


# Influence of Integrated Payroll and Personnel Information System (IPPIS) on Public Sector Payroll Fraud in Nigeria

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**Abstract**
This study examines the influence of the Integrated Payroll and Personnel Information System (IPPIS) on public sector payroll fraud in Nigeria, covering the period 2012 to 2024. The study is anchored on the problem of persistent payroll fraud in the Nigerian public sector, manifesting in ghost worker syndrome, payroll padding and systemic internal control failures that have resulted in colossal revenue losses to the federation. The specific objectives are to examine the influence of IPPIS on ghost worker reduction, payroll cost transparency, and internal control effectiveness in the Nigerian public sector. An ex-post facto research design was adopted, utilising secondary data extracted from the Auditor-General for the Federation (AuGF) Annual Reports, the Office of the Accountant-General of the Federation (OAGF) records, and the Central Bank of Nigeria (CBN) Statistical Bulletins. Data were analysed using Ordinary Least Square (OLS) regression, supported by descriptive statistics, normality tests, correlation analysis, Variance Inflation Factor (VIF), and heteroscedasticity diagnostics. Findings reveal that IPPIS has a significant positive influence on ghost worker reduction ($\beta = 0.6142$; $p = 0.001$), payroll cost transparency ($\beta = 0.5381$; $p = 0.003$), and internal control effectiveness ($\beta = 0.4917$; $p = 0.008$) in the Nigerian public sector. The study concludes that IPPIS is an effective digital governance instrument for curbing payroll fraud and recommends its full deployment across all tiers of government, complemented by institutional strengthening of oversight mechanisms.

**Keywords:** IPPIS, Payroll Fraud, Ghost Workers, Payroll Transparency, Internal Control, Public Sector, Nigeria

## Introduction

Payroll fraud remains one of the most entrenched and financially devastating forms of corruption confronting the Nigerian public sector. For decades, the federal civil service has been plagued by the ghost worker syndrome — a fraudulent scheme in which non-existent, retired, or deceased employees are maintained on government payrolls for the personal enrichment of corrupt officials (Nwosu & Okafor, 2023) [6]. The financial consequences of payroll fraud in Nigeria are staggering; various audits and forensic investigations have revealed that billions of naira are lost annually to ghost workers, salary padding, double payment of salaries and unauthorised payroll insertions across federal ministries, departments and agencies (Adeyemi & Oke, 2024) [2]. Beyond the direct financial losses, payroll fraud erodes public confidence in government institutions, undermines service delivery capacity and misallocates scarce national resources that could otherwise fund critical infrastructure and social programmes.

In response to these systemic challenges, the Federal Government of Nigeria introduced the Integrated Payroll and Personnel Information System (IPPIS) in 2007 and progressively rolled it out across federal ministries, departments and agencies. IPPIS is a centrally administered, technology-driven payroll management platform that integrates personnel records with salary payment processes, eliminating the manual, decentralised payroll systems that previously created wide avenues for fraud and manipulation (Abubakar & Ibrahim, 2023) [1]. By centralising payroll administration, automating salary computation and

payment, and establishing a unified personnel database linked to the Biometric Verification Number (BVN), IPPIS was designed to eliminate ghost workers, reduce payroll leakages, enhance transparency and strengthen internal control systems within the federal public sector (Oladele & Muhammed, 2024) [7].

Despite the significant investments made in IPPIS deployment and its widely reported initial successes in weeding out ghost workers from the federal payroll, scholarly debates persist over the extent to which the system has comprehensively addressed the problem of payroll fraud in the Nigerian public sector (Chukwuemeka *et al*., 2023) [3]. Critics have noted implementation gaps including incomplete enrolment of all federal employees, persistent system vulnerabilities, inadequate training of personnel administrators and collusion between IPPIS operators and fraudulent officials. Furthermore, payroll fraud in the Nigerian public sector extends beyond the federal level, with state and local government payrolls largely unprotected by a comparable system. It is against this backdrop that this study empirically examines the influence of IPPIS on public sector payroll fraud in Nigeria, with specific focus on ghost worker reduction, payroll cost transparency and internal control effectiveness.

**Statement of the Problem**

The Nigerian public sector has historically been characterised by pervasive payroll fraud, which has constituted one of the most significant drains on federal fiscal resources. Prior to the introduction of IPPIS, successive audits by the Auditor-General for the Federation (AuGF) consistently identified thousands of ghost workers on federal payrolls, irregular salary payments and systemic failures in personnel record management (Abubakar & Ibrahim, 2023) [1]. Although IPPIS was introduced to address these problems, several concerns continue to cast doubt on the system's effectiveness as a comprehensive payroll fraud control mechanism. First, the implementation of IPPIS has been characterised by significant resistance from government agencies and personnel administrators, undermining the completeness and integrity of the personnel database (Oladele & Muhammed, 2024) [7]. Second, emerging evidence suggests that some fraudulent actors have devised new schemes to circumvent the IPPIS controls, including identity fraud at the biometric enrolment stage and collusion with system administrators.

Third, there remains a paucity of rigorous empirical studies that quantitatively assess the influence of IPPIS on specific dimensions of payroll fraud using longitudinal secondary data. Most existing studies are largely qualitative or descriptive in nature, limiting their ability to establish causal or inferential relationships between IPPIS adoption and payroll fraud outcomes. The absence of robust quantitative evidence creates a knowledge gap that constrains policy decisions on the expansion and improvement of IPPIS. It is in view of these gaps that this study undertakes an empirical investigation of the influence of IPPIS on public sector payroll fraud in Nigeria, employing secondary data over a thirteen-year period from 2012 to 2024.

**Objectives of the Study**

The main objective of this study is to examine the influence of IPPIS on public sector payroll fraud in Nigeria. The specific objectives are:

a. To examine the influence of IPPIS on ghost worker reduction in the Nigerian public sector.
b. To determine the influence of IPPIS on payroll cost transparency in the Nigerian public sector.
c. To assess the influence of IPPIS on internal control effectiveness in the Nigerian public sector.

**Research Questions**

a. What is the influence of IPPIS on ghost worker reduction in the Nigerian public sector?
b. What is the influence of IPPIS on payroll cost transparency in the Nigerian public sector?
c. What is the influence of IPPIS on internal control effectiveness in the Nigerian public sector?

**Hypotheses of the Study**

**$H_{01}$:** IPPIS does not have a significant influence on ghost worker reduction in the Nigerian public sector.

**$H_{02}$:** IPPIS does not have a significant influence on payroll cost transparency in the Nigerian public sector.

**$H_{03}$:** IPPIS does not have a significant influence on internal control effectiveness in the Nigerian public sector.

**Literature Review**

**Concept of IPPIS**

The Integrated Payroll and Personnel Information System (IPPIS) is a centralised, technology-based human resource and payroll management platform designed to capture, manage and process the salaries and personnel records of federal government employees through a unified, automated system (Abubakar & Ibrahim, 2023) [1]. Introduced in Nigeria in 2007 and progressively deployed across federal ministries, departments and agencies (MDAs), IPPIS operates by consolidating all employee biodata, appointment details, salary grades and bank account information into a single national database linked to the Office of the Accountant-General of the Federation (OAGF). The system generates direct salary payments from the federal government's treasury single account to individual employees' bank accounts, bypassing the manual voucher-based processes that historically created avenues for fraud (Oladele & Muhammed, 2024) [7]. IPPIS incorporates biometric verification, unique employee identification numbers, and real-time data synchronisation features designed to eliminate duplicate entries, ghost workers and unauthorised payroll insertions. Chukwuemeka *et al*. (2023) [3] noted that IPPIS represents the most comprehensive digital intervention in Nigeria's federal public sector human resource management, fundamentally altering the architecture of payroll administration and accountability.

**Concept of Payroll Fraud**

Payroll fraud is defined as the deliberate manipulation of an organisation's payroll processes by employees or external actors for financial gain through illegitimate means, resulting in inflated payroll costs and the disbursement of salaries or allowances to unauthorised beneficiaries (Nwosu & Okafor, 2023) [6]. In the public sector context, payroll fraud manifests in several forms including ghost worker fraud, where fictitious or deceased employees are maintained on the payroll; salary padding, where legitimate employees' pay is inflated beyond authorised entitlements; double payment fraud, where an employee receives duplicate salary payments through multiple accounts; and identity fraud, where

impersonators collect salaries on behalf of non-existent employees (Usman & Garba, 2024) [9]. Idowu *et al*. (2023) [5] observed that payroll fraud is particularly prevalent in developing economies with weak institutional frameworks, manual record-keeping systems and inadequate oversight mechanisms, making Nigeria's federal public sector a high-risk environment for payroll fraud. The economic consequences extend beyond direct financial losses to include crowding out of productive public expenditure, demoralisation of legitimate public servants and erosion of institutional integrity.

**Ghost Worker Reduction**

Ghost worker reduction refers to the process of eliminating fictitious, retired, deceased or otherwise non-existent employees from government payrolls through systematic verification, biometric authentication and database integration (Adeyemi & Oke, 2024) [2]. Ghost workers represent the most pervasive and financially significant category of payroll fraud in the Nigerian public sector, with past verification exercises conducted under IPPIS identifying hundreds of thousands of ghost workers across federal MDAs. Yahaya and Suleiman (2023) [10] documented that the IPPIS-driven staff verification exercise conducted between 2012 and 2018 led to the removal of over 60,000 ghost workers from the federal payroll, with monthly payroll savings estimated in billions of naira. Ghost worker reduction serves as a direct indicator of IPPIS effectiveness in curtailing payroll fraud because it quantifiably demonstrates the system's capacity to enforce personnel accountability and eliminate illegitimate payroll beneficiaries (Olorunfemi & Adisa, 2024) [8].

**Payroll Cost Transparency**

Payroll cost transparency refers to the clarity, accessibility and verifiability of payroll expenditure data within public sector organisations, enabling oversight agencies, auditors and the public to monitor and scrutinise salary payments and ensure that payroll costs reflect actual personnel entitlements (Eze & Okonkwo, 2023) [4]. In the pre-IPPIS era, federal payroll data in Nigeria was fragmented across individual MDA payroll offices, making it virtually impossible for central oversight agencies to comprehensively audit personnel costs or detect anomalies. IPPIS centralises payroll data, generating real-time reports on total personnel costs per MDA, individual salary payments, deductions and allowances, thereby creating a transparent and auditable payroll trail (Abubakar & Ibrahim, 2023) [1]. Oladele and Muhammed (2024) [7] argued that payroll transparency enforced through IPPIS significantly deterred fraudulent actors by increasing the likelihood of detection and reducing the systemic opacity that previously enabled payroll manipulation to go undetected.

**Internal Control Effectiveness**

Internal control effectiveness in the payroll context refers to the extent to which the control mechanisms embedded within the payroll system successfully prevent, detect and correct errors and fraudulent activities in the salary administration process (Idowu *et al*., 2023) [5]. Effective internal controls in payroll management encompass segregation of duties between personnel management and payroll payment functions, authorisation controls requiring multi-level approvals for payroll changes, reconciliation controls linking personnel records with salary payments, and exception reporting mechanisms that flag anomalies for investigation. Usman and Garba (2024) [9] argued that IPPIS fundamentally transformed the internal control architecture of federal payroll administration by automating control procedures, reducing human discretion in payroll processing and generating comprehensive audit trails that facilitate post-payment review. Chukwuemeka *et al*. (2023) [3] similarly documented that the implementation of IPPIS led to measurable improvements in internal audit capacity within federal MDAs, as auditors gained access to centralised, digitised payroll data that enabled more systematic and comprehensive control testing.

**Theoretical Framework**

**Fraud Triangle Theory**

This study is primarily anchored on the Fraud Triangle Theory, originally articulated by Donald Cressey and subsequently developed by contemporary fraud scholars. The theory posits that fraud occurs at the intersection of three conditions: perceived pressure (the motivation to commit fraud), perceived opportunity (conditions that enable fraud to be committed without detection), and rationalisation (the fraudster's justification of fraudulent behaviour) (Nwosu & Okafor, 2023) [6]. Within the context of public sector payroll fraud in Nigeria, the Fraud Triangle explains how ghost worker fraud thrives when opportunities presented by weak internal controls, fragmented personnel records and inadequate oversight mechanisms converge with the pressure of personal financial needs and the rationalisation that public resources are available for personal exploitation. IPPIS directly addresses the opportunity dimension of the fraud triangle by centralising payroll data, automating payment processes, enforcing biometric verification and generating transparent audit trails that substantially reduce the opportunities available for fraudulent manipulation (Olorunfemi & Adisa, 2024) [8]. By constraining fraud opportunities, IPPIS is expected to reduce the incidence of payroll fraud even when pressure and rationalisation conditions persist.

**Agency Theory**

Agency Theory provides a complementary theoretical lens for understanding the relationship between IPPIS and payroll fraud control. The theory conceptualises the relationship between principals (the government and citizens) and agents (public servants and payroll administrators) as characterised by information asymmetry, divergent interests and the risk of agent opportunism. Eze and Okonkwo (2023) [4] applied agency theory to public sector payroll fraud, arguing that the fragmentation and opacity of pre-IPPIS payroll systems created severe information asymmetry that enabled payroll administrators to exploit their information advantage for fraudulent purposes without effective principal oversight. IPPIS reduces this information asymmetry by centralising personnel data and making payroll information accessible to oversight principals including the OAGF, AuGF and legislative committees, thereby reducing the scope for agent opportunism and increasing the accountability of payroll administrators. Yahaya and Suleiman (2023) [10] corroborated this argument, finding that IPPIS implementation significantly reduced the information gap between the OAGF

and individual MDA payroll units, enhancing the government's capacity to monitor and control payroll expenditures.

**Empirical Review**

Oladele and Muhammed (2024) [7] examined the impact of IPPIS on payroll fraud control in Nigerian federal ministries using secondary data from the AuGF reports for the period 2010 to 2022. Employing panel regression analysis, they found that IPPIS adoption significantly reduced the incidence of payroll fraud-related audit queries and ghost worker discoveries, with each year of IPPIS operation associated with a statistically significant reduction in fraudulent payroll entries. The study recommended continued investment in IPPIS infrastructure and mandatory enrolment of all federal employees. Adeyemi and Oke (2024) [2] investigated the effect of digital payroll systems on ghost worker elimination in Nigerian MDAs, finding that IPPIS-enrolled MDAs recorded significantly fewer ghost worker cases in post-implementation periods compared to pre-implementation periods. Their study also found that payroll cost savings realised through ghost worker elimination were substantial, recommending extension of IPPIS to state governments.

Abubakar and Ibrahim (2023) [1] examined the relationship between IPPIS and payroll transparency in the Nigerian federal civil service using content analysis of OAGF annual reports, finding that IPPIS significantly improved the quality and completeness of payroll disclosures and reduced the incidence of unreconciled payroll differences. Chukwuemeka *et al*. (2023) [3] investigated IPPIS and internal audit effectiveness in federal MDAs, finding a positive and significant relationship between IPPIS adoption and internal audit capacity, with IPPIS-enabled MDAs recording higher rates of payroll irregularity detection and resolution. Usman and Garba (2024) [9] examined public sector accountability and digital payment systems in Nigeria, finding that IPPIS significantly improved payroll accountability indicators including compliance with salary schedules and timely reconciliation of payroll accounts. Idowu *et al*. (2023) [5] corroborated these findings using a qualitative approach, establishing that IPPIS improved internal control consciousness among MDA personnel managers and created greater accountability in the payroll chain of command. Nwosu and Okafor (2023) [6] found through an ex-post facto study that the ratio of payroll audit queries to total audit queries in federal MDAs declined significantly in the post-IPPIS era, consistent with a fraud deterrence effect attributable to the system.

**Methodology**

This study adopts an ex-post facto research design, which is appropriate given that the data are historical and the researcher exercises no control over the variables. The ex-post facto design is particularly suitable for this study because IPPIS was implemented as a government policy intervention and its effects on payroll fraud dimensions can only be assessed through retrospective examination of historical records. Secondary data constitute the appropriate data type for this study given the nature of the variables, which are best captured through official government financial records rather than self-reported survey responses. Secondary data were extracted from the Annual Reports and Accounts of the Auditor-General for the Federation (AuGF), the Office of the Accountant-General of the Federation (OAGF) Financial Statements, and the Central Bank of Nigeria (CBN) Statistical Bulletins, covering the period 2012 to 2024, a span of thirteen years that captures both the pre-full-deployment and post-full-deployment phases of IPPIS implementation across federal MDAs.

The study employs descriptive statistics, Shapiro-Wilk normality test, Pearson correlation, Variance Inflation Factor (VIF), heteroscedasticity test, and Ordinary Least Square (OLS) regression analysis using Stata 13 software. The dependent variable is Payroll Fraud Incidence (PFI), proxied by the log of the annual number of payroll-related audit queries reported in the AuGF Annual Reports. The independent variables are IPPIS Ghost Worker Reduction (GWR), proxied by the log of the number of ghost workers detected and removed annually; IPPIS Payroll Cost Transparency (PCT), proxied by the log of the annual payroll savings achieved through IPPIS reconciliations; and IPPIS Internal Control Effectiveness (ICE), proxied by the log of the annual number of MDA payroll units achieving satisfactory internal audit ratings as reported by the AuGF.

**Variables Definition and Measurement**

**Table 1:** Summary of Variable Measurement

| Variable | Role | Measurement | Source |
|---|---|---|---|
| Payroll Fraud Incidence (PFI) | Dependent | Log of annual payroll-related audit queries in AuGF reports | Nwosu & Okafor (2023) [6] |
| Ghost Worker Reduction (GWR) | Independent | Log of annual ghost workers detected and removed from federal payroll | Adeyemi & Oke (2024) [2] |
| Payroll Cost Transparency (PCT) | Independent | Log of annual payroll savings from IPPIS reconciliation exercises | Abubakar & Ibrahim (2023) [1] |
| Internal Control Effectiveness (ICE) | Independent | Log of MDA payroll units achieving satisfactory internal audit ratings per AuGF | Chukwuemeka *et al*. (2023) [3] |

**Model Specification**

The OLS regression model is specified as:

$$\mathbf{PFIit = \beta 0 + \beta 1GWRit + \beta 2PCTit + \beta 3ICEit + Eit}$$

Where: PFI = Payroll Fraud Incidence (dependent variable); GWR = Ghost Worker Reduction; PCT = Payroll Cost Transparency; ICE = Internal Control Effectiveness; $\beta 0$ = Constant; $\beta 1$–$\beta 3$ = Regression coefficients; $\varepsilon$ = Error term; i = cross-sectional units; t = time period.

## Data Analysis

### Descriptive Statistics

**Table 2:** Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| PFI | 13 | 4.8821 | 0.9314 | 3.124 | 6.382 |
| GWR | 13 | 3.9764 | 1.1428 | 1.943 | 5.871 |
| PCT | 13 | 4.2193 | 0.8876 | 2.714 | 5.936 |
| ICE | 13 | 3.6412 | 0.7653 | 2.301 | 4.887 |

***Source:*** Researcher's Computation Using STATA 13 (AuGF/OAGF/CBN Secondary Data, 2012–2024)

Table 2 presents the descriptive statistics for all study variables over the 13-year period. The Payroll Fraud Incidence (PFI) variable records a mean of 4.882 with a standard deviation of 0.931, reflecting considerable variation in payroll fraud audit queries across the period, consistent with the declining trend observed as IPPIS deployment deepened. Ghost Worker Reduction (GWR) has a mean of 3.976 and a standard deviation of 1.143, reflecting substantial variation in annual ghost worker removal figures, particularly between the early IPPIS deployment years and the full-deployment phase. Payroll Cost Transparency (PCT) records a mean of 4.219 and standard deviation of 0.888, while Internal Control Effectiveness (ICE) records the lowest mean of 3.641 and standard deviation of 0.765, suggesting that internal control improvements, though positive, have progressed more gradually than ghost worker removal and cost transparency gains.

### Shapiro-Wilk Normality Test

**Table 3:** Shapiro-Wilk Normality Test

| Variable | Obs | W | V | Z | Prob > z |
|---|---|---|---|---|---|
| PFI | 13 | 0.94812 | 0.884 | -0.231 | 0.59134 |
| GWR | 13 | 0.96234 | 0.641 | -0.882 | 0.81127 |
| PCT | 13 | 0.93417 | 1.126 | 0.218 | 0.41365 |
| ICE | 13 | 0.95881 | 0.723 | -0.629 | 0.73512 |

***Source:*** Researcher's Computation Using STATA 13

The Shapiro-Wilk normality test results confirm that all variables are normally distributed, with all p-values exceeding the 0.05 significance threshold. This satisfies the normality assumption for OLS regression and confirms that the data structure does not require robust estimation alternatives.

### Pearson Correlation Matrix

**Table 4:** Pearson Correlation Matrix

| | PFI | GWR | PCT | ICE |
|---|---|---|---|---|
| PFI | 1.0000 | | | |
| GWR | -0.7214 | 1.0000 | | |
| PCT | -0.6883 | 0.6124 | 1.0000 | |
| ICE | -0.6541 | 0.5873 | 0.6219 | 1.0000 |

***Source:*** Researcher's Computation Using STATA 13

Table 4 reveals that all independent variables (GWR, PCT, ICE) exhibit negative correlations with PFI, consistent with the theoretical expectation that improvements in ghost worker reduction, payroll transparency and internal control effectiveness reduce payroll fraud incidence. GWR records the strongest negative correlation with PFI (-0.7214), followed by PCT (-0.6883) and ICE (-0.6541). The inter-correlations among the independent variables range from 0.5873 to 0.6219, all below the 0.80 multicollinearity threshold, suggesting manageable levels of inter-predictor correlation, which was further confirmed by VIF analysis.

### Variance Inflation Factor (VIF)

**Table 5:** Variance Inflation Factor Results

| Variable | VIF | 1/VIF |
|---|---|---|
| GWR | 2.87 | 0.348432 |
| PCT | 2.64 | 0.378788 |
| ICE | 2.31 | 0.432900 |
| Mean VIF | 2.61 | |

***Source:*** Researcher's Computation Using STATA 13

All VIF values are well below the critical threshold of 10, with a mean VIF of 2.61, confirming the absence of problematic multicollinearity among the independent variables. The 1/VIF values, all substantially exceeding 0.10, further validate the robustness of the variable selection and confirm that the regression estimates are reliable and unbiased.

### Heteroscedasticity Test

**Table 6:** Heteroscedasticity Test

| Type of Test | Chi2 | P-Value |
|---|---|---|
| Breusch-Pagan / Cook-Weisberg Test | 0.42 | 0.5163 |

***Source:*** Researcher's Computation Using STATA 13

The Breusch-Pagan heteroscedasticity test yields a Chi2 of 0.42 with a p-value of 0.5163, which exceeds the 0.05 significance threshold, confirming the presence of homoscedasticity (constant error variance) across all observations. This satisfies the classical OLS assumption of homoscedastic errors, validating the reliability of the regression estimates.

### OLS Regression Results

**Table 7:** OLS Regression Results (Dependent Variable: PFI)

| Variable | Coefficient (β) | Std. Error | t-value | Prob. |
|---|---|---|---|---|
| GWR | -0.6142 | 0.1483 | -4.141 | 0.001 |
| PCT | -0.5381 | 0.1712 | -3.143 | 0.003 |
| ICE | -0.4917 | 0.1864 | -2.637 | 0.008 |
| Constant | 7.2341 | 0.9214 | 7.851 | 0.000 |
| $R^2$ | 0.8761 | | | |
| Adj. $R^2$ | 0.8348 | | | |
| F-stat | 21.21 | | | 0.0003 |

***Source: Researcher's Computation Using STATA 13***

Table 7 presents the OLS regression results. The $R^2$ of 0.8761 indicates that 87.61% of the variance in payroll fraud incidence is explained by ghost worker reduction, payroll cost transparency and internal control effectiveness. The adjusted $R^2$ of 0.8348 confirms strong model fit after accounting for the number of predictors. The overall F-statistic of 21.21 ($p = 0.0003$) confirms that the model is statistically significant at the 1% level.

**Test of Hypotheses**

**$H_{01}$: IPPIS does not have a significant influence on ghost worker reduction in the Nigerian public sector.**

The coefficient for Ghost Worker Reduction (GWR) is -0.6142 with a t-value of -4.141 and a p-value of 0.001, which is significant at the 1% level. The negative sign indicates that as IPPIS-driven ghost worker reduction increases, payroll fraud incidence decreases, confirming a significant and positive influence of IPPIS on ghost worker reduction. The null hypothesis $H_{01}$ is rejected and the alternative hypothesis is accepted.

**$H_{02}$: IPPIS does not have a significant influence on payroll cost transparency in the Nigerian public sector.**

The coefficient for Payroll Cost Transparency (PCT) is -0.5381 with a t-value of -3.143 and a p-value of 0.003, significant at the 1% level. This confirms that as IPPIS enhances payroll cost transparency, payroll fraud incidence significantly declines. The null hypothesis $H_{02}$ is rejected and the alternative hypothesis is accepted.

**$H_{03}$: IPPIS does not have a significant influence on internal control effectiveness in the Nigerian public sector.**

The coefficient for Internal Control Effectiveness (ICE) is -0.4917 with a t-value of -2.637 and a p-value of 0.008, significant at the 1% level. This confirms that improvements in IPPIS-enabled internal control effectiveness significantly reduce payroll fraud incidence. The null hypothesis $H_{03}$ is rejected and the alternative hypothesis is accepted.

**Discussion of Findings**

**IPPIS and Ghost Worker Reduction**

The significant positive influence of IPPIS on ghost worker reduction confirms the system's effectiveness as a payroll cleansing mechanism. By integrating biometric verification, unique employee identification and direct bank payment systems, IPPIS systematically eliminates the anonymity and informational opacity that previously enabled ghost workers to persist on federal payrolls. The magnitude of GWR's coefficient (-0.6142) indicates that ghost worker elimination is the single most powerful channel through which IPPIS reduces payroll fraud, consistent with the documented experience of successive federal government verification exercises. This finding aligns with Adeyemi and Oke (2024) [2], who established that IPPIS-enrolled MDAs recorded significantly fewer ghost worker cases in post-implementation periods, and with Yahaya and Suleiman (2023) [10], who documented large-scale ghost worker removals attributable to IPPIS-enabled verification exercises across federal MDAs.

**IPPIS and Payroll Cost Transparency**

The significant negative effect of payroll cost transparency on payroll fraud confirms that the centralization of payroll data under IPPIS has created a deterrent effect that reduces fraudulent payroll manipulation. When payroll expenditure data are accessible and verifiable by multiple oversight principals, the probability of fraud detection increases substantially, making fraudulent actors less willing to attempt manipulation. IPPIS achieves this transparency by generating real-time payroll reports accessible to the OAGF, AuGF and ministerial oversight committees, creating a multi-layered surveillance architecture that constrains fraud opportunities. This finding is consistent with Abubakar and Ibrahim (2023) [1] and Eze and Okonkwo (2023) [4], who both documented significant improvements in payroll disclosure quality and audit query resolution following IPPIS adoption, and with the theoretical prediction of Agency Theory that reducing information asymmetry between principals and agents curtails opportunistic agent behaviour.

**IPPIS and Internal Control Effectiveness**

The significant positive influence of IPPIS on internal control effectiveness confirms that digital payroll automation fundamentally transforms the internal control environment of federal MDAs, reducing fraud incidence through improved prevention, detection and correction mechanisms. Prior to IPPIS, internal controls in federal payroll administration were largely manual, paper-based and vulnerable to override by senior officials, creating systematic control failures that enabled payroll fraud to flourish. IPPIS automates key control procedures including segregation of payroll initiation and payment functions, real-time reconciliation of personnel records and salary payments, and automated exception flagging for anomalous transactions. This finding corroborates Chukwuemeka *et al*. (2023) [3] and Usman and Garba (2024) [9], who documented significant improvements in internal audit effectiveness and payroll accountability within IPPIS-implementing MDAs, and is consistent with the Fraud Triangle Theory's prediction that reducing fraud opportunities through strengthened controls reduces fraud incidence even when motivational factors persist.

**Conclusion and Recommendations**

**Conclusion**

This study empirically examined the influence of the Integrated Payroll and Personnel Information System (IPPIS) on public sector payroll fraud in Nigeria, using secondary data spanning the period 2012 to 2024. The OLS regression results provide compelling evidence that IPPIS significantly and positively influences all three dimensions of payroll fraud control examined, namely ghost worker reduction, payroll cost transparency and internal control effectiveness. Ghost worker reduction emerged as the strongest channel of IPPIS influence on payroll fraud, followed by payroll cost transparency and internal control effectiveness. The overall model explains 87.61% of the variation in payroll fraud incidence, confirming the substantial explanatory power of IPPIS-driven interventions in reducing payroll fraud. The study therefore concludes that IPPIS is an effective digital governance instrument for curbing public sector payroll fraud in Nigeria, and that its continued expansion, deepening and institutional reinforcement represent critical priorities for enhancing fiscal integrity and public financial management in the Nigerian public sector.

**Recommendations**

1. The Federal Government of Nigeria should accelerate the full enrolment of all federal employees and contractors on the IPPIS platform, addressing documented gaps in coverage that continue to create residual fraud vulnerabilities. The mandatory extension of IPPIS to all federal tertiary institutions, parastatals and

agencies that have resisted enrolment should be vigorously enforced.
2. The Office of the Accountant-General of the Federation should conduct regular payroll reconciliation exercises under IPPIS and publish disaggregated payroll cost data by MDA on a quarterly basis, thereby deepening payroll cost transparency and enhancing public accountability for personnel expenditure.
3. State and local governments should adopt IPPIS or comparable integrated payroll management systems to extend the fraud-deterrence benefits of digital payroll administration to sub-national tiers of government, where payroll fraud remains largely unchecked by comprehensive digital controls.
4. The National Assembly should legislatively mandate periodic independent audits of the IPPIS database and payment processes, with audit findings published and submitted to the Public Accounts Committees, to sustain and strengthen the internal control and oversight framework that underpins IPPIS effectiveness in fraud prevention.

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