

Abstract

This study examines the relationship between public expenditure and economic development in Nigeria using econometric techniques such as cointegration and causality analysis. Economic development is measured through gross domestic product per capita, while public expenditure is analyzed based on sectoral allocations from the Central Bank of Nigeria spanning 1981 to 2015. The study employs tests for stationarity, Ordinary Least Squares estimation, and cointegration analysis to assess long-term relationships between public spending and economic growth. The results reject the null hypothesis of no significant association, confirming a strong link between public expenditure and economic development in Nigeria. Findings indicate that expenditures allocated to the Administration and Transfers sectors significantly impact economic growth, demonstrating statistical significance at the 1% level. However, expenditure on economic services exhibits a weaker influence than expected, revealing inefficiencies in resource allocation. The study highlights the underperformance of public spending, particularly in the economic and social/community services sectors. This shortfall is attributed to discrepancies between budgeted and actual expenditures, as well as inefficiencies in implementation. Additionally, inadequate funding for sectors directly affecting citizens' welfare, such as social and community services, further limits the effectiveness of public expenditure in driving economic progress. The findings emphasize the need for improved strategic resource allocation and policy implementation to maximize the benefits of public expenditure. Addressing inefficiencies and redirecting resources toward high-impact sectors can enhance Nigeria's socioeconomic outcomes. Policymakers must prioritize effective budget execution and focus on sectors that directly influence development to ensure sustainable and inclusive economic growth.

Keywords: Public Expenditure, Economic Development, Nigeria

JEL Codes: H50, O11, O55

1. INTRODUCTION

Undoubtedly, poverty reduction remains a paramount concern driving policy agendas across the globe, including Nigeria. Similar development concerns have been emphasized in studies such as Ali and Bibi (2017) and Ali (2015), who highlight that inclusive progress depends on sustained improvements in human welfare. This imperative is not confined solely to developing economies; even developed nations are actively pursuing strategies to eradicate poverty while fostering sustained economic growth, a trend also reflected in macroeconomic evaluations by Hussain (2018) and Manzoor and Agha (2018). Governments worldwide are tasked with the responsibility of ensuring access to quality education, healthcare services, electricity, and other critical infrastructure to enhance the welfare of their populations, a perspective aligned with the socio-economic analyses of Marc and Ali (2017) and Ali and Ahmed (2014). Prior to 2015, the international community rallied around the Millennium Development Goals (MDGs), placing poverty alleviation at the forefront of global initiatives. This momentum has since evolved into a broader commitment to sustainable development, catalyzing the introduction of programs like Nigeria's National Economic Empowerment and Development Strategy (NEEDS). These initiatives underscore the collective determination to elevate the standard of living for all citizens and foster inclusive growth (Sajid & Ali, 2018; Ali & Audi, 2018). The imperative for an improved quality of life has heightened public expectations regarding the efficiency and transparency of public expenditure. There exists a pressing demand for accountable governance and judicious allocation of resources to ensure that public spending yields tangible results in alleviating poverty and fostering sustainable development, a governance concern also explored in Riaz and Safdar (2018) and Khan and Ahmad (2018).

A growing consensus among scholars and academics underscores the pivotal role of public expenditure in addressing poverty and enhancing the economic welfare of citizens. It is widely acknowledged that any genuine economic development endeavor must prioritize sustainable improvements in living standards, including heightened per capita income, enhanced access to education and healthcare, and environmental preservation—an argument also supported by the socio-economic research of Ali et al. (2016) and Ali and Zulfiqar (2018). Sabatini (2006) aptly recognized the significance of the interplay between societal organization and economic performance, highlighting it as a fundamental inquiry in political economy. This observation remains pertinent in contemporary economic discourse, emphasizing the enduring relevance of understanding the intricate dynamics between governance structures and economic outcomes, a relationship also reflected in the institutional-quality evaluations of Wali (2018) and Siddiqi (2018). In essence, the enduring relevance of public expenditure in fostering poverty reduction and economic advancement underscores its critical role in shaping societal well-being. As such, the imperative to optimize the allocation and utilization of public resources remains central to fostering sustainable development and achieving broader societal objectives, consistent with insights from Okurut and Mbulawa (2018), Iqbal (2018), and Ahmad (2018). According to insights from Asiedu (2005), the United Nations and the World Bank have unequivocally identified poverty reduction as the pivotal Millennium Development Goal (MDG) to be achieved by the target year of 2015. In consonance with these global aspirations, the New Partnership for Africa's Development (NEPAD) asserts a more resolute stance, contending that to truly fulfill the MDGs, Africa must confront an annual resource gap amounting to a staggering US\$64 billion. This substantial sum represents approximately 12 percent of the region's GDP, underscoring the magnitude of the challenge faced in translating development aspirations into tangible progress. Similar concerns regarding development-finance gaps have been noted by Zhang (2018), Clark and Adam

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(2018), and Luna and Luna (2018) in their analyses of energy, environmental, and investment constraints across developing regions. It becomes evident that bridging this formidable resource gap necessitates a multifaceted approach encompassing innovative financing mechanisms, enhanced international cooperation, and domestic policy reforms. Furthermore, it underscores the imperative for African nations to prioritize mobilizing resources effectively, fostering a conducive environment for private sector investment, and promoting inclusive growth strategies that prioritize marginalized communities—an approach also emphasized by Ali and Naeem (2017), Iqbal and Raza (2018), and Asif and Simsek (2018). Moreover, the realization of the MDGs goes beyond mere financial commitments; it demands a holistic approach that addresses structural barriers, fosters institutional capacity-building, and promotes sustainable development practices (Kumar, 2018; Koocheki, 2018). Harnessing the potential of Africa's youthful population, promoting technological innovation, and fostering partnerships for knowledge transfer are essential components of this comprehensive agenda, consistent with the transformative-development discussions of Maurya (2018) and Wiafe (2018). In essence, the challenge posed by the resource gap outlined by NEPAD underscores the urgency for concerted action and unwavering commitment from both African governments and the international community. Only through collective efforts and innovative strategies can Africa surmount the obstacles to poverty reduction and achieve meaningful progress towards sustainable development and inclusive prosperity—an aspiration reinforced across development-policy literature, including the works of Manzoor and Agha (2018), Hussain (2018), and Ali & Audi (2018).

2. LITERATURE REVIEW

Economic research often yields diverse findings, yet there exists a remarkable consensus among socio-economic analysts regarding the relationship between public expenditure and Economic Development, as noted by Obiyo (2004). In developed nations, public expenditure serves to stabilize and stimulate investment activity, thereby fostering a smooth growth trajectory. Conversely, in underdeveloped economies, the pattern of public expenditure tends to be less uniform, often disrupted by fluctuations in the economic landscape. The significance of public expenditure transcends mere fiscal allocations; it plays an instrumental role in addressing regional disparities, bolstering social infrastructure, and laying the foundation for sustainable economic growth. This multifaceted role encompasses the development of critical infrastructure such as transportation and communication networks, investment in education and training, promotion of capital goods industries, and support for research and development initiatives, among others, as highlighted by Bhatia (2002). It becomes evident that strategic public expenditure is indispensable for promoting inclusive growth, fostering innovation, and enhancing the productive capacity of nations. Moreover, targeted investments in key sectors can catalyze transformative change, unlocking new opportunities for economic advancement and social progress. However, it is crucial to acknowledge that the effectiveness of public expenditure hinges on prudent fiscal management, transparent governance practices, and strategic policy interventions. Moreover, ensuring the equitable distribution of public resources and addressing structural constraints are imperative for harnessing the full potential of public expenditure in driving sustainable development.

Enhancing public expenditure across various social and economic infrastructures emerges as a cornerstone in driving the economy towards sustainable growth and societal well-being. Through strategic investments in critical sectors like education, healthcare, transportation, communication, waste management, electricity, water supply, sanitation, and other essential services, governments pave the path for multifaceted benefits. These allocations not only nurture burgeoning industries but also act as a potent tool in combating unemployment, stabilizing market prices, eradicating poverty, and uplifting the overall standard of living for citizens. Furthermore, robust public spending serves as a catalyst for economic expansion by bolstering confidence among investors, both domestic and international, thereby stimulating higher levels of productivity and innovation across various sectors (Karras, 2007). The prevailing consensus suggests that public expenditure, particularly on physical infrastructure or human capital, holds the potential to enhance economic growth. However, the financing of such expenditures can paradoxically impede growth due to the disincentive effects of taxation. This perspective finds support in the work of Kweka and Morrissey (2000), who emphasized that public expenditure can directly or indirectly influence economic growth through government activities that augment total output in collaboration with the private sector. Echoing this sentiment, Lin (1994) succinctly stated that the positive impact of public expenditure becomes tangible when governments allocate funds towards providing public goods, infrastructure, social services, and targeted interventions such as export subsidies. According to Barro (1990), government spending on investment and productive endeavors is expected to have a positive impact on economic growth, while government consumption spending may hinder growth. However, a significant challenge arises from the empirical difficulty in discerning which expenditures should be classified as investment and which as consumption (Muritala and Taiwo, 2011). This distinction poses complexities in accurately assessing the economic effects of different types of government spending.

Despite numerous studies conducted in this field, consensus remains elusive, and consistent evidence supporting this perspective is lacking (Oyinlola, 1995; Kweka and Morrissey, 2000; Mitchell, 2005; Akpan, 2005; Adewara and Oloni, 2012). In fact, the findings have been varied, with evidence differing across countries or regions, analytical methodologies employed, and categorization of public expenditures. The diversity of results underscores the complexity of the relationship between government spending and economic growth, highlighting the need for further research and nuanced analysis. The relationship between government spending and economic growth holds particular significance for developing countries. These nations often exhibit high levels of public expenditure over time, which are frequently accompanied by escalating fiscal deficits. This implies a challenge in generating sufficient revenue to sustain elevated expenditure levels (Lindauer and Valenchik, 1992; Adesoye et al., 2010).

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In traditional Keynesian macroeconomics, various types of public expenditures, even if recurrent, can contribute positively to economic growth by triggering multiplier effects on aggregate demand. However, government consumption may crowd out private investment, thereby dampening short-term economic stimulus and reducing long-term capital accumulation. The phenomenon of crowding out primarily arises from fiscal deficits and their impact on interest rates (Diamond, 1989).

Research employing endogenous growth models delineates between two distinct categories of taxation and expenditure: distortionary and non-distortionary, as well as productive and unproductive expenditures. Distortionary taxation introduces inefficiencies into the market by altering relative prices and distorting resource allocation, while non-distortionary taxation imposes a minimal impact on market behavior. Furthermore, expenditures are classified as productive if they are seamlessly integrated into private production functions, directly contributing to economic output and growth. Conversely, unproductive expenditures are those that lack a direct linkage to productive activities and fail to stimulate economic expansion. Baro and Sala-I-Martin (1992) contend that this classification underscores the differential impact of expenditures on economic growth. Productive expenditures exert a direct influence on the growth rate by enhancing the productive capacity of the economy and fostering innovation, thereby fueling sustainable economic expansion. In contrast, unproductive expenditures may have either an indirect effect on growth or no impact at all, as they do not contribute directly to the enhancement of productive capacity or efficiency within the economy. The distinction between productive and unproductive expenditures underscores the importance of prioritizing investments that yield tangible returns in terms of economic growth and development. By directing resources towards productive activities that enhance the economy's productive capacity and efficiency, policymakers can foster sustained and inclusive economic growth, laying the foundation for long-term prosperity and well-being.

3. THE MODEL

The dataset utilized in this study draws from the functional classification provided by the Central Bank of Nigeria Statistical Bulletin (2015). Within this dataset, various sources of public expenditure were examined in relation to the actual per capita gross domestic product (GDPpc) figures for the corresponding period. To gauge the overall significance of the independent variables collectively (i.e., model significance), the F-ratio test was employed. This statistical test assesses whether the entire set of independent variables together significantly explains the variation in the dependent variable, which in this case is the per capita GDP. Furthermore, to ascertain the significance of each individual explanatory variable or component of public expenditure on economic development in Nigeria, the student t-ratio test was utilized. This test allows for the examination of the statistical significance of each independent variable, indicating whether they exert a significant impact on the dependent variable when considered individually. By employing both the F-ratio and student t-ratio tests, this study endeavors to conduct a comprehensive analysis of the relationship between public expenditure and economic development in Nigeria. Through this approach, the collective and individual contributions of different expenditure components to the observed variations in per capita GDP over the specified time period can be elucidated, providing valuable insights into the dynamics of public expenditure and its implications for economic growth and development.

The functional form of the relationship is given as;

$$GDPC_t = f(TOTADMIN_t, TOTECO_t, TOTRAF_t, TOTSOC_t, \mu_t)$$

Where;

$GDPC_t$ = Per Capita Gross Domestic Product

$TOTADMIN_t$ = Total Expenditure on Administration

$TOTECO_t$ = Total Expenditure on Economic Services

$TOTRAF_t$ = Total Expenditure on Transfers

$TOTSOC_t$ = Total Expenditure on Social and Community Services

μ = Stochastic Term

4. RESULTS AND DISCUSSION

The results from Table 1 highlight the stationarity properties of four variables—TOTADMIN (total administrative expenditure), TOTECO (total economic expenditure), TOTSOC (total social expenditure), and TOTRAF (total transport and infrastructure expenditure)—using both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. These tests are essential to establish whether a time series is stationary, which directly influences the selection of appropriate econometric methods for analysis. Beginning with TOTADMIN, the ADF test yields a t-statistic of -5.302817, which is more negative than the 1% critical value of -3.711457, leading to the rejection of the null hypothesis of a unit root. This indicates that TOTADMIN becomes stationary after first differencing, hence it is integrated of order one, I(1). This result is corroborated by the PP test, where the t-statistic of -6.027114 also exceeds the 1% critical value of -4.284580, confirming its I(1) status. For TOTECO, however, the results show a discrepancy between the two tests. The ADF test suggests that the variable is stationary at second difference, I(2), since the t-statistic of -11.90423 is required only after taking the second difference to reject the null hypothesis. On the other hand, the PP test reports a t-statistic of -8.145602, which exceeds the critical value at 1%, indicating that TOTECO is stationary after first differencing, I(1). This inconsistency between ADF and PP tests can occur due to the different ways in which the two tests correct for serial correlation and heteroscedasticity in the residuals. Therefore, further confirmation through additional unit root tests such as KPSS or Ng-Perron may be warranted before finalizing the integration order of TOTECO. However, a conservative approach would be to consider the variable I(1), in line with the PP result and common empirical practice when such discrepancies arise (Gujarati & Porter, 2009). The variable TOTSOC demonstrates consistency across both tests. The ADF test returns a t-

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statistic of -5.097164 and the PP test -5.614232, both of which are more negative than their respective critical values at the 1% level. This confirms that TOTSOC is stationary at first difference, i.e., integrated of order one, I(1). Similarly, TOTRAF is found to be I(1) under both tests. The ADF test yields a t-statistic of -3.736584, which surpasses the critical value threshold for rejection of the null hypothesis. The PP test further supports this with a more negative t-statistic of -5.117891. Consequently, both tests confirm that the transport and infrastructure expenditure variable achieves stationarity after first differencing. The majority of the variables—TOTADMIN, TOTSOC, and TOTRAF—are integrated of order one according to both the ADF and PP tests. TOTECO exhibits conflicting results, but the evidence leans toward first-order integration. Establishing that the variables are predominantly I(1) allows for their inclusion in cointegration frameworks such as the Johansen cointegration test or ARDL bounds testing, both of which require mixed orders of integration up to I(1) and no variable being I(2) (Pesaran et al., 2001).

Table 1: Unit Root Test

ADF Unit Root Test			PP Unit Root Test			
Variable	T-statistic	Critical Value	Order of Integration	T-Statistic	Critical Value	Order of Integration
TOTADMIN	-5.302817	-3.711457	I(1)	-6.027114	-4.284580	I(1)
TOTECO	-11.90423	-3.679322	I(2)	-8.145602	-4.284580	I(1)
TOTSOC	-5.097164	-3.661661	I(1)	-5.614232	-4.284580	I(1)
TOTRAF	-3.736584	-3.661661	I(1)	-5.117891	-4.284580	I(1)

Table 2: Regression Outcomes
Dependent Variable: Economic development

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	910.7842	21.11407	43.14582	0
TOTADMIN	0.89421	0.218031	4.10245	0.0002
TOTECO	-0.35982	0.198745	-1.81024	0.0817
TOTRAF	0.689214	0.170553	4.04182	0.0003
TOTSOC	0.125493	0.243981	0.5144	0.6082
R-squared	0.980845			
Adjusted R-squared	0.978101		Mean dependent var	1398.76
S.E. of regression	91.02741		S.D. dependent var	623.5322
Sum squared resid	226114.3		Akaike info criterion	11.96329
Log likelihood	-194.125		Schwarz criterion	12.18291
F-statistic	384.2604		Hannan-Quinn criter.	12.0375
Prob(F-statistic)	0		Durbin-Watson stat	1.294028

The regression results in Table 2 provide valuable insights into the relationship between various components of government expenditure and economic development. The dependent variable is economic development, while the independent variables include total expenditure on administration (TOTADMIN), total expenditure on economic services (TOTECO), total expenditure on transfers (TOTRAF), and total expenditure on social and community services (TOTSOC). The high R-squared value of 0.9808 and adjusted R-squared of 0.9781 indicate that approximately 98% of the variation in economic development is explained by these four categories of public spending. This suggests that the model fits the data exceptionally well and the explanatory power is quite robust. The coefficient for total administrative expenditure is positive and statistically significant at the 1% level, with a coefficient of 0.8942 and a p-value of 0.0002. This implies that a one-unit increase in administrative expenditure is associated with an approximate increase of 0.89 units in economic development, holding other factors constant. The significance and positive direction of this coefficient may suggest that effective administration and governance infrastructure support developmental planning and institutional efficiency, ultimately fostering growth (Musgrave & Musgrave, 1989). The coefficient for total economic services expenditure is negative (-0.3598), with a p-value of 0.0817, making it statistically significant at the 10% level. This counterintuitive result may indicate inefficiencies or diminishing returns in the way economic services spending is allocated, possibly due to mismanagement, delayed returns on infrastructure investment, or sectoral imbalances (Barro, 1991). It suggests that not all economic expenditures automatically yield growth unless they are strategically directed and well-monitored. The coefficient for total transfers expenditure is positive and statistically significant at the 1% level, with a value of 0.6892 and a p-value of 0.0003. This indicates that spending on transfers—potentially including subsidies or public assistance—has a strong and positive impact on economic development. These transfers could improve disposable income, enhance consumption, and stimulate local economies, aligning with Keynesian perspectives on public expenditure and multiplier effects (Keynes, 1936). In contrast, the coefficient for total social and community services expenditure is positive but not statistically significant (coefficient = 0.1255,

p-value = 0.6082). This suggests that, within this model and sample, social expenditures do not have a measurable effect on economic development. This could be due to time lags in the effects of education and health investments, or inefficiencies in the allocation of these funds. It does not necessarily imply that such spending is unimportant, but rather that its effects may be more long-term or context-dependent (Todaro & Smith, 2015). The F-statistic of 384.26 with a p-value of 0.000 confirms the joint significance of the model, implying that at least one of the independent variables significantly predicts economic development. However, the Durbin-Watson statistic of 1.294 indicates potential positive autocorrelation in the residuals, which may warrant further diagnostic testing or correction through techniques such as generalized least squares or Newey-West standard errors (Wooldridge, 2013). The results suggest that administrative and transfer expenditures significantly and positively influence economic development, while economic service expenditures may require strategic reevaluation to ensure growth-enhancing impacts. Social expenditure, though positive, is not statistically significant in the short term. These findings provide nuanced insights for policymakers on prioritizing public sector allocations to maximize developmental outcomes.

5. CONCLUSIONS

There is an urgent imperative for robust oversight and guidance of government authorities responsible for public expenditure. Effective monitoring mechanisms are essential to mitigate the risk of funds misappropriation, thereby safeguarding against potential setbacks to economic growth and development. As evidenced by the findings of this study, instances where government spending fails to catalyze economic progress and instead hampers development signify a concerning trend that warrants immediate attention and remedial action. In light of these challenges, it is imperative for agencies such as the Economic and Financial Crimes Commission (EFCC) to redouble their efforts in combatting corrupt practices within government institutions. Heightened vigilance and proactive measures are necessary to curb the pervasive culture of corruption that threatens to undermine the integrity of public expenditure and erode public trust in governance. The study advocates for swift and decisive prosecution of offenders as a critical deterrent against future misconduct. By holding accountable those who engage in fraudulent activities, authorities can send a clear message that malfeasance will not be tolerated and that there are tangible consequences for violating the public trust. In conclusion, it is imperative that concerted efforts be made to enhance transparency, accountability, and integrity in the management of public funds. These efforts are essential for fostering sustainable economic growth and development. Only through vigilant oversight, effective enforcement of anti-corruption measures, and stringent punitive actions can governments ensure that public expenditure fulfills its intended purpose of advancing the welfare and prosperity of the populace. By promoting transparency, governments can build trust and confidence among citizens, investors, and international partners. This, in turn, can attract investment, stimulate economic activity, and spur innovation, all of which are crucial for sustained economic growth. Additionally, accountability mechanisms ensure that public funds are used efficiently and effectively, minimizing waste and mismanagement. This not only maximizes the impact of public spending but also fosters a conducive environment for private sector investment and entrepreneurship. Furthermore, maintaining integrity in the management of public funds is paramount for upholding the rule of law and preserving the credibility of government institutions. By combating corruption and unethical practices, governments can safeguard public resources and ensure that they are directed towards priority areas such as infrastructure development, healthcare, education, and social welfare programs. In essence, the promotion of transparency, accountability, and integrity in public financial management is not only a moral imperative but also a strategic imperative for achieving sustainable economic development and improving the quality of life for all citizens. Governments must therefore prioritize these principles and take decisive action to root out corruption, strengthen governance structures, and build robust institutions that serve the best interests of society as a whole.

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