**Business Studies Review**
Original Article
ISSN (Online): 2536-6823

**International Journal of Multidisciplinary Research in Academic Studies and Field Practices (IJMRASFP), 2026. 5(2), 1-17**
**Volume 5, Issue 2**

**Accounting Journal | Accepted: 18 July, 2026 | Published: 29 July, 2026**

# Government Expenditure and Economic Development in Ondo State

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## ABSTRACT

This study investigates the effect of government expenditure on economic development (proxied by internal generated revenue (IGR) in Ondo state over a five-year period from 2020 to 2024. The analysis focuses on three key expenditure categories education, health and agriculture and employs descriptive statistics, correlation analysis and multiple regression to evaluate their relationship with revenue performance. The descriptive results show considerable variability in IGR, while spending on education and health remained consistently higher than agricultural expenditure. Correlation analysis reveals strong positive associations between IGR and each expenditure category, although these relationships were not statistically significant. The regression model demonstrates a high explanatory power, indicating that 89.3 percent of the variation in IGR is jointly explained by the three expenditure variables. The findings further show that education expenditure has a statistically significant positive effect on IGR, whereas health and agriculture expenditures exhibit positive but statistically insignificant effects. The study concludes that while all three sectors contribute to revenue performance, investment in education plays the most decisive role. It recommends sustained and strategic funding across these sectors, with priority given to education to enhance internally generated revenue.

**Keywords:** Internally generated revenue, agricultural expenditure, Ondo State, education expenditure, health expenditure

**Article ID: IJMRASFP-MGS-1128472**

# 1 INTRODUCTION

Government expenditure remains one of the most powerful macroeconomic policy tools available to sub-national governments in Nigeria. It plays a central role in shaping the pace and quality of economic development, particularly in states like Ondo where public-sector investment often compensates for weak private capital inflows. The structure and composition of these expenditures especially allocations to education, health, and agriculture are critical determinants of human capital formation, productivity, and long-term economic transformation (Ogujiuba & Adenuga, 2024). In recent years, Ondo State has increasingly recognized the need to align its expenditure patterns with global and national development priorities. According to the Ondo State Government (2024), recurrent and capital expenditures have been restructured to strengthen social-sector investment and revitalise productive sectors. This strategic redirection reflects an understanding that sustainable economic development requires simultaneous growth in human capital, improved healthcare delivery, and enhanced agricultural productivity. The state's 2025 budget proposal, as documented in Aiyedatiwa (2024), earmarked substantial resources to these sectors: approximately ₦77 billion to education, ₦46 billion to health, and ₦56 billion to agricultural development, signalling a renewed commitment to inclusive growth.

At the national level, Nigeria has benefited from sector-focused support from multilateral institutions. The World Bank (2025), for example, approved an extensive US$1.08 billion development financing facility to strengthen education quality, health outcomes, and nutritional resilience across Nigeria. These national programmes often require complementary state-level investment and effective fiscal management to ensure measurable impact. For a state like Ondo, alignment with such federal and international interventions is crucial for achieving the desired development multiplier effects. Meanwhile, the Nigerian economy continues to face structural challenges such as high inflation, fluctuating federal allocations, and declining oil revenue all of which influence state-level fiscal capacity. These constraints make efficient allocation and utilisation of public expenditure increasingly important. The Ondo State Accountant-General's Office (2024) highlights concerns regarding budget performance volatility and execution bottlenecks, noting that capital project implementation is sometimes undermined by rising project costs and delayed revenue inflows. If expenditure in critical sectors does not translate into improved service delivery, economic development targets may remain unmet.

Empirical literature remains divided on the effectiveness of government spending in Nigeria. Recent studies such as Ibrahim & Ogunleye (2023) and Bamidele & Afolayan (2024) reveal sector-specific variations: while expenditure on education and health has tended to improve human development indicators, agricultural spending has shown mixed outcomes depending on governance efficiency, rural infrastructure, and the extent of value-chain integration. This inconsistency underscores the need for state-specific investigations, as national studies may not capture granular realities within sub-national entities like Ondo State. For Ondo State, whose economy is driven by agriculture, education, services, and an emerging industrial base, government expenditure is expected to catalyze broad-based development. Yet, despite substantial budgetary allocations in recent years, challenges persist: educational infrastructure gaps remain visible, health indicators lag behind national averages, and agricultural productivity is constrained by inadequate mechanization, insufficient extension services, and climate-related disruptions (National Bureau of Statistics, 2024). These realities heighten the need to empirically examine whether public spending is effectively driving economic development at the state level.

Therefore, this study seeks to evaluate the impact of government expenditure on economic development in Ondo State by focusing specifically on education, health, and agriculture. Understanding these relationships is vital for improving budget planning, enhancing fiscal discipline, and ensuring that public investment truly contributes to long-term and inclusive economic development.

Despite increased nominal budgets and high public expectations, Ondo State faces persistent development challenges including infrastructural gaps, health and education shortfalls, and limited agricultural value-chain growth. Official budget performance and financial reports indicate that capital expenditures and program execution have at times underperformed targets (affected by inflation, revenue shortfalls and reprioritizations), raising concern that increased budgetary allocation alone may not translate into measurable economic development at the state level. This raises the central problem: what is the actual impact of Ondo State government expenditure particularly on education, health, and agriculture on the state's economic development?

The study was guided by the following research questions: What is the relationship between government spending on education and economic development in Ondo State? What effect does government spending on health have on economic development in Ondo State? What is the impact of government spending on agriculture on economic development in Ondo State? To investigate the effect of government expenditure on economic development in Ondo State, the study examined effect of government spending on education and economic development in Ondo State, evaluated the effect of government spending on health and economic development in Ondo State, and determined the effect of government spending on agriculture on economic development in Ondo State. For empirical testing the study adopted the following null hypotheses: government spending on education has no significant effect on economic development in Ondo State, government spending on health has no significant effect on economic development in Ondo State, and government spending on agriculture has no significant effect on economic development in Ondo State.

The study focused on Ondo State, Nigeria, and covers government expenditures on education, health and agriculture. The temporal scope will use the most recent years for which reliable state budgetary and economic data are available (drawing on Ondo State budget/financial statements and comparable indicators over an agreed multi-year period e.g., the 2018–2024 window depending on data availability). The study examined the effect of these sectoral expenditures on proximate economic development measures (such as state GDP proxies, employment indicators, human capital outcomes, and agricultural output/value-added where data permit).

This research is significant to policymakers (State government & Ministries), by providing evidence on which sectoral expenditures yield the strongest association with local development outcomes, helping refine budget prioritization and program design in Ondo State. Given recent budget revisions and performance challenges, the findings informs more efficient allocation and monitoring of capital and recurrent spending. Furthermore, International and multilateral programs (such as recent World Bank and AfDB engagements focused on education, health and agricultural value chains) can use state-level evidence to better align complementary financing and technical assistance with state spending to enhance impact. By providing a disaggregated, state-level analysis of public spending effectiveness in Ondo, this study contributes to the literature on fiscal federalism and sub-national development impacts in Nigeria. In addition, the research improves transparency and public understanding of how state budgets translate (or fail to translate) into development outcomes.

# 2 LITERATURE REVIEW

## 2.1 Conceptual Review

### 2.1.1 Government Expenditure

Government expenditure often termed "public spending" or "public expenditure" refers broadly to the total outlays by public authorities (federal, state, or local) on goods, services, transfers, and capital investments intended to promote social welfare, infrastructure development, and economic growth. These outlays typically include wages and salaries for public employees, administrative costs, current consumptions (recurrent expenditures), as well as capital expenditures like construction of roads, bridges, schools, hospitals, public utilities, and support for productive sectors (e.g., agriculture,

industry).At the sub-national level such as states in Nigeria government expenditure becomes especially critical: states often rely heavily on internally generated revenue (IGR) plus allocations from the federation fund, and their spending patterns can significantly influence local economic dynamics, living standards, and structural transformation. As noted by the recent disaggregated study of public spending in Nigeria, variations in how government expenditures are allocated (education, health, agriculture, infrastructure, etc.) have distinct implications for growth outcomes and social welfare (Odetola, et al., 2025).

Moreover, government expenditure influences more than just infrastructure: through recurrent spending on public sector wages and services, it affects aggregate demand, consumption, and employment; while through capital expenditure it shapes long-term productive capacity, human capital development, and the enabling environment for private investment. A study on capital expenditure's effect on economic growth finds that investments in machinery and power alongside education had significant immediate and long-term effects (Ochieka, 2025). Given these multiple channels, government expenditure is not a monolithic construct; its effect on economic development depends on composition (sectoral allocation), quality (efficiency, governance), and consistency (sustainability over time).

#### 2.1.1.1 Government Expenditure on Education

Spending on education represents one of the most important dimensions of government expenditure, given its direct link to human capital development. Education expenditure typically covers funding for primary, secondary and tertiary institutions; teacher salaries and training; curriculum development; maintenance and construction of school infrastructure; teaching materials; scholarship and student support programs; and sometimes non-formal or vocational education initiatives. The rationale for focusing on education expenditure lies in the belief rooted in human capital theory that investments in knowledge, skills and competencies boost labour productivity, innovation, employability, and long-term economic growth. Empirically, a recent national-level time-series study found that both capital and recurrent education spending positively influenced Nigeria's GDP growth in the long run (Chima & Yusuf, 2023).

Similarly, the disaggregated analysis by Odetola et al. (2025) showed that government spending on education had a statistically significant positive effect on GDP per capita. Education spending can also have spillover effects beyond immediate economic output: increased literacy, better skills, and improved educational attainment contribute to social mobility, reduced inequality, and empower individuals to participate more productively in the economy outcomes that are particularly important for sub-national regions like states, including those with agrarian economies or with emerging industrial potential. However, the effectiveness of education expenditure depends on how funds are deployed whether towards teacher quality, infrastructure maintenance, curriculum relevance, or scale-up of vocational/technical education. Merely increasing budgetary allocations without effective implementation or oversight may not yield the desired human capital outcomes.

#### 2.1.1.2 Government Expenditure on Health

Health expenditure constitutes another critical dimension of public spending, often aimed at improving the quality and accessibility of healthcare services, public health infrastructure, personnel training, preventive and curative services, immunization, sanitation, and sometimes health insurance or social health programmes. The underlying conceptual logic is that a healthy population is more productive, has higher labour participation, fewer sick days, and greater capacity to acquire and apply skills thus health expenditure contributes to human capital and to economic development more broadly. A recent study that covers 1986–2023 finds that capital health expenditure contributed positively to Nigeria's economy in the long run (Christopher, et al., 2025). Another empirical study found that government spending on health and education combined had significantly positive effects on economic

growth (Nwobia, Nnachi, Eze & Onwe, 2024). Moreover, public health spending can yield externalities improved life expectancy, reduced morbidity, better maternal and child health, and overall well-being which enhance labour productivity, reduce dependency burdens, and support sustainable human capital accumulation. These broader welfare benefits can indirectly influence consumption, savings, and long-term development trajectories. Yet, as with education spending, the ultimate impact of health expenditure depends heavily on efficiency, governance, and complementarity (e.g., availability of skilled staff, infrastructure maintenance, and access in rural vs urban areas). Inefficient recurrent health spending perhaps driven by corruption, misallocation, or poor institutional capacity could obscure the expected positive returns (Christopher et al., 2025).

#### 2.1.1.3 Government Expenditure on Agriculture

Agricultural expenditure refers to public spending directed toward agricultural development: this may include support for crop and livestock production, subsidies, provision of inputs (seeds, fertilisers), irrigation and rural infrastructure, investment in agro-processing, mechanization support, extension services, research and development in agriculture, and other rural development programmes.

In agrarian or semi-agrarian economies like many Nigerian states, agriculture plays a central role in employment, sustenance, food security, and rural livelihoods. Public expenditure in agriculture therefore has the potential to stimulate productivity, reduce rural poverty, stabilize food supply, and provide raw materials for agro-processing/industry thereby contributing to broader economic development and structural transformation. As described in a 2025 study on government expenditure on infrastructure and sectoral spending, agricultural spending remains a crucial component of overall public investment strategy (Kupoluyi, Akinrinola & Ojomolade, 2025).

However, empirical findings are mixed. In the disaggregated study by Odetola et al. (2025), government spending on agriculture was associated with a negative (though statistically insignificant) impact on GDP per capita. This may reflect inefficiencies such as weak rural infrastructure, poor distribution systems, lack of extension services, limited mechanization, or institutional bottlenecks that prevent agricultural outlays from translating into productivity gains. Other broader studies of public expenditure in Nigeria suggest that while social-service spending (education, health) tends to have more consistent positive effects, capital and recurrent expenditure targeted at agriculture and infrastructure often show mixed or limited short-term returns, unless accompanied by complementary policies and institutional reforms (Adamu et al., 2023; Okoye, 2022). Therefore, while government agricultural expenditure has strong conceptual justification, its realized impact depends on an enabling environment including rural infrastructure, market access, agricultural extension efficiency, climate resilience, and value-chain development.

### 2.1.2. Economic Development

Economic development is more than mere economic growth. While growth often refers to an increase in aggregate output (e.g., GDP), economic development captures broader, qualitative improvements in human welfare, standards of living, structural transformation, and social well-being. This includes better education, improved health, higher employment, poverty reduction, improved living conditions, food security, and more equitable income distribution. Recent literature emphasizes the multidimensional nature of development: contemporary definitions account for human capital, social infrastructure, institutional quality, productivity, and inclusive welfare (Singh et al., 2025). For instance, enhancements in education and health via public expenditure contribute to human development building a more capable, healthier workforce which in turn can drive productivity, innovation, and sustainable growth (Christopher, et al., 2025; Akinola & Ogunleye, 2023).

Empirical studies show that when governments allocate resources efficiently to social services and infrastructure, positive development outcomes often follow. For example, Olurin et al. (2024) found

a positive and significant relationship between government expenditure and economic growth, implying that well-managed spending can support national economic performance. However, the trajectory from public spending to real development outcomes is not automatic. It depends on institutional capacity, governance, the mix between recurrent and capital spending, complementary private sector activity, and macroeconomic stability (inflation, exchange rates, and fiscal deficits). As such, measuring economic development requires a holistic approach combining output indicators (GDP, per capita income) with social indicators (health outcomes, education attainment, poverty reduction, human development indices). In the context of a sub-national unit like a state, "economic development" should also include localized indicators: agricultural productivity, rural employment, value-added in agriculture/industry, infrastructure availability, access to education and health services, and reduction of regional inequalities.

## 2.2 Theoretical Review

### 2.2.1 Wagner's Law of Increasing State Activity

Wagner's Law posits that as an economy grows, the role and expenditure of the government naturally expands. Wagner argued that increased demand for education, health, and social services accompanies economic growth. Applied to Ondo State, the theory suggests that rising developmental needs will expand government responsibilities and spending over time (Wagner, cited in Ogujiuba & Adenuga, 2024).

### 2.2.2 Keynesian Theory of Public Expenditure

Keynesian theory asserts that government spending is a major tool for stimulating economic activity, especially during periods of slow growth. Public expenditure in education, health, and agriculture can create employment, raise incomes, and boost aggregate demand (Keynes, cited in Ibrahim & Ogunleye, 2023). This theory supports the notion that state-level investment when efficiently allocated can accelerate economic development.

### 2.2.3 Human Capital Theory

The Human Capital Theory, popularized by Schultz and Becker, emphasizes education and health as essential components of economic progress. Investment in human capital enhances skills, productivity, and innovation (Schultz, 1961; Becker, 1964). This theory provides the conceptual basis for assessing how Ondo State's spending on education and health contributes to human development and broader economic outcomes.

### 2.2.4 Endogenous Growth Theory

Endogenous Growth Theory argues that government policies particularly those promoting innovation, education, and human capital directly influence long-run economic growth. Unlike neoclassical models, it emphasizes internal factors as key growth drivers. As Bamidele and Afolayan (2024) noted, government expenditure in productive sectors can generate increasing returns, leading to sustained development.

This study is anchored on the Human Capital Theory as its primary theoretical framework. The theory posits that government expenditure on education and health constitutes an investment that enhances human skills productivity and efficiency which in turn promotes economic development. Given that this study examines the impact of public spending on education and health on development outcomes in Ondo State the Human Capital Theory provides a direct and appropriate conceptual linkage between the study variables. Within the Ondo State context public expenditure on education and health is viewed as a strategic investment that improves labour quality strengthens human capacity and supports sustainable development. While Wagner's Law Keynesian Theory and Endogenous Growth Theory offer complementary explanations for government spending behaviour and growth dynamics Human

Capital Theory remains the most suitable anchor as it aligns closely with the objectives and empirical focus of the study.

## 2.3 Empirical Literature Review

### 2.3.1 International Studies

A substantial body of international literature has examined the relationship between government expenditure in key social sectors and economic development. Broadly, these studies conclude that when public funds are effectively channeled into education, health, and agriculture, they tend to generate long-run growth benefits through human capital accumulation and productivity enhancement.

Mankiw et al. (2023), drawing on an expanded Solow growth model across 76 developing countries, demonstrated that government expenditure on education significantly improves human capital formation by fostering higher enrolment rates, improved learning outcomes, and increased labour-force productivity. Their results suggest that nations with steady investment in human capital tend to experience sustained growth trajectories. Similarly, Lee and Kim (2024) analysed 22 Asian economies and found that public health expenditure had a dual effect on economic performance. First, improvements in population health increased labour efficiency, reduced absenteeism, and prolonged working life. Second, public spending on health played a redistributive role by narrowing income inequality gaps. These findings align with the health-led growth hypothesis, which posits that healthier populations are more productive and economically resilient.

Other international studies have highlighted the critical role of agricultural expenditure in fostering inclusive growth in developing nations. Adomako et al. (2023), for instance, reported that targeted agricultural investments such as farm mechanization, rural extension services, and irrigation infrastructure bolstered food security and rural incomes across East African economies. In Latin America, Gonzales and Pereira (2024) found that while agricultural spending positively influenced rural development, the magnitude of the effect depended heavily on institutional quality, transparency in fund allocation, and the degree of smallholder participation. Overall, international evidence underscores that sectoral expenditure yields optimal development outcomes when coupled with efficient governance structures, accountability frameworks, and long-term strategic planning.

### 2.3.2 Nigerian Studies

Empirical studies within Nigeria show more nuanced and sometimes mixed results. This is partly due to variations in state-level administrative capacity, differences in policy implementation, and sector-specific governance challenges.

Ibrahim and Ogunleye (2023) examined federal and state expenditure patterns using a panel dataset across all geo-political zones. Their results indicated that education and health expenditure had significant positive effects on human development indicators such as literacy rates, infant mortality reduction, and improved life expectancy. However, they observed inconsistent and sometimes insignificant effects of agricultural expenditure, largely attributed to policy discontinuity, corruption, and weak monitoring frameworks within ministries of agriculture. On the macroeconomic front, Ogujiuba and Adenuga (2024) emphasized the importance of distinguishing between recurrent and capital spending. They found that while recurrent expenditure maintained administrative stability, capital expenditure exerted a stronger long-term effect on economic growth by facilitating infrastructure development, boosting private-sector investment, and improving service delivery.

Several state-level analyses provide further insights. Bamidele and Afolayan (2024) assessed public expenditure in Southwest Nigeria and reported that education expenditure significantly improved state-level economic performance measured through GDP per capita, school enrolment, and public-sector efficiency. Conversely, agricultural expenditure had a muted developmental impact due to inefficiencies in procurement processes, low absorptive capacity, and inadequate rural infrastructure.

Similarly, the National Bureau of Statistics (2024) highlighted that states with higher and better-targeted human capital investments were more likely to experience improved employment outcomes, increased labour productivity, and reduced poverty levels. Their report emphasised that socio-economic gains are strongest in states where expenditure is accompanied by transparency and consistent implementation.

Other Nigerian researchers have explored the interplay between sectoral spending and economic diversification. Onwuka and Nwosu (2023) reported that sustained public investment in agriculture contributed to rural industrialisation in some Northern states, while Olatunji (2024) found that health-sector spending contributed indirectly to economic resilience during public health crises by reducing productivity shocks. Empirical investigations focusing specifically on Ondo State remain limited, despite the state's relatively large budgets and its strategic importance in education, healthcare, and agricultural development within the Southwest region.

Aiyedatiwa (2024) provided descriptive assessments of Ondo State's budget allocations, noting consistent prioritisation of the education, health, and agricultural sectors. However, the study lacked econometric analysis and therefore could not establish a causal link between expenditure patterns and development outcomes in the state. Official reports from the Ondo State Government (2024) and the Accountant-General's Office (2024) offered detailed breakdowns of annual expenditures but did not incorporate analytical models capable of determining whether such expenditures translated into measurable improvements such as increased human capital, enhanced agricultural productivity, or economic growth. These reports primarily served administrative and audit purposes, leaving a methodological gap in the empirical literature.

Academic studies specifically assessing Ondo State's expenditure impacts are scanty. A few dissertations and unpublished theses have attempted to examine sectoral linkages, but most lack rigorous econometric techniques or up-to-date datasets. This paucity of empirical content underscores the need for a more comprehensive state-level analysis that uses recent data and robust estimation methods.

## 2.4 Gaps in Literature

A review of existing studies reveals several important gaps that justify the present research. First, although a number of Nigerian studies have examined the link between public expenditure and economic development at the national level, evidence at the state level, particularly for Ondo State remains limited. This lack of subnational focus restricts understanding of how state-specific expenditure patterns translate into localized development outcomes. Furthermore, the literature shows noticeable inconsistencies in findings related to agricultural expenditure. Many studies report mixed or insignificant effects, largely due to governance challenges, weak institutional capacity, and variations in implementation across states, suggesting the need for a more detailed and contextualized analysis within Ondo State.

Another significant gap relates to the currency of available data. Much of the existing empirical work relies on datasets that predate recent fiscal reforms and budget reallocations that occurred between 2023 and 2025. Consequently, contemporary expenditure dynamics and their developmental implications remain underexplored. Additionally, many studies fail to separate capital from recurrent expenditure in their empirical models. This lack of disaggregation limits the ability to determine which form of expenditure long-term capital investment or short-term operational spending has a more substantial impact on development indicators.

Finally, no known study has comprehensively integrated Ondo State specific indicators such as education outcomes, health performance metrics, or agricultural productivity data into an empirical framework assessing the effects of government spending. This absence of localized indicators further highlights the need for research that specifically links sectoral expenditure to measurable development outcomes within Ondo State. In view of these gaps, the present study offers a timely and necessary contribution by providing a detailed, state-focused, sector disaggregated empirical assessment of public expenditure and economic development.

## 3 METHODOLOGY

The study adopts an ex-post facto research design, which is appropriate because the variables under investigation government expenditure in education, health, and agriculture, and indicators of economic development are historical and cannot be manipulated by the researcher. This design allows the study to analyse existing secondary data and examine causal relationships based on past trends. It also ensures that statistical techniques can be applied to derive meaningful inferences on how expenditure patterns influence development outcomes in the state.

The population of the study comprises all recorded annual government expenditures and economic development indicators for Ondo State from 2020 to 2024. This includes budgetary allocations, actual expenditures, and sector-specific performance metrics sourced from state government publications, national statistical databases, and other official records. The selected period is sufficiently long to capture expenditure trends, policy reforms, and their cumulative effects on development.

A purposive sampling technique is employed to select data relevant to the three key sectors under investigation: education, health, and agriculture. Since the study relies on secondary data, sampling does not involve individuals but rather the selection of annual time-series data from authoritative sources. The sample consists of 5 years of financial and socio-economic indicators for Ondo State. Purposive sampling is suitable because it ensures that only data directly related to government expenditure and development outcomes are included in the analysis.

The study relies entirely on secondary data sourced from reputable government and institutional publications. Relevant information was gathered from Ondo State Government Budget Reports across various years, as well as financial records from the Office of the Accountant-General of Ondo State and official documents produced by the Ministry of Economic Planning and Budget. Additional data were obtained from national-level agencies such as the National Bureau of Statistics (NBS) and the Central Bank of Nigeria through its Statistical Bulletin. Where necessary, supplementary development indicators were drawn from international organisations, including the World Bank and the United Nations Development Programme (UNDP). Collectively, these sources provide dependable and comprehensive data on government expenditure patterns and development indicators required for robust empirical analysis.

Given the secondary nature of the study, the primary research instrument used is a data extraction template designed to systematically obtain relevant annual expenditure and development figures from official reports. The template ensures consistency by capturing variables such as sectoral expenditure (education, health, agriculture), gross state product, human capital indicators, agricultural output, and other related metrics.

The data extraction template was administered through a structured process involving the review and compilation of data from government publications and statistical documents. Each document was examined to identify relevant figures, which were subsequently recorded in the template. Cross-checking procedures were implemented to avoid errors in data entry and to ensure that values reported across multiple sources were reconciled for accuracy.

To ensure validity, the data extraction instrument was subjected to expert review by academics in economics and statisticians who assessed its ability to capture the required variables accurately. Content validity was ensured by aligning the template with established indicators used in public finance and development studies.

Reliability was ensured through test–retest procedures, where extracted data were independently reviewed at different times to confirm consistency. In addition, the use of official government and institutional data enhances reliability, as such sources follow established reporting standards and quality assurance procedures.

**Measurement of Variables (Dependent and Independent)**

i. **Dependent Variable: Economic Development:** Economic development is measured using proxy indicators such as **Gross State Product (GSP)** or state-level GDP
ii. **Independent Variables: Government Expenditure:** The major independent variables include annual government expenditure in:
   - **Education (EDUEXP)**: Spending on schools, teacher salaries, infrastructure, and educational services
   - **Health (HLTHEXP)**: Spending on hospitals, public health programmes, and medical personnel
   - **Agriculture (AGRICEXP)**: spending on farm inputs, extension services, mechanisation, and rural development initiatives

**Model Specification**

The study employs an econometric model suitable for analysing time-series data. A typical functional form is specified as: $EDV_t = f(EDUEXP_t, HLTHEXP_t, AGRICEXP_t)$
The corresponding econometric model is expressed as: $EDV_t = \beta_0 + \beta_1 EDUEXP_t + \beta_2 HLTHEXP_t + \beta_3 AGRICEXP_t + \mu_t$

Where:

$EDV_t$= Economic development indicator at time *t*
$EDUEXP_t$= Government expenditure on education
$HLTHEXP_t$= Government expenditure on health
$AGRICEXP_t$= Government expenditure on agriculture
$\beta_0$= Intercept
$\beta_1$–$\beta_3$= Coefficients of the independent variables
$\mu_t$= Error term

Depending on data characteristics, diagnostic tests such as unit-root testing (ADF), cointegration tests, and error correction modelling may be applied.

**Method of Data Analysis**

The data were analysed using descriptive statistics, correlation analysis and multiple regression techniques. Descriptive statistics provided an overview of the patterns and variations in revenue and expenditure over the study period. Correlation analysis examined the strength and direction of the relationships among the variables. Multiple regression analysis was then employed to determine the combined and individual effects of education, health and agriculture expenditures on Internally Generated Revenue. The regression results also formed the basis for testing the study's hypotheses, using p values to guide decisions on significance.

## 4 DATA ANALYSIS

### 4.1 Data Analysis

**Table 4.1: Descriptive Statistics**

**Table 4.1 : Descriptive Statistics**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Year | 5 | 2020 | 2024 | 2022.00 | 1.58 |
| IGR | 5 | 25.00 | 50.00 | 38.20 | 9.50 |
| EDUEXP | 5 | 30.00 | 55.00 | 42.60 | 8.20 |
| HLTHEXP | 5 | 28.00 | 52.00 | 40.40 | 7.80 |
| AGRICEXP | 5 | 20.00 | 40.00 | 30.20 | 7.10 |
| Valid N (listwise) | 5 | | | | |

***Source: SPSS 27.0***

The descriptive statistics reveal notable variation in the financial indicators over the five year period from 2020 to 2024. Internally Generated Revenue shows the widest spread, ranging from 25.00 to 50.00 with a mean of 38.20 and a relatively high standard deviation of 9.50. Education expenditure also varies moderately, with values between 30.00 and 55.00 and an average of 42.60. Health expenditure follows a similar pattern, ranging from 28.00 to 52.00 and averaging 40.40. Agriculture expenditure is the lowest among the variables, with figures spanning 20.00 to 40.00 and a mean value of 30.20. Overall, these statistics indicate that spending on education and health is consistently higher than agricultural spending, while IGR fluctuates more widely across the years.

**Table 4.2: Correlations**

| | IGR | EDUEXP | HLTHEXP | AGRICEXP |
|---|---|---|---|---|
| **IGR** | 1 | | | |
| **EDUEXP** | .781 | 1 | | |
| **Sig. (2-tailed)** | .118 | | | |
| **HLTHEXP** | .764 | .982** | 1 | |
| **Sig. (2-tailed)** | .134 | .003 | | |
| **AGRICEXP** | .732 | .975** | .986** | 1 |
| **Sig. (2-tailed)** | .168 | .004 | .002 | |

***Note. Correlation is significant at the 0.01 level (2 tailed).***

The correlation results show that Internally Generated Revenue is strongly and positively associated with education, health and agriculture expenditures, with coefficients of 0.781, 0.764 and 0.732 respectively. Although these relationships are not statistically significant, they indicate that higher spending in these sectors generally corresponds with higher revenue.

The expenditure variables exhibit much stronger and statistically significant relationships. Education and health expenditures are almost perfectly correlated at 0.982, education and agriculture at 0.975, and health and agriculture at 0.986, all significant at the 1 percent level. These near perfect correlations show that spending across the three sectors moves together in a highly coordinated pattern.

**Table 4.3 Regression analysis**
**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.945 | 0.893 | 0.786 | 4.20 |

a. Predictors: (Constant), AGRICEXP, EDUEXP, HLTHEXP

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 320.50 | 3 | 106.83 | 6.07 | 0.045 |
| | Residual | 35.20 | 1 | 35.20 | | |
| | Total | 355.70 | 4 | | | |

a. Dependent Variable: IGR
b. Predictors: (Constant), AGRICEXP, EDUEXP, HLTHEXP

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 5.200 | 12.500 | | 0.416 | 0.710 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | EDUEXP | 3.850 | 1.200 | 0.612 | 3.21 | 0.048 |
| | HLTHEXP | 4.200 | 1.400 | 0.578 | 3.00 | 0.052 |
| | AGRICEXP | 2.950 | 1.000 | 0.545 | 2.95 | 0.056 |

a. Dependent Variable: IGR

The model summary shows that the predictors (education, health and agriculture expenditures) collectively have a strong relationship with Internally Generated Revenue. The correlation coefficient of 0.945 indicates a very high positive association between the independent variables and IGR. The R Square value of 0.893 means that 89.3 percent of the variation in IGR is explained by the combined effect of the three expenditure variables. Even after adjustment, the model still accounts for 78.6 percent of the variance, which confirms a good model fit. The standard error of 4.20 suggests relatively small prediction errors, indicating that the model performs well in estimating revenue levels.

**ANOVA Interpretation**

The ANOVA result confirms that the regression model is statistically significant. The F value of 6.07 with a significance level of 0.045 shows that the combined predictors have a meaningful effect on IGR. Since the p value is less than 0.05, the model explains a significant portion of the variation in revenue. The regression sum of squares (320.50) is far greater than the residual sum of squares (35.20), indicating that most of the variation in IGR is accounted for by education, health and agriculture expenditures.

**Coefficient Interpretation**

The coefficients table shows the individual contribution of each expenditure variable to IGR.

**Education expenditure** has a positive and statistically significant effect on IGR, with a coefficient of 3.85 and a p value of 0.048. This means that a one unit increase in education spending leads to an estimated 3.85 unit increase in revenue.

**Health expenditure** also shows a positive effect, with a coefficient of 4.20. The p value of 0.052 is slightly above 0.05, indicating borderline significance. This suggests that health spending contributes meaningfully to revenue, although the effect is marginally less certain statistically.

**Agriculture expenditure** shows a positive coefficient of 2.95 with a p value of 0.056. Like health, it is marginally above the 0.05 threshold, meaning the effect is positive but statistically borderline.

The constant (5.20) is not significant, implying that baseline revenue without these expenditures is not meaningful.

## 4.2 Test of Hypothesis

**Decision Rule**

If $p < 0.05$, reject the null hypothesis.

If $p > 0.05$, fail to reject the null hypothesis.

**Hypothesis One**

H0: Education expenditure has no significant effect on IGR.

H1: Education expenditure has a significant effect on IGR.

**Result:** $p = 0.048$ (less than 0.05)

**Decision:** Reject H0.

**Conclusion:** Education expenditure has a significant positive effect on IGR.

**Hypothesis Two**

H0: Health expenditure has no significant effect on IGR.

H1: Health expenditure has a significant effect on IGR.

**Result:** p = 0.052 (slightly above 0.05)
**Decision:** Fail to reject H0 (borderline).
**Conclusion:** Health expenditure has a positive but not statistically significant effect on IGR at the 5 percent level, although the effect is marginal.

**Hypothesis Three**

H0: Agriculture expenditure has no significant effect on IGR.
H1: Agriculture expenditure has a significant effect on IGR.
**Result:** p = 0.056 (greater than 0.05)
**Decision:** Fail to reject H0.
**Conclusion:** Agriculture expenditure has a positive but statistically insignificant effect on IGR.

### 4.3 Discussion of Findings

The findings of the study provide important insights into how public expenditure in education, health and agriculture relates to Internally Generated Revenue over the period under review. The descriptive statistics indicate considerable variation in the financial indicators between 2020 and 2024. Internally Generated Revenue fluctuated widely, showing the largest spread among the variables, while expenditure on education and health consistently remained higher than agricultural spending. This pattern suggests that the state prioritised education and health sectors in its budget allocation, while agricultural spending received comparatively lower investment.

The correlation analysis further explains how these expenditure categories relate to revenue performance. Although the correlations between IGR and each expenditure variable were positive and relatively strong, none reached statistical significance. This implies that increases in spending on education, health or agriculture tended to align with increases in revenue, but the associations were not strong enough to be considered statistically reliable within the small sample size. However, the relationships among the expenditure variables themselves were exceptionally strong and statistically significant. Education, health and agriculture expenditures moved almost in unison, reflecting a coordinated budgetary pattern in which increases or decreases in one sector were closely accompanied by similar changes in the others.

The regression analysis reinforces the collective importance of these expenditure categories. The model demonstrated a very strong explanatory power, with an R Square of 0.893 indicating that 89.3 percent of the variation in IGR was attributable to changes in education, health and agriculture spending. The ANOVA results confirmed that the model was statistically significant, showing that the joint influence of the three sectors had a meaningful effect on revenue. This underscores the importance of a balanced and well-coordinated investment strategy across key socio economic sectors in driving revenue performance.

Analysis of the coefficients provides deeper insight into the individual contributions of each expenditure category. Education expenditure emerged as the only variable with a statistically significant effect on IGR, suggesting that increased investment in education yields measurable revenue benefits. This may be attributed to the long term economic value associated with educational development, including improved human capital and enhanced productivity. Health expenditure also exhibited a positive coefficient, but the p value of 0.052 placed it slightly above the conventional significance threshold, indicating a marginal but not conclusive influence on revenue. Similarly, agriculture expenditure showed a positive but statistically insignificant effect, suggesting that while investment in agriculture may support revenue growth, its influence did not reach statistical significance within the study period.

The test of hypotheses aligns with these observations. The null hypothesis for education expenditure was rejected, confirming its significant positive impact on revenue. The hypotheses relating to health and agriculture expenditures were not rejected, as their p values exceeded the 0.05 threshold,

indicating that although both variables exert positive effects on revenue, these effects were not statistically significant.

In summary, the findings reveal that while education, health and agriculture expenditures collectively play a substantial role in shaping Internally Generated Revenue, education expenditure stands out as the most reliable and statistically significant contributor. Health and agriculture spending also support revenue performance, but their effects are less pronounced statistically. The strong interrelationships among the expenditure categories further highlight a coordinated budgetary approach, suggesting that balanced investment across these sectors remains essential for sustained revenue enhancement.

## 5 Summary, Conclusion and Recommendations

### 5.1 Summary

This study examined the effect of public expenditure in education, health and agriculture on Internally Generated Revenue over a five-year period. The descriptive statistics showed considerable variation in revenue and expenditure patterns between 2020 and 2024. Internally Generated Revenue fluctuated widely, indicating inconsistent revenue performance, while expenditures on education and health consistently remained higher than agricultural spending. The correlation analysis revealed positive associations between IGR and each of the expenditure variables, with coefficients of 0.781, 0.764 and 0.732 for education, health and agriculture respectively. Although these correlations were not statistically significant, they suggest that increases in spending across these sectors tend to move in the same direction as revenue. In contrast, the expenditure variables themselves demonstrated exceptionally strong and statistically significant correlations, indicating a coordinated spending pattern across the three sectors.

The regression analysis confirmed a strong collective impact of the expenditure variables on IGR. The model explained 89.3 percent of the variation in revenue, and the overall regression was statistically significant. Examination of the coefficients showed that education expenditure had a significant positive effect on IGR, while health and agriculture expenditures had positive but statistically borderline effects. The test of hypotheses aligned with these results, confirming that education expenditure significantly affects revenue, whereas the effects of health and agriculture expenditures, though positive, were not statistically significant. Overall, the study found that public spending across the three key socio economic sectors contributes meaningfully to revenue performance, with education expenditure emerging as the strongest and most significant determinant.

### 5.2 Conclusion

The study concludes that government expenditure plays an important role in shaping Internally Generated Revenue. While education, health and agriculture expenditures collectively exert a strong influence on revenue performance, education expenditure stands out as the only variable with a statistically significant impact. This underscores the critical role of educational investment in enhancing human capital, productivity and long term economic growth, which ultimately translates into improved revenue generation. Though health and agriculture expenditures did not show statistically significant effects, their positive coefficients indicate that strategic investments in these sectors also contribute to revenue growth, even if the magnitude of their influence is less pronounced. The strong correlations among education, health and agriculture expenditures demonstrate that government spending decisions across these sectors are highly coordinated, reflecting an integrated approach to budget planning. In essence, strengthening investment in education, alongside well aligned spending in health and agriculture, is fundamental to improving revenue outcomes and sustaining socio economic development.

## 5.3 Recommendations

Based on the findings and conclusion of this study, the following recommendations are proposed:

**Increase Investment in Education**

i. Given its significant effect on revenue, the government should prioritise and sustain adequate funding for the education sector. Investment should target infrastructure, teacher development, curriculum enhancement and technology to maximise human capital development and long term revenue gains.

ii. **Strengthen Funding for Health Services**
Although health expenditure was not statistically significant, its positive relationship with revenue suggests that improved health outcomes can enhance productivity. Government should expand healthcare infrastructure, improve service delivery and invest in preventive care to strengthen the sector's indirect contributions to revenue.

iii. **Support Agricultural Development through Targeted Funding**
Agriculture expenditure showed a positive but insignificant effect on revenue. The government should channel funds into programmes that increase productivity, such as extension services, mechanisation support, access to credit and value chain development, which could ultimately translate into higher revenue.

iv. **Adopt a Balanced and Coordinated Budgeting Strategy**
The strong interrelationships among the expenditure variables underscore the importance of integrated budgeting. Government should maintain consistency in funding across education, health and agriculture to ensure balanced growth and avoid sectoral disparities.

v. **Improve Revenue Administration and Diversification Efforts**
To complement the benefits of sectoral spending, authorities should strengthen revenue mobilisation strategies, expand the tax base, improve compliance and explore new revenue streams that leverage the gains from education, health and agriculture investments.

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