

EFFECT OF PUBLIC SECTOR FINANCIAL REFORMS ON ECONOMIC GROWTH IN NIGERIA

MOHAMMED, Barma Adam, MAIRAFI, Salihu Liman, IBRAHIM Mohammed and KOLO, Ibrahim

^{1&2}Department of Banking and Finance, Nasarawa State University Keffi, Nigeria

³Department of Banking and Finance, Ahmadu Bello University, Zaria, Nigeria

⁴Department of Business Administration, Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria

Email: barma.adam@gmail.com; ibrahimkolo83@gmail.com

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ABSTRACT

The objective of Nigeria's public financial reforms, which include the Treasury Single Account (TSA) and the Integrated Payroll and Personnel Information System (IPPIS), is to promote accountability, transparency, and economic growth. However, persistent misappropriation of funds by officials continues to hinder savings, investment, and the overall economic advancement of the nation. Consequently, this research investigates the impact of public sector financial reforms on Nigeria's economic growth. Employing a descriptive research design, the study utilized monthly time series data sourced from the Statistical Bulletin of the Central Bank of Nigeria (CBN) covering the years 2016 to 2023. Regression analysis was conducted using Eviews software to analyze the data. The study found that treasury single account has positive and significant effect on GDP in Nigeria at 5% level of significant. While, integrated payroll and personnel information system and public financial accountability index have positive but insignificant effect on GDP in Nigeria at 5% level of significant. The study concludes that public sector financial reforms do indeed affect economic growth in Nigeria. Therefore, it is recommended that the Nigerian government address existing implementation deficiencies and broaden the operational scope of these systems. This can be accomplished by extending the coverage of IPPIS to all government agencies, enhancing data accuracy, and integrating it with comprehensive fiscal management frameworks. Additionally, the government should intensify efforts to fortify public financial accountability mechanisms and ensure adherence to financial transparency standards. This can be achieved by improving public access to financial information, conducting regular audits, and strengthening the capabilities of institutions tasked with public financial accountability.

Keywords: Economic Growth, GDP, Integrated Payroll, Personnel Information System, Treasury Single Account, Public Financial Accountability Index,

INTRODUCTION

Economic growth represents a fundamental aim of public administration on a global scale,

with financial reforms in the public sector emerging as a crucial approach to improve transparency, accountability, and efficiency. This growth, characterized by a sustained rise

in a nation's output of goods and services, is a primary goal for nations around the world. It is typically assessed through the increase in gross domestic product (GDP), which quantifies the total value of all goods and services produced within a country's territory. As such, economic growth serves as a vital indicator of the overall vitality and advancement of an economy. It involves improvements in various indicators such as GDP, per capita income, employment, and standard of living. While economic growth is generally seen as positive, it requires careful management to address associated challenges and ensure sustainable development. However, this study will use GDP to measure economic growth (Adeolu & Salawu, 2018).

Globally, these reforms aim to optimize resource allocation, reduce fiscal leakages, and stimulate economic development (World Bank, 2021; IMF, 2019). In Africa, reforms such as the Treasury Single Account (TSA) and Integrated Payroll and Personnel Information System (IPPIS) have been implemented to enhance fiscal discipline and economic stability, although institutional challenges affect outcomes (Afeikhena, 2017; Onyishi & Amahalu, 2019). Nigeria, as a major African economy, has introduced these and other reforms, including the Public Financial Accountability Index (PFAI), debt management strategies, and budgetary reforms, to improve financial governance and address developmental challenges (Okoye & Ojo, 2021; Onakoya, Lawal & Osinubi, 2020).

The Treasury Single Account (TSA) serves to unify government revenues within a single framework, thereby enhancing liquidity management and promoting fiscal transparency. This reform mitigates fiscal risks and bolsters macroeconomic stability by facilitating the effective use of resources (Okoye & Ojo, 2021; CBN, 2016). In a similar vein, the Integrated Payroll and Personnel Information System (IPPIS) optimizes payroll operations, removes inefficiencies, and strengthens fiscal discipline. As an integral component of the Economic Reform and Governance Project (ERGP), IPPIS reflects the government's dedication to stimulating economic growth through a more transparent public sector workforce (Ahmed & Zhang, 2017; Osei & Afeti, 2020). Additionally, the

Public Financial Accountability Index (PFAI) assesses the transparency of financial practices, with research suggesting that a high PFAI can positively impact economic growth by enhancing investor confidence and attracting investments (Andrews & Borins, 2019; Akpan & Udoudo, 2021).

The relevance of these reforms to Nigeria's economic growth lies in their potential to improve fiscal management, enhance service delivery, and attract investments. By addressing inefficiencies and promoting transparency, these reforms can stimulate economic development. However, governance challenges and institutional capacity constraints remain critical barriers to fully realizing the benefits of these initiatives (Mthanti & Ogbokor, 2018; Lawal, 2021). Continued emphasis on policy enforcement and capacity-building is essential for the success of Nigeria's public financial management reforms.

Public sector financial reforms have emerged as a significant focus worldwide, with various governments adopting initiatives such as the Treasury Single Account (TSA), the Integrated Payroll and Personnel Information System (IPPIS), the Financial Accountability Index (PFAI), and strategies for debt management, alongside mechanisms for audit and accountability, as well as budgetary reforms aimed at improving fiscal governance. In Nigeria, the primary objective of advancing public sector financial reform is to establish a credible and accountable financial system. Effective financial reforms are instrumental in fostering economic growth by enhancing savings and investment levels, as well as boosting productivity. Historically, the quality of investments has proven to be as crucial for economic growth as the volume of investments. The IPPIS initiative aims to address these issues while simultaneously curtailing federal government expenditures on administrative costs. Furthermore, the TSA and other reforms in the public financial sector have been implemented as immediate solutions to enhance accountability and transparency regarding the management of government financial resources. In spite of this, governments officials have continued to divert public funds thereby contribute to ever slow economic growth in Nigeria.

Despite a growing body of research on individual financial reforms, there is a significant gap in the literature concerning the holistic assessment of the combined effect of these reforms on economic growth. Existing studies often focus on isolated reforms (World Bank, 2021; Okoye & Ojo, 2021), leading to a limited understanding of the synergies or conflicts that may arise when multiple reforms are implemented simultaneously (Andrews & Borins, 2019). The existing literature does not provide much thorough examinations of the interactions and possible trade-offs among different reforms within the framework of public sector financial management in Nigeria. However, this study seeks to examine the effect of public sector financial reforms on economic growth in Nigeria. Specifically, this study is designed to:

- i. examine the effect of Treasury Single Account (TSA) on Economic Growth (GDP) in Nigeria;
- ii. assess the effect of Integrated Payroll and Personnel Information System (IPPIS) on Economic Growth (GDP) in Nigeria; and
- iii. determine the effect of Public Financial Accountability Index (PFAI) on Economic Growth (GDP) in Nigeria.

LITERATURE REVIEW AND THEORETICAL FOUNDATIONS

Economic Growth

Economic growth denotes the rise in the inflation-adjusted market value of goods and services generated by an economy over time. It is typically quantified as the percentage increase in real gross domestic product (GDP), which accounts for inflation (IMF, 2012). This phenomenon reflects the long-term enhancement in the output of goods and services within a nation. According to Simuț and Meșter (2014), it is assessed through the percentage change in real GDP, which is the nominal GDP adjusted for inflation. Furthermore, Salami et al. (2015) characterize economic growth as the expansion of a

country's productive capacity, evaluated through metrics such as gross national product or net national product, while also considering demographic shifts. This growth is indicative of an outward movement of a nation's production possibility frontier, signifying increased output and improved living standards. Economic growth is frequently analyzed in both nominal and real terms to ensure precise inflation adjustments. Salawu and Odewole (2020) highlight that economic growth serves as a vital measure of an economy's vitality and progress, often reflected in the increase of GDP, which underscores enhanced living conditions, greater production capabilities, and a broadening of economic activities across various sectors. According to International Monetary Fund (2018), economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Therefore, for the purpose of this study, real GDP was used as the proxy for economic growth.

Gross Domestic Product (GDP)

Olasupo (2021) describes Gross Domestic Product (GDP) as the total value of goods and services produced within an economy during a designated time frame. When GDP is calculated at current market prices, it is termed nominal GDP; conversely, when adjusted for a specific base year, it is known as real GDP. This research utilizes GDP per capita as a measure of economic growth (Simuț & Meșter, 2014). GDP signifies the aggregate monetary value of all final goods and services generated within a nation's borders over a specified period. It serves as a crucial gauge of economic activity and a key indicator of economic well-being. Olasupo (2021) notes that GDP can be represented in nominal terms or, when adjusted for inflation, as real GDP, thereby providing a comprehensive view of both current and historical economic conditions. According to Ofurum et al. (2018), GDP is defined as a monetary representation of the market value of final goods and services consumed by end-users, which includes both private and public consumption, government expenditures, and net exports. It is a vital

metric for evaluating the health and performance of an economy, offering valuable insights into growth trends and economic stability. The World Bank (2020) further emphasizes that GDP is a fundamental measure for assessing economic performance, encompassing outputs from both the public and private sectors. It is typically reported in nominal terms or adjusted for inflation to accurately reflect real economic growth.

Public Sector Financial Reforms

Public Sector Financial Reforms represent a collection of strategic measures aimed at improving the efficiency, transparency, and accountability of governmental financial management systems (Ahmed & Zhang, 2017). These initiatives are intended to enhance the allocation and use of public resources, which in turn leads to better service delivery and promotes economic stability. A key element of these reforms is the establishment of effective Public Financial Management (PFM) systems. As noted by Allen, Hemming and Potter (2013), the success of PFM systems is essential for ensuring that public funds are utilized efficiently and for their designated purposes. Such systems generally incorporate the adoption of accrual accounting, the development of comprehensive budgeting frameworks, and the integration of financial management information systems (Allen et al., 2013). Agbatogun (2019) highlights that financial accountability and transparency are critical for the effective governance of the public sector, as they mitigate the risks of financial misconduct and the misappropriation of public resources. This entails the regular dissemination of financial statements, the execution of independent audits, and the establishment of public oversight mechanisms. Public Sector Financial Reforms are extensive initiatives aimed at reinforcing the financial framework of governmental entities. Through the implementation of effective PFM systems, the promotion of transparency and accountability, and the adoption of strategies such as the Treasury Single Account (TSA), these reforms strive to ensure the responsible management of public resources, ultimately

enhancing governance and fostering economic development (Mthanti & Ogbokor, 2018). The scope of public sector financial reforms encompasses various financial strategies, including the Treasury Single Account, integrated payroll and personnel information systems, financial accountability indices, debt management strategies, audit and accountability frameworks, and budgetary reforms (Mthanti & Ogbokor, 2018; Akpunonu, Okoye & Igbokwe, 2021). However, this study sees public sector financial reforms as the intentional and systematic changes implemented in the financial management practices, policies, and structures within the public sector of a government.

Treasury Single Account (TSA)

Treasury Single Account (TSA) is a financial management system aimed at streamlining and effectively overseeing governmental financial assets. It operates as a unified structure of bank accounts that ensures all government revenues, receipts, and payments are centralized, typically maintained by the Central Bank. According to Ajiteru, Sulaiman and Abalaka (2023), the TSA is designed to block financial leakages, reduce the cost of government borrowing, and optimize resource allocation through transparency and effective cash management. Similarly, Bala and Izevbkehai (2022) emphasized that the Treasury Single Account (TSA) fosters accountability by eliminating unutilized funds within commercial banks and facilitating the prompt execution of government expenditures. The implementation of the TSA in Nigeria, which began in 2015, has played a crucial role in strengthening fiscal discipline and curbing corruption in the realm of public financial management (Sulaiman, 2021). The TSA serves as a consolidated framework for government bank accounts, aimed at centralizing and overseeing all cash resources. According to the Central Bank of Nigeria (CBN, 2015), the TSA is characterized as a singular account platform managed by the central bank, where all public funds are aggregated and allocated. This system is designed to promote enhanced transparency, effective oversight of government finances, and improved efficiency in public financial management.

Integrated Payroll and Personnel Information System (IPPIS)

The Integrated Payroll and Personnel Information System (IPPIS) represents a computerized framework aimed at improving the effectiveness of payroll management and personnel record-keeping within the Nigerian public service. According to Enakirerhi and Temile (2017), IPPIS is characterized as an information technology-enabled platform that seeks to create a dependable database for human resource planning, eradicate payroll fraud, and promote transparency in salary disbursements. Since its launch in 2007, IPPIS has played a crucial role in curbing the presence of fictitious employees and reducing financial waste in the Nigerian public sector by optimizing the processes associated with salary payments. As articulated by Nwosu and Ugwoke (2019), IPPIS functions as a centralized database system designed to oversee human resource operations and payroll management in the public sector, thereby providing a singular, authoritative source for employee data and compensation information. This perspective underscores the importance of IPPIS as a cohesive system that integrates human resource and payroll activities, ensuring a consistent and precise repository of employee details and remuneration records. Furthermore, the initiative is recognized as an information and communications technology (ICT) project initiated by the Nigerian government, aimed at centralizing and automating the payroll and personnel records of public servants, which serves to mitigate fraud and enhance operational efficiency in the public service (Olaoye & Adebawale, 2020). This characterization emphasizes IPPIS as an ICT-driven strategy focused on consolidating payroll and personnel information to address fraudulent activities and improve the efficiency of operations within Nigeria's public sector. Additionally, the Integrated Payroll and Personnel Information System (IPPIS) is described as a reform initiative designed to facilitate the direct payment of salaries and wages into the bank accounts of government employees, thereby reducing financial leakages and promoting fiscal discipline (Ezeani & Oladele, 2021).

Public Financial Accountability Index (PFAI)

Ajiteru, Abalaka and Sulaiman (2021) conducted an analysis of the Treasury Single Account (TSA) and its effects on the liquidity of banks in Nigeria. The research employed secondary data sourced from annual reports of banks, utilizing descriptive statistics and paired sample t-tests for analysis. The findings indicated that the TSA had a detrimental effect on bank liquidity, while also revealing significant variations in profit levels before and after the implementation of the TSA. The authors recommended that policy execution should strive to reconcile liquidity issues with the necessity for fiscal discipline. Nonetheless, the study did not provide an in-depth examination of the systemic risks associated with banking in the context of the TSA.

Okoh, Isiedu and Usman (2021) investigated the impact of the TSA on economic development, utilizing indicators such as the human development index (HDI), Gini coefficient, and poverty rates. The analysis was based on secondary data from Central Bank of Nigeria bulletins and World Bank records, employing paired sample t-tests for evaluation. The results demonstrated a notable enhancement in HDI following the TSA's implementation; however, the Gini coefficient and poverty rates showed no statistically significant changes. The authors suggested that there is a need to bolster poverty alleviation initiatives in conjunction with the TSA. However, the study did not incorporate qualitative evaluations of the policy's socio-political ramifications.

Bashir (2020) explored the effects of the Treasury Single Account (TSA) on financial leakages and transparency within Nigeria's public sector. The research utilized a survey methodology, engaging 100 participants from various federal ministries and agencies. Data analysis was conducted using descriptive statistics and regression models. The results revealed that the TSA significantly mitigates financial leakages and enhances transparency in the management of public funds, evidenced by coefficients of -0.1521 for financial leakages and -0.1045 for transparency. Despite these positive findings, critiques were directed at the study's insufficient

consideration of external factors that may affect the TSA's overall effectiveness.

Ofor, Chukwu and Eze (2017) investigated the impact of the TSA on the performance of Nigeria's Ministries, Departments, and Agencies (MDAs). The study utilized primary data collected from 75 respondents, analyzed through Wilcoxon Sign tests. The findings indicated that the TSA significantly enhanced the performance of MDAs and effectively closed financial loopholes. It recommended further stakeholder education on TSA benefits but was critiqued for its limited sample and reliance on self-reported data.

Ekubiat and Ime (2016) conducted a study examining the advantages, obstacles, and future potential of the Treasury Single Account (TSA) implementation by state governments in Nigeria. Utilizing a descriptive cross-sectional survey methodology, the research focused on selected ministries within Edo State, employing a purposive sample of 100 respondents from finance departments. Data collection was carried out through structured questionnaires, and the analysis was performed using maximum likelihood estimation (MLE) techniques alongside probit regression models. The results indicated that the adoption of the TSA leads to improved control and accountability of public finances, diminishes financial leakages, and fosters greater transparency. Nonetheless, the study received criticism for inadequately addressing the immediate challenges encountered during the TSA's implementation and for relying exclusively on primary data sources.

In a separate investigation, Jat (2016) explored the impact of the TSA on Nigeria's economic development through an exploratory research design, utilizing secondary data obtained from libraries and online resources. The findings highlighted the TSA's beneficial effects on cash management and the reduction of corruption, which in turn positively influenced economic growth metrics. A paired sample t-test was employed to analyze the differences between pre- and post-TSA implementation periods, revealing significant enhancements in human development indices. However, a notable limitation of the study was its failure to

evaluate the administrative costs associated with the implementation of TSA policies.

Integrated Payroll and Personnel Information System and Economic Growth (GDP)

Folorunso (2022) conducted an analysis of the effects of the Integrated Personnel and Payroll Information System (IPPIS) on the remuneration and salary disbursement processes within Nigeria's public sector. Utilizing a survey research methodology grounded in organizational process theory, the study gathered primary data through questionnaires and employed binary logistic regression for data analysis. The findings indicated that while IPPIS enhanced the accuracy and timeliness of salary payments, it did not effectively resolve specific systemic issues, including software rigidity and a lack of independence from the Office of the Accountant General. The research faced critiques for not adequately addressing the barriers to effective implementation. Recommendations included enhancing the autonomy of IPPIS and redesigning the software to improve its flexibility. Agbaje and Aladetanye (2021) explored the influence of IPPIS on the recurrent expenditure of the Nigerian government, specifically assessing its effectiveness in mitigating personnel costs linked to ghost workers and payroll fraud. The researchers employed a purposive sampling method to select 300 employees from 101 Federal Ministries, Departments, and Agencies (MDAs) located in Ondo State. Data collection was conducted via a questionnaire, and the analysis was performed using Structural Equation Modeling (SEM). The results demonstrated a significant positive correlation between IPPIS and the reduction of government recurrent expenditure, with a coefficient of 4.634 and a p-value of 0.004. However, a limitation noted in the study was its concentration on a single state, which raises questions regarding the broader applicability of the results. Agbaje and Aladetanye concluded that IPPIS had a substantial impact on reducing recurrent expenditure and recommended its further optimization for enhanced effectiveness.

Kaoje, Idris and Gambarawa (2020) investigated the connection between the Integrated Payroll and Personnel Information System (IPPIS) and the transparency of government payroll management in Nigeria. Employing a descriptive cross-sectional survey methodology, the research engaged 100 Treasury Staff members from Federal Pay Offices located in Sokoto and Birnin Kebbi. The analysis of the data, conducted using SPSS, indicated a significant moderate positive correlation between IPPIS and payroll transparency. The results imply that IPPIS contributes to greater accountability within payroll systems; however, challenges such as implementation resistance and inadequate infrastructure remain prevalent. Notably, the study did not adequately address regional variations in the effectiveness of implementation. The study proposed the necessity for regular audits and enhanced internal controls to bolster the efficiency of IPPIS.

Public Financial Accountability Index (PFAI) and Economic Growth (GDP)

Toluwani et al. (2024) explored the connection between accountability and economic development in Nigeria, specifically examining GDP growth alongside public capital expenditure. The researchers utilized an ex-post facto research design, drawing data from the World Development Index and the Central Bank of Nigeria for the years 2014 to 2023. The analysis was conducted using the autoregressive distributed lag (ARDL) methodology. The findings revealed a significant negative relationship between accountability and GDP growth, leading to the conclusion that the elimination of corruption is essential for fostering economic development. A noted limitation of the research is its dependence on secondary data, which may not accurately represent the current dynamics of accountability. Agbatogun (2019) investigated the effects of financial accountability and transparency on the management of the public sector in Nigeria. This study employed a survey research design, gathering primary data through questionnaires distributed to a sample of public sector officials. Statistical analyses, including regression and correlation techniques, were performed using SPSS 20.0.

The results indicated that poor governance in Nigeria is largely attributed to financial scandals and the mismanagement of public resources. The study advocated for the implementation of more robust accountability measures to ensure that public officials are held accountable for financial irregularities. A significant limitation of this research is its relatively small sample size, which may not adequately represent the full spectrum of the Nigerian public sector.

The Fiscal Theory of Economic Growth

This study was grounded on the fiscal theory of economic growth. The was developed by Barro (1990) and further expanded by Tanzi and Zee (1997). The theory asserts that fiscal policies, encompassing taxation, public spending, and debt management, play a crucial role in shaping economic growth by influencing capital accumulation, resource distribution, and overall productivity. Rajaram, Le, Biletska and Brumb (2021) contended that government investment in productive sectors, such as infrastructure and education, can stimulate economic expansion, whereas high taxation or inefficient spending may hinder it. Furthermore, it highlights the significance of public sector financial reforms, including enhancements in transparency and the reduction of inefficiencies, as vital components for promoting sustainable development (Rajaram, et al., 2021). The framework also stresses the impact of fiscal policies, particularly public financial management reforms, on economic growth. It is based on the premise that the proficient management of public resources through instruments like the Treasury Single Account (TSA), Integrated Payroll and Personnel Information System (IPPIS), and Public Financial Accountability Index (PFAI) can improve resource allocation, minimize waste, and enhance productivity, thereby fostering economic growth (Beck & Webb, 2020).

Subsequent scholars have enriched the theory by introducing nuances to fiscal policy's role. Muralidharan, Niehaus and Sukhtankar (2020) highlighted that not only the amount of government spending matters, but also its composition and quality. Niehaus and Sukhtankar (2020) further posited that fiscal policies should focus on efficiency,

transparency, and equity to fully harness their potential for promoting economic growth. Conversely, Beck & Webb (2020), argue that the theory frequently neglects the political and institutional dimensions that shape fiscal policies. They assert that without strong governance and in the presence of corruption, fiscal reforms may fail to stimulate growth (Rajaram, et al., 2021). Despite the criticisms leveled against it, the theory offers a solid framework for investigating how reforms in public financial management can influence economic performance in a developing context like Nigeria. The objectives of Nigeria's public sector financial reforms include optimizing revenue collection, mitigating corruption, and enhancing the efficiency of expenditures. The fiscal theory serves as a lens through which to analyze the direct effects of these reforms on economic growth by fostering fiscal discipline and establishing a stable macroeconomic environment.

METHODOLOGY

The research employs a descriptive research design, as it investigates the potential impact of one variable on another through the analysis of secondary data. Descriptive research is well-suited for studies that aim to explore and describe the characteristics of a phenomenon without manipulating variables.

It allows researchers to objectively observe, record, and report on the existing state or nature of a subject, providing a foundation for further investigation. It also allows for the examination of relationships between variables. While it does not imply causation, it helps identify associations and correlations between factors, which can inform the development of hypotheses to be tested in subsequent research. The study covered treasury single account (TSA), integrated payroll and personnel information system (IPPIS), public financial accountability index (PFAI) and gross domestic product (GDP). The monthly time series data, meticulously balanced over an eight-year period from 2016 to 2023, was gathered for this study. The selection of this specific timeframe was justified by the availability of relevant data. This research utilized secondary data, specifically monthly figures sourced from the published annual reports of the Central Bank of Nigeria (CBN) Statistical Bulletin. The dataset encompassed various indicators, including the treasury single account (TSA), integrated payroll and personnel information system (IPPIS), public financial accountability index (PFAI), and gross domestic product (GDP). The analysis of the collected data was conducted through regression analysis, employing Eviews software.

The Regression Model Used for this Study

$$GDP = \beta_0 + \beta_1(TSA)_t + \beta_2(IPPIS)_t + \beta_3(PFAI)_t + \mu_t$$

where:

GDP gross domestic product

β_0 The constant term which signifies the value of the dependent variable when all explanatory variables are maintained at a constant level.

$\beta_1 - \beta_3$ Coefficient of the parameter estimates

TSA treasury single account.

IPPIS integrated payroll and personnel information system.

PFAI public financial accountability index.

μ_t Error term

Measurement and description of the Variables

Table 1. Variable Measurement

Variable Name & acronym	Variable type	Variable Description/Measurement	Sources
Gross Domestic Product (GDP)	Dependent variable	$GDP = C + I + G + (X - M)$	Mankiw, (2015)
Treasury Single Account (TSA)	Independent variable	Compliance Rate= $\frac{(\text{Number of Government Entities with Consolidated Accounts in TSA})}{\text{Total Number of Government Entities}} \times 100$	Adebiisi and Okike (2016)
Integrated Payroll and Personnel Information System (IPPIS)	Independent variable	Compliance Rate= $\frac{(\text{Number of Payroll Entries Compliant with Regulations})}{\text{Total Number of Payroll Entries}} \times 100$	Adeola and Oyedele (2019) ; Olaoye et al. (2020)
Public Financial Accountability Index (PFAI)	Independent variable	$PFAI = \frac{\sum_{i=1}^n (\text{Sub-Index}_i \times \text{Weight}_i)}{\text{Total Weights}} \times 100$	Eze and Okafor (2018)

Source: Researcher's Compilation, 2025

RESULTS AND DISCUSSION

This section offers a comprehensive examination of the data, emphasizing significant discoveries and interpreting them in relation to the research aims and hypotheses. The results are organized methodically, frequently accompanied by tables and figures to enhance clarity and accuracy. The discussion situates the findings within the context of existing literature,

Descriptive Analysis

Table 2: Descriptive Analysis

	GDP	TSA	IPPIS	PFAI
Mean	0.389	0.623	0.525	0.438
Median	0.328	0.337	0.346	0.198
Maximum	0.441	0.549	0.538	0.541
Minimum	0.145	0.152	0.194	0.157

drawing comparisons with earlier studies and pertinent theoretical frameworks. The implications of the results are analyzed, assessing the degree to which the research hypotheses are either corroborated or contradicted. This analysis offers valuable practical and theoretical insights, emphasizing the importance of the findings and their contributions to academic knowledge and practical applications.

Std. Dev.	1.217	1.314	1.151	1.546
Skewness	0.029	0.018	0.401	0.051
Kurtosis	1.435	1.372	1.509	1.341
Jarque-Bera	1.245	1.217	1.139	1.437
Probability	0.592	0.583	0.608	0.472
Sum	33.027	34.107	43.124	49.187
Sum Sq. Dev.	61.542	41.329	59.227	43.678
Observations	96	96	96	96

Source: Researcher's Computation, 2025 via EViews

Table 2 presents the descriptive statistics for the variables utilized in this research. This table provides valuable insights into the characteristics of the dependent variable, gross domestic product (GDP), alongside three independent variables: the treasury single account (TSA), the integrated payroll and personnel information system (IPPIS), and the public financial accountability index (PFAI). It also illustrates the behavior of these variables. The analysis of the descriptive statistics for GDP reveals a mean value of 0.389 and a median of 0.328, indicating a slight skewness towards higher values. The maximum and minimum values of 0.441 and 0.145, respectively, indicate a moderate range of variation. A standard deviation of 1.217 suggests considerable fluctuation in economic performance. The skewness of 0.029 and kurtosis of 1.435 imply a distribution that is approximately normal. The Jarque-Bera statistic of 1.245, with a corresponding probability of 0.592, further affirms the normality of the distribution. These findings suggest a generally stable economic trend, although occasional fluctuations may arise, underscoring the necessity for consistent policy measures to sustain growth. In terms of the Treasury Single Account (TSA), the descriptive statistical analysis indicates a mean of 0.623 and a median of 0.337, suggesting that a majority of the values are concentrated towards the lower end of the spectrum. The maximum value of 0.549 and the minimum value of 0.152 reflect moderate variability. A standard deviation of 1.314 indicates some degree of dispersion. The skewness of 0.018 and kurtosis of 1.372 suggest a distribution that is nearly normal, with a Jarque-Bera probability of 0.583

providing additional support for this conclusion. These statistics highlight the moderate efficiency of TSA operations, indicating potential areas for enhancement in compliance and optimization of cash management systems.

The descriptive statistical analysis of the Integrated Payroll and Personnel Information System (IPPIS) reveals a mean value of 0.525 and a median of 0.346, indicating that a majority of the data points fall below the mean, albeit not to a significant extent. The narrow range between the maximum value of 0.538 and the minimum value of 0.194 suggests limited variability, which is further corroborated by a standard deviation of 1.151. The skewness value of 0.401 indicates a slight rightward skew, while the kurtosis value of 1.509 suggests a distribution that is relatively flat-tailed. A Jarque-Bera probability of 0.608 supports the conclusion of a normal distribution. These results imply that the performance of IPPIS is generally stable, although there is potential for improvements to enhance its efficiency and compliance rates. In the case of the Public Financial Accountability Index (PFAI), the analysis indicates a mean value of 0.438 and a median of 0.198, which points to a distribution that is skewed towards higher values. The maximum value of 0.541 and the minimum value of 0.157 reflect a moderate degree of spread. The standard deviation of 1.546 indicates greater variability in comparison to other variables. The skewness value of 0.051 and the kurtosis value of 1.341 suggest that the distribution is approximately normal. A Jarque-Bera probability of 0.472 further confirms this assessment. These findings suggest that public

financial accountability is characterized by notable inconsistencies, underscoring the necessity for enhanced accountability measures.

The data suggests moderate variability across all variables, with normal or near-normal distributions as indicated by skewness, kurtosis, and Jarque-Bera statistics. While GDP and TSA exhibit relatively stable performance, IPPIS and PFAI indicate variability and potential inefficiencies.

The descriptive statistical analysis indicates that all variables (GDP, TSA, IPPIS, and PFAI) exhibit normal or near-normal distributions, as evidenced by skewness, kurtosis, and Jarque-Bera statistics. Additionally, the variability observed in standard deviations is within acceptable ranges, providing sufficient dispersion for meaningful analysis. These findings suggest that the dataset meets the assumption of normality, a critical prerequisite for regression analysis. Consequently, proceeding with regression analysis is justified, as the

normality of the data ensures reliable estimation of relationships among the variables, enabling accurate interpretation of the results and their implications for policy and operational improvements.

Correlation Analysis

The outcome of the correlation analysis measures both the intensity and the orientation of the relationship between two variables, offering valuable information regarding the manner in which one variable varies in relation to the other. This analysis was performed to assess the extent and characteristics of the connection between the variables examined in the research. Such an analysis is crucial for uncovering trends and interdependencies among the variables, thereby assisting in the decision-making process regarding the suitability of subsequent statistical modeling techniques, including regression analysis.

Table 3: Correlation of the Variables

Date: 24/01/25 Time: 10:43
Sample: 2016 2023
Included observations: 96

Correlation				
Probability	GDP	TSA	IPPIS	PFAI
GDP	1.000			
	0.132	1.000		
TSA	0.000			
	0.121	0.307	1.000	
IPPIS	0.000	0.00		
	0.185	0.249	0.257	
PFAI	0.000	0.000	0.00	1.000

r=correlation coefficient; t-stat; probability of t-statistics,

Source: Researcher's Computation, 2025 via EVIEWS

Table 3 displays the correlation matrix for the variables employed in this research. This matrix demonstrates both the strength and direction of the relationships between gross domestic product (GDP) and the three independent variables.

The correlation coefficient between GDP and TSA is 0.132, indicating a weak positive relationship. This suggests that as TSA increases, GDP also increases slightly, but the relationship is not strong. The probability value (0.000) indicates statistical significance, confirming the reliability of this relationship. This implies that effective implementation of

TSA may have a minor positive impact on economic growth, though the effect is not substantial.

The correlation coefficient between GDP and IPPIS is 0.121, also showing a weak positive relationship. A statistically significant probability value (0.000) supports this finding. This indicates that improvements in the IPPIS system are associated with slight enhancements in GDP, though the strength of the relationship is minimal. This highlights the potential of IPPIS to contribute to economic performance, albeit marginally.

The correlation coefficient of 0.185 between GDP and PFAI indicates a weak-to-moderate positive relationship. The probability value (0.000) confirms the significance of this association. This suggests that higher public financial accountability is correlated with improved economic performance, reflecting the importance of transparency and accountability in fostering GDP growth.

TSA and IPPIS exhibit a moderate positive correlation of 0.307, showing that improvements in TSA operations are moderately associated with enhancements in IPPIS performance. TSA and PFAI also show a weak positive relationship (correlation coefficient of 0.249), while IPPIS and PFAI have a correlation of 0.257, both statistically significant (probability = 0.000). These interrelationships indicate that these systems are interconnected, and strengthening one could have a ripple effect on the others.

The relationships between these variables are generally weak to moderate, indicating that while they are interconnected and statistically significant, none of the variables exerts a dominant influence independently. This pattern emphasizes the need for an integrated approach where strengthening TSA, IPPIS, and PFAI collectively could yield more meaningful improvements in GDP and overall

economic performance. The statistically significant correlations also validate the reliability of these relationships, making the dataset suitable for further exploration through regression analysis to understand causal dynamics.

Regression Result

The table of regression results offers a comprehensive examination of the association between the dependent variable, which is the domestic product (GDP), and the independent variables (Treasury Single Account (TSA), Integrated Payroll and Personnel Information System (IPPIS), and Public Financial Accountability Index (PFAI)). The analysis was conducted using regression analysis, which allows for examining how these public sector financial reform components impact the economic growth.

Regression analysis is justified in this study following the confirmation of data normality through descriptive statistical analysis, as it enables a detailed examination of the relationship between the dependent variable (GDP) and the independent variables (TSA, IPPIS, and PFAI). The normality of data satisfies a key assumption for regression, ensuring the reliability and validity of the results. Regression analysis allows for quantifying the impact of each independent variable on GDP while controlling for the effects of the others, providing insights into the unique contributions of these financial reforms. Additionally, it evaluates the statistical significance of these relationships, ensuring that the observed effects are not due to chance. This method supports the study's objective of understanding how public sector financial reforms impact economic growth and offers empirical evidence to guide policy decisions.

Table 4. Regression Result

Dependent Variable: GDP

Method: Regression

Date: 24/01/25 Time: 10:51

Sample: 2016 2023

Included observations: 96

Group: 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
C	0.557599	0.085547	7.340583	0.000	
TSA	0.531221	0.110795	5.654574	0.002	1.57
IPPIS	0.043942	0.026245	0.796439	0.454	1.45
PFAI	0.236132	0.206655	1.341494	0.134	2.82
R-squared	0.661223	Mean dependent var		0.389123	
Adjusted R-squared	0.635785	S.D. dependent var		0.110234	
S.E. of regression	0.178509	Akaike info criterion		-1.22171	
Sum squared resid	0.092415	Schwarz criterion		-1.188257	
Log likelihood	10.007936	Hannan-Quinn criter.		-1.11945	
F-statistic	15.3305617	Durbin-Watson stat		1.879	
Prob(F-statistic)	0.03000				

Source: Researcher's Computation, 2025 via EVIEWS

Table 4 revealed the regression result for the effect of public sector financial reforms on proxies by Treasury Single Account (TSA), Integrated Payroll and Personnel Information System (IPPIS), and Public Financial Accountability Index (PFAI) on economic growth (GDP).

The VIF values of 1.57, 1.45 and 2.82 for TSA, IPPIS and PFAI respectively, all of these values are below the commonly accepted threshold of 5, indicating that multicollinearity is not a significant concern in this model. VIF values above 5 (and more conservatively, above 10) are generally considered indicative of problematic multicollinearity, as they suggest that a variable shares a high degree of variance with other independent variables. Values below 5, as observed in this model, indicate that multicollinearity is not a significant concern. Multicollinearity arises when independent variables exhibit a high degree of correlation among themselves, leading to an increase in the standard errors of the estimated coefficients. This phenomenon complicates the evaluation of the distinct impact of each predictor on the dependent variable. The observation of low Variance Inflation Factor

(VIF) values indicates that each independent variable contributes unique insights into the explanation of the dependent variable, which in this case is GDP, without significant redundancy from other predictors.

The Variance Inflation Factor (VIF) serves as a diagnostic instrument in regression analysis, aimed at identifying multicollinearity. This phenomenon arises when independent variables within a model exhibit a high degree of correlation with each other. High multicollinearity can distort regression results, leading to unreliable coefficient estimates, inflated standard errors, and difficulties in determining the true relationship between each independent variable and the dependent variable. The low VIF values for TSA, IPPIS, and PFAI demonstrate that these variables are not excessively correlated with one another. This guarantees that every independent variable provides distinct information to the model, facilitating precise assessment of their individual impacts on GDP. With minimal multicollinearity, the coefficients for TSA, IPPIS, and PFAI can be interpreted with confidence. The regression model is robust, and the relationships between the independent variables and GDP are not artificially inflated

or suppressed due to variable interdependence.

The absence of significant multicollinearity means the model's predictions of GDP are not biased by redundant information. Each independent variable adds distinct explanatory value to the model. Low multicollinearity ensures that the independent variables do not compete for explanatory power, making the model more efficient and ensuring accurate standard error calculations.

This model's VIF values, which are all less than 5, show that multicollinearity is not a major problem. This supports the validity of the correlations between GDP and the independent variables (TSA, IPPIS, and PFAI) and guarantees the reliability of the regression results. The absence of multicollinearity strengthens the study's findings, highlighting the independent contributions of the variables to economic growth.

The Durbin-Watson (DW) statistic is a test used to detect autocorrelation in the residuals of a regression model, with a value close to 2 indicating minimal or no autocorrelation. In this case, the Durbin-Watson statistic is 1.879, which is close to the ideal value of 2. This indicates that the model's residuals exhibit minimal autocorrelation and are approximately independent of one another. This satisfies one of the fundamental assumptions of regression analysis, making sure that the model generates objective and trustworthy estimates.

The Durbin-Watson (DW) statistic is a diagnostic measure used in regression analysis to detect autocorrelation in the residuals of a model. Autocorrelation, also known as serial correlation, occurs when the residuals (errors) are not independent of each other. This means the value of an error term is influenced by the values of previous error terms, violating one of the key assumptions of regression analysis: independence of residuals. In this study, the DW statistic of 1.879 indicates minimal autocorrelation, meaning the residuals are independent. This guarantees that the regression model generates accurate predictions and unbiased coefficient estimates. When autocorrelation is absent, the regression analysis's validity is

reinforced, and the model's findings are dependable in elucidating the relationship between GDP and the independent variables (TSA, IPPIS, and PFAI).

With a corresponding p-value of 0.03000 and an F-statistic of 15.3305617, the regression model as a whole is statistically significant. The combined impact of the independent variables the Treasury Single Account (TSA), the Integrated Payroll and Personnel Information System (IPPIS), and the Public Financial Accountability Index (PFAI) on the dependent variable (GDP) is confirmed by the statistically significant F-statistic.

A significant F-statistic demonstrates that the regression model is robust and useful for explaining variations in GDP. This means the independent variables collectively provide meaningful information about changes in GDP. The result validates the inclusion of these independent variables in the model, confirming their combined relevance in explaining economic growth (GDP). The F-statistic and its corresponding p-value establish that the regression model is statistically significant, providing evidence that TSA, IPPIS, and PFAI together influence GDP. This strengthens the study's findings and supports the use of regression analysis to explore the impact of public financial reforms on economic growth.

Model quality is measured by the Akaike Information Criterion (-1.22171) and the Schwarz Criterion (-1.188257), where a better fit is indicated by lower values. These metrics affirm that the model balances explanatory power and complexity effectively. The Akaike Information Criterion (AIC) value of -1.22171 and Schwarz Criterion (SC) value of -1.188257 are statistical measures used to evaluate the quality of a regression model. These criteria assess the model's fit while penalizing for complexity, ensuring that the inclusion of additional variables is justified by improved explanatory power. Lower values for both AIC and SC indicate a better model, as they reflect a good balance between accuracy and simplicity. In this case, the negative values suggest that the model effectively explains the variation in GDP while avoiding overfitting, reinforcing its reliability and robustness for

analyzing the relationships between the variables.

From the result above, The R-squared value is 0.661223 indicates that approximately 66.1% of the variation in GDP is explained by the independent variables. The model explains roughly 63.6% of GDP variation after correcting for possible overfitting, according to the adjusted R-squared of 0.635785, which takes into account the number of predictors and offers a more trustworthy metric. The model fits the data well, demonstrating that TSA, IPPIS, and PFAI collectively account for a significant portion of GDP variability.

H₀₁: Treasury single account (TSA) has no significant effect on economic growth in Nigeria.

The regression results indicate that treasury single account (TSA) has a coefficient of 0.531221, suggesting that a one-unit increase in TSA is associated with a 0.531 increase in GDP, holding other variables constant. The t-value of 5.654574 and the p-value of 0.002 indicate that this effect is statistically significant. With a p-value of 0.002, a t-statistic of 5.654574, and a coefficient of 0.531221, this result demonstrated that the treasury single account has a positive and statistically significant effect on Nigeria's GDP at the five percent significance level. The p-value of 0.002, which is below the 5 percent level of significance, and the t-statistic of 5.654574, which is significantly above the critical threshold of 1.96, both support the statistical significance of this effect. This suggests that the correlation between TSA and GDP is not likely to have happened by accident. The result suggests that the implementation of TSA effectively improves economic performance by enhancing fiscal discipline, reducing leakages in public finances, and promoting efficient cash management. By consolidating government accounts, TSA helps streamline resource allocation and improve transparency in financial transactions, which are critical to fostering economic growth.

The practical implication is that TSA enhances fiscal discipline, reduces corruption, and improves the efficiency of government resource allocation by consolidating public

funds into a single account. This prevents leakages, minimizes administrative costs, and ensures timely funding for developmental projects. Policymakers can leverage this evidence to strengthen TSA implementation, broaden its scope, and address operational challenges, ultimately fostering a more transparent and efficient public financial management system. This underscores the need for continuous monitoring and effective enforcement of TSA policies to sustain and amplify their positive economic impact.

The findings align with the Fiscal Theory of Economic Growth, which posits that efficient fiscal management, including the prudent allocation and utilization of public resources, is critical for economic growth (Barro, 1990). TSA embodies this principle by ensuring that public funds are managed efficiently and transparently, enabling the government to direct resources toward productive investments that stimulate economic activity. The statistical significance of TSA's effect on GDP validates the theory's assertion that sound fiscal policies are instrumental in driving growth. This empirical evidence reinforces the theoretical framework, highlighting TSA as a practical application of fiscal discipline in line with the theory's emphasis on the pivotal role of government financial management in enhancing economic performance.

H₀₂: Integrated payroll and personnel information system (IPPIS) has no significant effect on economic growth in Nigeria.

The regression results shows that IPPIS has a smaller coefficient of 0.043942 and a higher p-value of 0.454, indicating that there is no statistically significant effect on GDP. This suggests that, when all other variables are held constant, an increase of one unit in IPPIS is slightly associated with an increase of 0.044 in GDP. Given the t-value of 0.796439 and the p-value of 0.454, this effect is statistically insignificant. At the five percent significance level, the coefficient value of 0.043942, t-statistic of 0.796439, and p-value of 0.454 all showed that the integrated payroll and personnel information system had a positive but statistically insignificant impact on Nigeria's GDP.

The coefficient of 0.043942 indicates that a one-unit increase in IPPIS implementation is linked to a slight increase of 0.044 in GDP. The t-statistic of 0.796439, which is significantly below the critical value of 1.96, and the high p-value of 0.454, which surpasses the 5 percent significance threshold, show that this effect is not statistically significant.

The insignificance of IPPIS's effect on GDP implies that, while the system might contribute marginally to improved fiscal management and reduced payroll fraud, its current implementation has not translated into a measurable impact on economic growth. This could be due to operational inefficiencies, incomplete implementation, or the limited scope of the system in addressing broader fiscal challenges. From a theoretical perspective, the results highlight a limitation in the practical application of the Fiscal Theory of Economic Growth, which emphasizes the importance of efficient fiscal management systems in driving economic growth (Barro, 1990). While IPPIS aligns with this theory by aiming to enhance payroll and personnel management, its lack of significant impact on GDP suggests that reforms targeting narrower fiscal issues, such as payroll inefficiencies, may not independently yield substantial economic benefits. The results suggest that broader and more integrated reforms may be required to fully realize the theory's potential for driving economic growth.

The positive but statistically insignificant effect of IPPIS on GDP underscores the need for enhanced implementation and integration with other fiscal reforms. While IPPIS has the potential to support fiscal discipline, its current impact on economic growth is limited. This calls for a more strategic approach to public financial management that leverages IPPIS as part of a comprehensive reform package aimed at fostering sustainable economic development in Nigeria.

H₀₃: Public financial accountability index (PFAI) has no significant effect on economic growth in Nigeria.

The regression results show that, PFAI has a coefficient of 0.236132 and a p-value of 0.134. This suggests that there is a weak

and statistically insignificant relationship between PFAI and GDP, meaning that, when all other variables are held constant, an increase of one unit in PFAI is linked to a 0.236 increase in GDP in Nigeria. The t-value of 1.341494 and the p-value of 0.134 indicate that this effect is statistically insignificant. At the five percent significance level, the coefficient value of 0.236132, t-statistic of 1.341494, and p-value of 0.134 all showed that the public financial accountability index had a positive but statistically insignificant impact on Nigeria's GDP.

The result revealed that public financial accountability index has positive but insignificant effect on GDP in Nigeria. The figure of 0.236132 implies a 0.236 rise in GDP for every single-unit rise in PFAI, while keeping other factors constant. Nevertheless, this impact fails to meet the threshold of statistical significance, as demonstrated by the p-value of 0.134 surpassing the 5% significance level, and the t-statistic of 1.341494 falling beneath the critical value of 1.96. This implies that while the relationship between PFAI and GDP is positive, it lacks sufficient evidence to confirm that the observed effect is meaningful or not due to random chance.

The statistically insignificant relationship suggests that improvements in public financial accountability, as measured by PFAI, have not translated into measurable economic growth in Nigeria. This could indicate gaps in the implementation or effectiveness of accountability measures, such as weak enforcement, limited transparency, or insufficient integration with broader fiscal management reforms. From the perspective of the Fiscal Theory of Economic Growth, which emphasizes the importance of sound fiscal policies and institutional quality in promoting economic growth (Barro, 1990), the results suggest that public financial accountability reforms have not yet reached the level of effectiveness required to significantly influence GDP. While the theory underscores the role of accountability in enhancing fiscal performance, the findings reveal that PFAI alone may be insufficient to drive substantial economic growth without complementary reforms addressing broader fiscal and governance challenges. The positive but

statistically insignificant effect of PFAI on GDP indicates that while accountability measures may have potential, their current implementation in Nigeria has not achieved a meaningful impact on economic growth.

The study found that treasury single account has positive and statistically significant effect on GDP in Nigeria at 5% significant level. While, integrated payroll and personnel information system and public financial accountability index have positive but insignificant effect on GDP in Nigeria at 5% level of significant.

CONCLUSIONS AND RECOMMENDATIONS

The study concludes that public sector financial reforms have varying impacts on economic growth in Nigeria. The Treasury Single Account (TSA) demonstrates a positive and statistically significant effect on GDP, highlighting its effectiveness in fostering fiscal discipline, enhancing transparency, and promoting economic growth. Conversely, the Integrated Payroll and Personnel Information System (IPPIS) and the Public Financial Accountability Index (PFAI), while showing positive coefficients, exhibit statistically insignificant effects on GDP. This indicates that while IPPIS and PFAI contribute to fiscal management and accountability, their current implementation has not achieved a measurable impact on economic growth. These findings emphasize the need to consolidate the gains of TSA while strengthening the implementation and scope of IPPIS and PFAI to enhance their effectiveness in driving sustainable economic development.

Therefore, based on the findings and conclusions, this study offers the following recommends that:

- i. Nigerian government continue to strengthen and expand TSA implementation. Efforts should focus on full compliance by all government agencies, enhanced monitoring mechanisms, and leveraging technology to improve operational efficiency. This can be achieved through, regular training for personnel and audits should be conducted to ensure sustained effectiveness and transparency.
- ii. Nigerian government should address existing implementation gaps and enhance the system's operational scope. This can be achieved through extending IPPIS coverage to all government agencies, improving data accuracy, and integrating it with broader fiscal management systems.
- iii. Nigerian government should intensify efforts to strengthen public financial accountability mechanisms and enforce compliance with financial transparency standards. This can be achieved by improving public access to financial information, conducting regular audits, and enhancing the capacity of institutions responsible for public financial accountability.

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