reduces fraud, while Okafor et al. (2020)

argued EC alone is insufficient without stronger enforcement. Therefore, the study hypothesizes that EC has no significant effect on fraud prevalence in Northern Nigerian NPOs ( $H_{05}$ ).

### 3.0 Methodology

The study adopted a quantitative survey research design to examine the relationships between five forensic accounting approaches and fraud occurrence in not-for-profit organizations (NPOs) in Northern Nigeria. It aligns with a realist ontological stance, recognizing fraud occurrence as an objective reality measurable through forensic accounting tools, and a positivist epistemological stance, using structured questionnaires to collect quantifiable data for statistical testing. Axiologically, the researcher-maintained neutrality, ensuring personal values did not influence the process.

The study population comprised 625 professionals in financial oversight roles across 42 NPOs in the North-West, North-East, and North-Central zones, including accountants, auditors, compliance officers, program managers with budget oversight, and board members with fiduciary responsibilities. The sample size was determined using Cochran's formula, adjusted for the finite population, resulting in an effective size of approximately 238, which was increased to 260 to account for potential non-responses. Stratified random sampling was employed based on organizational size, geographic location, and functional role, ensuring proportional representation and reflecting the operational diversity of NPOs in the region. Data were collected through a structured questionnaire featuring closed-ended Likert-scale questions on the effectiveness of FRA, ICS, FIT, WM, and EC in detecting fraud, along with indicators of fraud prevalence. SPSS (version 27) was used for data analysis, ensuring statistical precision at a 95% confidence level with a  $\pm 5\%$  margin of error.

Table 3.1 shows how the variables in the study were objectively measured in actualizing the research philosophical stance stated earlier.

**Table 3.1 Variables and Measurements**

Variable	Variable Type	Measurement	Scholars
FOC	Dependent	Number of reported fraud incidents per year; financial loss due to fraud; resolution timelines	Aboud & Robinson (2020); Abdullah et al. (2023); Okafor et al. (2020)
FRA	Independent	Fraud risk assessments conducted in the organization	Abdullahi & Mansor (2018); Chen et al. (2014)
ICS	Independent	Enforcement of preventive and detective internal controls	Rustiarini et al. (2019); Plaisance (2023)
FIT	Independent	Effectiveness of investigative tools and processes	Kumar et al. (2022); Odeyemi et al. (2024)
WM	Independent	Follow-up of whistleblowing channels	Cantu & Mondragon (2016); Wu et al. (2023)
EC	Independent	Ethical behaviour norms	Plaisance (2023); Aminu & Shariff (2020)

Source: Researcher

To assess the impact of five independent variables (Forensic Accounting approaches) on the dependent variable of fraud prevalence, a multiple linear regression analysis was conducted, while controlling demographic factors. The model represents fraud prevalence as a function of these combined forensic accounting approaches:

FOC = Fraud Occurrence (Dependent Variable), FRA = Fraud Risk Assessment, ICS = Internal Control Systems, FIT = Fraud Investigation Techniques, WM = Whistleblowing Mechanisms, EC = Ethical Climate,  $\varepsilon$  = Error term. The model is specified as:

$$\text{FOC} = \beta_0 + \beta_1\text{FRA} + \beta_2\text{ICS} + \beta_3\text{FIT} + \beta_4\text{WM} + \beta_5\text{EC} + \varepsilon$$

Where:  $\beta_0$  = Intercept,  $\beta_1$ – $\beta_5$  = Coefficients of the independent variables,  $\varepsilon$  = Random error term.

The dependent variable, fraud prevalence, is a composite measure of key outcomes. The analysis, performed using SPSS, tested whether enhanced application of forensic approaches correlates significantly with improved fraud detection. Robustness checks included tests for multicollinearity (VIF) and heteroscedasticity to ensure model validity and reliability.

#### 4.0 Results and Discussion

This section details the data analysis performed in accordance with the study's goals, utilizing both descriptive and inferential statistical methods. Tools such as frequency distributions, percentage analyses, and significance tests (with a threshold of  $p < 0.05$ ) were used on responses from a sample of 260 participants.

**Table 4.1: Descriptive Statistics**

Variables	N	Minimum	Maximum	Mean	Std. Deviation
FRA	260	4	5	4.45	0.498
ICS	260	4	5	4.50	0.501
FIT	260	4	5	4.48	0.501
WM	260	4	5	4.51	0.501
EC	260	4	5	4.54	0.499

Source: Output of SPSS 25

Descriptive statistics, based on a 5-point Likert scale and a sample of 260 respondents, revealed consistently high agreement across all five forensic accounting strategies. Mean scores ranged from 4.45 to 4.54, indicating strong perceived relevance of fraud risk assessment (FRA), internal control systems (ICS), fraud investigation techniques (FIT),

whistleblowing mechanisms (WM), and ethical climate (EC) in mitigating fraud. The narrow standard deviations (0.498–0.501) reflect a high level of consensus among respondents regarding the effectiveness of these strategies in the context of fraud prevention within Northern Nigerian NPOs.

**Table 4.2: Correlations**

Variables	Fraud Prevalence
FRA	0.377**
ICS	0.351**
FIT	0.305**
WM	0.380**
EC	0.299**

\*\*\* $p < 0.01$ ; Source: Output of SPSS 25 \*

Pearson correlations demonstrated consistently positive relationships ( $r = 0.351$ – $0.380$ ;  $p < 0.01$ ) between each approach and fraud prevalence. Whistleblowing Mechanisms showed the strongest association ( $r = 0.380$ ), followed closely by Fraud Risk Assessment ( $r = 0.377$ ). All variables demonstrated meaningful associations, indicating that enhanced implementation of these approaches is positively linked to improved fraud prevalence outcomes within Northern Nigerian NPOs.

**Table 4.3: Model Summary**

R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error	R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change
0.936	0.875	0.874	0.053	868.08	868.08	5	619	0.000

The multiple regression model demonstrated very strong explanatory power, with  $R^2 = 0.875$ , indicating that approximately 88% of the variance in fraud prevalence is explained by the five forensic accounting approaches. The multiple regression model demonstrated very strong explanatory power, with  $R^2 = 0.875$ ,

indicating that approximately 88% of the variance in fraud prevalence is explained by the five forensic accounting approaches, the remaining 12% of the variance is likely influenced by external factors. The F-statistics (868.08,  $p = 0.000$ ) confirmed model significance at the 1% level.

**Table 4.4: ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	87.500	5	17.500	866.6	0.000
Residual	12.500	619	0.020		
Total	100.000	624			

The ANOVA results ( $F = 866.6$ ,  $p < 0.001$ ) confirm that the regression model is statistically significant. This indicates that the five forensic accounting approaches jointly explain a substantial proportion of the variance in fraud prevalence. The model's strength reinforces the importance of these strategies in mitigating fraud within Northern Nigerian NPOs.

**Table 4.5: Variance Inflation Factor**

Variables	Tolerance	VIF
FRA	0.996	1.004
ICS	0.988	1.012
FIT	0.989	1.012
WM	0.993	1.007
EC	0.996	1.004
Mean VIF		1.01

Tolerance ( $>0.10$ ) and VIF ( $<10$ ) values confirmed no multicollinearity, validating variable independence. Collinearity diagnostics confirmed that all five forensic accounting variables exhibited VIF values well below 10 and tolerance values well above 0.10, indicating no multicollinearity.

**Table 4.6: Regression Coefficients**

Variables	Unstandardized B	Std. Error	Beta	t	Sig.
(Constant)	-0.087	0.140	—	-0.623	0.534
FRA	0.303	0.014	0.402	21.130	0.000
ICS	0.245	0.014	0.331	17.330	0.000
FIT	0.357	0.014	0.476	24.940	0.000
WM	0.218	0.015	0.285	14.980	0.000
EC	0.277	0.014	0.377	19.850	0.000

Source: Output of SPSS



All forensic accounting approaches significantly predicted fraud prevalence ( $p = 0.000$ ). The strongest predictor was Fraud Investigation Techniques ( $\beta = 0.476$ ), followed by Fraud Risk Assessment ( $\beta = 0.402$ ) and EC ( $\beta = 0.377$ ). All null hypotheses were rejected ( $p < 0.001$ ), confirming that each forensic accounting approach significantly affects fraud prevalence in Northern Nigerian NPOs. Fraud Investigation Techniques (FIT) emerged as the strongest predictor ( $\beta = 0.476$ ;  $t = 24.940$ ;  $p = 0.000$ ), underscoring the importance of specialized investigative skills. This was followed by FRA ( $\beta = 0.402$ ) and EC ( $\beta = 0.377$ ), while ICS ( $\beta = 0.331$ ) and WM ( $\beta = 0.285$ ) also made significant contributions (all  $p < 0.05$ ). These findings confirm that forensic accounting strategies collectively mitigate fraud in NPOs, consistent with Abdullahi and Mansor (2018), Rustiarini et al. (2019), and Plaisance (2023), though contrasting critiques that highlight cultural and resource constraints in their application.

### 5.0 Conclusion and Recommendations

This study assessed the effect of forensic accounting approaches on fraud prevalence in not-for-profit organizations (NPOs) in Northern Nigeria, focusing on fraud risk assessment (FRA), internal control systems (ICS), fraud investigation techniques (FIT), whistleblowing mechanisms (WM), and ethical climate (EC). Regression analysis showed that all five approaches significantly and positively impact fraud prevention. FIT, FRA, and EC emerged as the strongest predictors, while ICS and WM also contributed, though with slightly weaker effects. Therefore, it is concluded that:

- i. Fraud investigation techniques are the most critical determinant, as specialized skills enhance fraud detection and resolution.
  - ii. Fraud risk assessment proactively identifies vulnerabilities and strengthens preventive controls.
  - iii. Ethical climate promotes accountability and integrity, reducing rationalization for misconduct.
  - iv. Internal control systems improve oversight, transparency, and accountability.
  - v. Whistleblowing mechanisms enable early detection, though their success depends on protection frameworks and organizational support.
- Based on the above conclusions, the following recommendations are proposed:

- i. NPOs should strengthen staff capacity in fraud investigation, forensic analytics, and ethical leadership.
- ii. FRA should be institutionalized through structured monitoring and periodic reviews.
- iii. Leaders must embed integrity in governance and protect whistleblowers to encourage reporting.
- iv. ICS should be enhanced with integrated financial systems and real-time monitoring.

- v. Regulators (CAC, EFCC) should enforce nonprofit-specific anti-fraud policies, encourage localized forensic tools, and foster collaborations among NPOs, regulators, and experts to build sector-wide resilience.

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